Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 549843.0
Northing (UTM Zone 15): 5695400.2
Elevation (m): 395.7

Log of Test Pit: TP-WSF1-02A

(Hand augering) (Page 1 of 2)

Project No.: 3134
Date: August 11, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug Stick-up of 1.22 m AGS
0.5	0.53		Not available	Peat and organic material.	SS1	NA[1]	NA	NA	NA	NA	Water level at 0.20 m BGS (Sept. 06, 2020)
	0.81			Peat and organic material (50%). Wet, black soil (50%).	SS2	NA	NST[2]	NST	NST	NST	
1.0	1.12			Peat and organic material (20%). Wet, black soil (80%).	SS3	NA	NST	NST	NST	NST	0.05 m Dia. PVC riser from 1.22 m AGS to 2.02 m BGS
	1.39			Wet, black soil.	SS4	NA	NST	NST	NST	NST	
1.5	1.64			Wet, black soil.	SS5	NA	NST	NST	NST	NST	
	2.07			Wet, black soil (80%). Organic material (20%).	SS6	NA	NST	NST	NST	NST	
2.0	2.31			Wet, black soil (90%). Organic material (10%).	SS7	NA	NST	NST	NST	NST	Water level at 2.06 m BGS (Aug. 07, 2020)
				Augering attempted with no recovery.	SS8	NA	NA	NA	NA	NA	0.05 m Dia. PVC screen from 2.02 m to 3.24 m BGS

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 549843.0
Northing (UTM Zone 15): 5695400.2
Elevation (m): 395.7

Log of Test Pit: TP-WSF1-02A

(Hand augering) (Page 2 of 2)

Project No.: 3134
Date: August 11, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
2.5	2.5			Continued from Page 1.							
	2.74		Not available	Augering attempted with no recovery.	SS8	NA[1]	NA	NA	NA	NA	0.05 m Dia. PVC screen from 2.02 m to 3.24 m BGS
3.0	3.12			Wet, black soil (95%). Organic material (5%).	SS9	NA	NST[2]	NST	NST	NST	Hydraulic Conductivity 3.04 E-4 m/s
	3.39			Wet brown soil (20%). Olive gray clay (80%). Hand auger refusal.	SS10	NA	NST	NST	NST	NST	Pointed end-cap at 3.39 m
3.5				End of Test Pit							
4.0											
4.5											

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 549830.5
Northing (UTM Zone 15): 5694927.0
Elevation (m): 402.4

Log of Test Pit: TP-WSF1-03D

Project No.: 3134
Date: July 3, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.18			Root mat.	–	NA[2]	NA	NA	NA	NA	Water level at 0.07 m BGS (Sept. 06, 2020)
	0.30			Wet, dark brown peat.	–	NA	NA	NA	NA	NA	
	0.50			Wet, olive gray silt/clay. Cohesive.	SS1	Pene: 0.25 / 0.28 / 0.28 Shear: 2 / 2.5 / 2.7	NST[3]	NST	NST	NST	Stick-up of 1.90 m AGS
0.5											0.05 m Dia. PVC riser from 1.90 m AGS to 0.40 m AGS
				Moist, light gray silt/clay.	SS2	NA	NST	19.5	Clayey Silt, trace Sand	CL (Lean clay)	0.05 m Dia. PVC screen from 0.40 m AGS to 1.10 m BGS
1.0	1.13										
	1.25			Moist, olive gray silt/clay. Cohesive.	SS3	NA	NST	NST	NST	NST	Pointed end-cap at 1.25 m
			Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 1.25 m. End of Test Pit.							
1.5											
2.0											

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550085.5
Northing (UTM Zone 15): 5694972.1
Elevation (m): 399.0

Log of Test Pit: TP-WSF1-04

Project No.: 3134
Date: July 3, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	**Field Measurement**[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	**Laboratory Analysis** **Proctor Test**	**Moisture Content %**	**Soil Classification (From Laboratory Analysis)** CFEM	USCS	**Well / Standpipe**
0.0	0.0			Ground Surface							Locking J-Plug
	0.40			Moist, dark brown. Root mat and organic material.	–	NA[2]	NA	NA	NA	NA	Water level at 0.08 m BGS (Sept. 06, 2020)
0.5	0.42			Moist brownish olive gray. Silt/Clay.	SS1	NA	NST[3]	NST	NST	NST	Stick-up of 0.95 m AGS 0.05 m Dia. PVC riser from 0.95 m AGS to 0.55 m BGS
1.0				Moist. Greenish gray Clay. Cohesive.	SS2	Pene:1 / 1.5 / 2.5 / 2 Shear: 3 / 3.5 / 3.7	Opt. moisture: 16.9 % Max. dry unit weight: 16.92 kN/m³	24.5	Silt, some Clay	CL-ML (Silty clay)	0.05 m Dia. PVC screen from 0.55 m to 2.05 m BGS
1.5											Hydraulic Conductivity 6.51 E-5 m/s
	1.90										
2.0				Wet, medium to fine sand. Gravels and cobbles.	SS3	NA	NST	NST	NST	NST	
	2.20		Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 2.20 m. End of Test Pit							Pointed end-cap at 2.20 m

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550740.9
Northing (UTM Zone 15): 5694797.9
Elevation (m): 400.3

Log of Test Pit: TP-WSF1-05

Project No.: 3134
Date: August 17, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.26			Root mat and organic material	SS1	NA[2]	NA	NA	NA	NA	Stick-up of 0.92 m AGS
	0.40			Moist, greenish gray/brown clay. Sticky.	SS2	Pene: 0.75 / 1.75 / 2.0 / 1.75 Shear: 2.4 / 0.5 / 2.5 / 2.2	Opt. moisture: 10.3 % Max. dry unit weight: 19.05 kN/m³	15.8	Sandy Silt, some Clay, trace Gravel	CL-ML (Sandy silty clay)	0.05 m Dia. PVC riser from 0.92 m AGS to 0.55 m BGS
0.5	0.85			Dry, greenish gray clay. Not sticky.	SS3	Pene:1.25 / 1.75 / 1.5 / 1.75 Shear: 1.75 / 1.75 / 2.0	NST[3]	NST	NST	NST	Water level at 0.46 m BGS (Sept. 05, 2020)
	0.90		Note: Scale of photo with 10 cm marks.	Wet, brownish gray sand. Assumed bedrock encountered at 0.90 m. End of Test Pit.	SS4	Pene: 0.75 / 0.75 / 0.75 Shear: 0.5 / 0.5 / 0.5	NST	NST	NST	NST	0.05 m Dia. PVC screen from 0.55 m to 0.88 m BGS
1.0											Slip on end-cap at 0.90 m
											Hydraulic Conductivity 2.01 E-5 m/s
1.5											
2.0											

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 551278.5
Northing (UTM Zone 15): 5694859.8
Elevation (m): 400.3

Log of Test Pit: TP-WSF1-06A
(Hand augering)

Project No.: 3134
Date: August 12, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							
	0.14		Not available	Light gray, soft sand. Trace organic material.	SS1	NA[1]	NST[2]	NST	NST	NST	Well not installed
	0.31			Brown/gray sand with coarse gravel. Hand auger refusal.	SS2	NA	NST	NST	NST	NST	
0.5				End of Test Pit							
1.0											
1.5											
2.0											

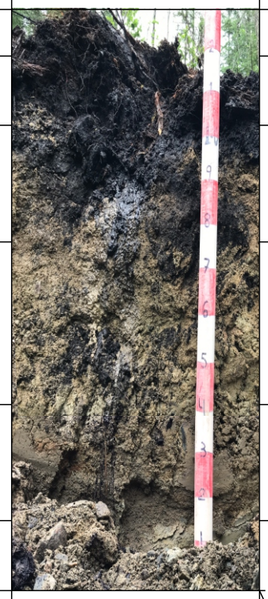
Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547297.0
Northing (UTM Zone 15): 5694422.2
Elevation (m): 414.0

Log of Test Pit: TP-WSF2-09

Project No.: 3134
Date: July 18, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
0.0	0.0			Ground Surface							Water level at 0.00 m BGS (Sept. 07, 2020)
				Root mat.	–	NA[2]	NA	NA	NA	NA	Locking J-Plug
	0.25			Wet, dark brown peat.	–	NA	NA	NA	NA	NA	Stick-up of 1.90 m AGS
0.5	0.50			Wet, olive gray. Medium to fine sand.	SS1	NA	Opt. moisture: 8.3 % Max. dry unit weight: 20.30 kN/m³	16.0	Silty Sand, some Gravel, trace Clay	**SM (Silty sand) (Assumed Classification)**	0.05 m Dia. PVC riser from 1.90 m AGS to 0.40 m AGS
	0.85			Moist, olive gray clay.	SS2	Pene: 5.5 / 4 / 4 Shear: 1.75 / 2 / 1.75	Opt. moisture: 16.9 % Max. dry unit weight: 17.21 kN/m³	26.3	Clayey Silt, some Sand, trace Gravel	CL (Lean clay with sand)	0.05 m Dia. PVC screen from 0.40 m AGS to 1.10 m BGS
1.0	1.10			Moist, light gray, fine sand.	SS3	NA	NST[3]	NST	NST	NST	
	1.25			Wet, light gray clay.	SS4	NA	NST	NST	NST	NST	Water level at 1.15 m BGS (July 18, 2020)
			Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 1.25 m. End of Test Pit							Pointed end-cap at 1.25 m
1.5											
2.0											

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting[1] *(UTM Zone 15):* 547421.9
Northing[1] *(UTM Zone 15):* 5694183.1
Elevation[1] *(m):* 413.2

Log of Test Pit: TP-WSF2-09B

Project No.: 3134
Date: July 18, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
				Moist, dark brown. Root mat and organic material.	–	NA[2]	NA	NA	NA	NA	Water level at 0.13 m BGS (Aug. 03, 2020) Stick-up of 1.45 m AGS 0.05 m Dia. PVC riser from 1.45 m AGS to 0.05 m BGS
0.5											
1.0	1.20			Greenish gray silt and fine sand.	SS1	NA	Opt. moisture: 8.8 % Max. dry unit weight: 19.78 kN/m³	10.5	Silty Sand, trace Gravel, trace Clay	**SM (Silty sand) (Assumed Classification)**	0.05 m Dia. PVC screen from 0.05 m to 1.55 m BGS
	1.45			Brown to greenish gray silt and fine sand.	SS2	NA		11.5	Sand and Silt, trace Gravel, trace Clay	**SM (Silty sand) (Assumed Classification)**	Water level at 1.45 m BGS (June 18, 2020)
1.5	1.70			Assumed bedrock encountered at 1.70 m. End of Test Pit							Pointed End-cap at 1.70 m
2.0			Note: Scale of photo with 10 cm marks.								

Note: 1. From the lidar data provided by First Mining Gold
2. Not Applicable (NA)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547638.9
Northing (UTM Zone 15): 5693384.7
Elevation (m): 410.1

Log of Test Pit: TP-TMF-11C
(Hand augering)

Project No.: 3134
Date: August 11, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							
	0.53		Not available	Brown/black peat and roots (95%). Gray sand (5%).	SS1	NA[1]	NST[2]	NST	NST	NST	Well not installed
0.5	0.74			Light gray sand.	SS2	NA	NST	NST	NST	NST	
	0.89			Wet, light olive gray sand/silt. Hand auger refusal.	SS3	NA	NST	NST	NST	NST	
1.0				End of Test Pit.							
1.5											
2.0											

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 548170.8
Northing (UTM Zone 15): 5693400.9
Elevation (m): 411.2

Log of Test Pit: TP-TMF-13

Project No.: 3134
Date: June 18, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.15			Root mat.	–	NA[2]	NA	NA	NA	NA	Stick-up of 1.05 m AGS
	0.30			Wet, light brown. Fine sand and silt/clay. Gravels and boulders.	SS1	Pene: <0.5 Shear: <1	NST[3]	NST	NST	NST	Water level at 0.23 m BGS (Sept. 07, 2020)
0.5				Wet. Greenish gray. Medium to fine sand.	SS2	NA	Opt. moisture: 8.7 % Max. dry unit weight: 20.32 kN/m³	10.8	Silty Sand, some Gravel, trace Clay	**SM (Silty sand) (Assumed Classification)**	0.05 m Dia. PVC riser from 1.05 m AGS to 0.45 m BGS
	1.00										0.05 m Dia. PVC screen from 0.45 m to 1.95 BGS
1.0	1.05			Wet, greenish gray coarse sand.	SS3	NA	NST	NST	NST	NST	
	1.25			Wet olive gray. 25% sand and fines. Non-cohesive.	SS4	NA	NST	NST	NST	NST	Hydraulic Conductivity 1.02 E-5 m/s
1.5				Wet greenish gray silt/clay. Non-cohesive.	SS5	NA	NST	19.1	Gravelly Silt, some Sand, trace Clay	**ML (Gravelly silt with sand) (Assumed Classification)**	Water level at 1.38 m BGS (June 18, 2020)
2.0	2.10			Assumed bedrock encountered at 2.10 m. End of Test Pit							Pointed end-cap at 2.10 m

Note: Scale of photo with 10 cm marks.

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547537.0
Northing (UTM Zone 15): 5692627.0
Elevation (m): 405.9

Log of Test Pit: TP-TMF-14

(Hand augering) (Page 1 of 2)

Project No.: 3134
Date: August 07, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.52			Peat and organic material.	SS1	NA[1]	NA	NA	NA	NA	Stick-up of 1.68 m AGS
0.5	0.79			Brown peat and organic material (80%). Wet, soil (20%).	SS2	NA	NST[2]	NST	NST	NST	Water level at 0.55 m BGS (Sept. 06, 2020)
	1.05		Not available	Black/brown/dark gray peat (30%). Wet, black soil (70%).	SS3	NA	NST	NST	NST	NST	Water level at 0.91 m BGS (Aug. 07, 2020)
1.0	1.30			Black/brown peat (20%). Wet soil (80%).	SS4	NA	NST	NST	NST	NST	
	1.57			Black/brown peat (10%). Black soil (90%).	SS5	NA	NST	NST	NST	NST	
1.5	1.84			Black/brown peat (10%). Black soil (90%).	SS6	NA	NST	NST	NST	NST	0.05 m Dia. PVC riser from 1.68 m AGS to 3.54 m BGS
	2.06			Large root (20%). Black soil (80%).	SS7	NA	NST	NST	NST	NST	
2.0	2.27			Black/brown peat (20%). Black soil (80%).	SS8	NA	NST	NST	NST	NST	
				Black/brown peat (20%). Brown soil (80%).	SS9	NA	NST	NST	NST	NST	

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547534.3
Northing (UTM Zone 15): 5692622.0
Elevation (m): 405.9

Log of Test Pit: TP-TMF-14

(Hand augering) (Page 2 of 2)

Project No.: 3134
Date: August 07, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement (Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²))	Laboratory Analysis: Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis): CFEM	Soil Classification (From Laboratory Analysis): USCS	Well / Standpipe
2.5	2.5			Continued from Page 1.							
	2.58		Not available	–	SS9	NA[1]	NST[2]	NST	NST	NST	0.05 m Dia. PVC riser from 1.68 m AGS to 3.54 m BGS
3.0	3.07			Brown soil (90%). Sandy clay (10%).	SS10	NA	NST	NST	NST	NST	
	3.36			Brown/gray sandy soil (50%). Greenish gray clay (50%).	SS11	NA	NST	NST	NST	NST	
3.5	3.67			Greenish gray clay (80%). Sandy silt (20%).	SS12	NA	NST	NST	NST	NST	0.05 m Dia. PVC screen from 3.54 m to 4.28 m BGS
4.0	4.06			Augering attempted with no recovery.	SS13	NA	NA	NA	NA	NA	Hydraulic Conductivity 4.19 E-5 m/s
	4.43			Greenish gray clay. Rocks and gravels.	SS14	NA	NST	NST	NST	NST	Pointed end-cap at 4.43 m
4.5				Assumed bedrock encountered at 4.43 m. End of Test Pit							

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting[1] *(UTM Zone 15):* 550669.0
Northing[1] *(UTM Zone 15):* 5695135.3
Elevation[1] *(m):* 404.4

Log of Test Pit: TP-WSF1-22B
(Hand augering)

Project No.: 3134
Date: August 12, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							
	0.15		Not available	Dry, fine sand (95%) and organic material (5%). Coarse gravels and cobbles	SS1	NA[2]	NST[3]	NST	NST	NST	Well not installed
	0.41			Augering attempted with no recovery.	–	NA	NA	NA	NA	NA	
0.5				Augering attempted with no recovery.	–	NA	NA	NA	NA	NA	
1.0	1.30			Hand auger refusal.							
				End of Test Pit							
1.5											
2.0											

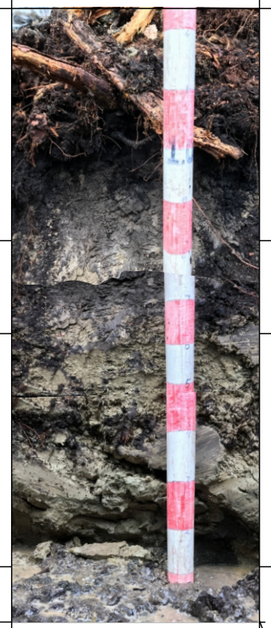
Note: 1. From the lidar data provided by First Mining Gold
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550440.4
Northing (UTM Zone 15): 5694548.0
Elevation (m): 399.9

Log of Test Pit: TP-WSF1-23A

Project No.: 3134
Date: August 17, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
	0.0			Ground Surface							Locking J-Plug
	0.50			Root mat. Wet, dark brown peat and organic material.	SS1	NA[2]	NA	NA	NA	NA	Stick-up of 0.63 m AGS 0.05 m Dia. PVC riser from 0.63 m AGS to 0.87 m BGS Water level at 0.00 m BGS (Sept. 08, 2020)
	0.70			Wet, dark olive gray clay. Sticky.	SS2	Pene: 1.0 / 1.25 / 1.5 / 1.25 Shear:1.0 / 0.75 / 1.0	NST[3]	41.9	Silt, some Clay, trace Sand	ML (Silt)	
	1.20			Dry, greenish gray clay. Sticky.	SS3	Pene: 2.0 / 2.0 / 1.75 Shear: 2.75 / 3.5 / 3.25	NST	NST	NST	NST	0.05 m Dia. PVC screen from 0.87 m to 1.17 m Water level at 1.10 m BGS (Aug. 17, 2020) Pointed end-cap at 1.32 m Hydraulic Conductivity 1.20 E-5 m/s
	1.32			Dry, brown, gray sand and silt. Gravels and cobbles.	SS4	Pene: 0.5 / 0.5 / 0.5 Shear: 0.5 / 0.75 / 0.5	NST	NST	NST	NST	
			Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 1.32 m. End of Test Pit.							

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547406.7
Northing (UTM Zone 15): 5694738.3
Elevation (m): 397.7

Log of Test Pit: TP-WSF2-24A

(Hand augering) (Page 1 of 2)

Project No.: 3134
Date: August 10, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug Stick-up of 0.84 m AGS
0.5	0.63		Not available	Wet, black/brown soil and peat.	SS1	NA[1]	NST[2]	NST	NST	NST	Water levels at 0.28 m BGS (Sept. 07, 2020) at 0.32 m BGS (Aug. 07, 2020)
1.0	1.19			Wet, black/brown soil and peat.	SS2	NA	NST	NST	NST	NST	
1.5	1.82			Wet, black/brown soil and peat.	SS3	NA	NST	NST	NST	NST	0.05 m Dia. PVC riser from 0.84 m AGS to 2.52 m BGS
2.0	2.09			Wet, black/brown soil and peat.	SS4	NA	NST	NST	NST	NST	
	2.40			Augering attempted with no recovery.	SS5	NA	NA	NA	NA	NA	

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 547406.7
Northing (UTM Zone 15): 5694738.3
Elevation (m): 397.7

Log of Test Pit: TP-WSF2-24A

(Hand augering) (Page 2 of 2)

Project No.: 3134
Date: August 10, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
	2.5			Continued from Page 1.							
2.5	2.71		Not available	Augering attempted with no recovery.	SS6	NA[1]	NA	NA	NA	NA	0.05 m Dia. PVC screen from 2.52 m to 4.45 m BGS
	2.96			Augering attempted with no recovery.	SS7	NA	NA	NA	NA	NA	
3.0	3.42			Augering attempted with no recovery.	SS8	NA	NA	NA	NA	NA	
3.5	3.73			Augering attempted with no recovery.	SS9	NA	NA	NA	NA	NA	
	4.11			Augering attempted with no recovery.	SS10	NA	NA	NA	NA	NA	Hydraulic Conductivity 9.88 E-6 m/s
4.0	4.45			Wet, greenish gray clay. High plasticity.	SS11	NA	NST[2]	NST	NST	NST	
4.5	4.71			Wet, brown soil (80%). Greenish gray clay (20%).	SS12	NA	NST	NST	NST	NST	
	4.95			Wet, greenish gray clay. High plasticity. Hand auger refusal.	SS13	NA	NST	NST	NST	NST	Pointed End-cap at 4.95 m
				End of Test Pit							

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 546904.4
Northing (UTM Zone 15): 5694579.8
Elevation (m): 403.1

Log of Test Pit: TP-WSF2-25A

(Hand augering) (Page 1 of 2)

Project No.: 3134
Date: August 08, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							
	0.11		Not available	Peat and roots.	SS1	NA[1]	NA	NA	NA	NA	Locking J-Plug Stick-up of 1.91 m AGS
	0.27			Brown top soil. Peat and organic material.	SS2	NA	NST[2]	NST	NST	NST	Water level at 0.15 m BGS (Sept. 07, 2020)
0.5	0.71			Organic material and wood (50%). Wet, brown soil (50%).	SS3	NA	NST	NST	NST	NST	Water level at 0.65 m BGS (Aug. 07, 2020)
	0.97			Organic material and wood (50%). Wet, brown soil (50%).	SS4	NA	NST	NST	NST	NST	
1.0	1.27			Organic material and wood (50%). Wet, brown soil (50%).	SS5	NA	NST	NST	NST	NST	
1.5	1.75			Wet, black/brown soil (80%). Last 10 cm greenish gray clay (20%).	SS6	NA	NST	NST	NST	NST	0.05 m Dia. PVC riser from 1.91 m AGS to 3.07 m BGS
	2.01			Greenish gray clay.	SS7	NA	NST	NST	NST	NST	
2.0	2.15			Greenish gray clay.	SS8	NA	NST	NST	NST	NST	
	2.27			Greenish gray clay.	SS9	NA	NST	NST	NST	NST	
	2.44			Greenish gray clay.	SS10	NA	NST	NST	NST	NST	

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 546904.4
Northing (UTM Zone 15): 5694579.8
Elevation (m): 403.1

Log of Test Pit: TP-WSF2-25A

(Hand augering) (Page 2 of 2)

Project No.: 3134
Date: August 08, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
2.5	2.5			Continued from Page 1.							
	2.66		Not available	Compact and dry. Greenish gray clay.	SS11	NA[1]	NST[2]	NST	NST	NST	
	2.76			Greenish gray clay.	SS12	NA	NST	NST	NST	NST	
	2.87			Greenish gray clay.	SS13	NA	NST	NST	NST	NST	
3.0	3.20			Greenish gray clay. Grit and gravel.	SS14	NA	NST	NST	NST	NST	0.05 m Dia. PVC riser from 1.91 m AGS to 3.07 m BGS
	3.45			Greenish gray clay. Wet grit, sand and gravel.	SS15	NA	NST	NST	NST	NST	0.05 m Dia. PVC screen from 3.07 m to 4.07 m BGS
3.5	3.71			Greenish gray clay. Wet, brown gritty sand and gravel.	SS16	NA	NST	NST	NST	NST	
	3.99			Wet sand.	SS17	NA	NST	NST	NST	NST	Hydraulic Conductivity 3.27 E-5 m/s
4.0	4.22			Wet, greenish brown sand. Hand auger refusal.	SS18	NA	NST	NST	NST	NST	Pointed end-cap at 4.22 m
4.5				End of Test Pit							

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550486.1
Northing (UTM Zone 15): 5693831.9
Elevation (m): 399.8

Log of Test Pit: TP-PS-28
(Hand augering)

Project No.: 3134
Date: July 21, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug Water level at 0.05 m BGS (Sept. 04, 2020) Stick-up of 0.25 m AGS
0.5	0.57		Not available	Black/brown peat and roots.	SS1	NA[1]	NA	NA	NA	NA	
	0.77			Black/brown peat and wood chips.	SS2	NA	NA	NA	NA	NA	
1.0	1.02			Wet, black/brown peat.	SS3	NA	NA	NA	NA	NA	
	1.30			Wet, black/brown peat.	SS4	NA	NA	NA	NA	NA	0.05 m Dia. PVC riser from 0.25 m AGS to 2.50 m BGS
1.5	1.67			Black/brown peat and wood chips.	SS5	NA	NA	NA	NA	NA	
	1.95			Black/brown peat. 5 cm greenish gray silt/clay at the bottom.	SS6	NA	NST[2]	NST	NST	NST	
2.0	2.25			Greenish gray silt/clay.	SS7	NA	NST	NST	NST	NST	
	2.51			Greenish gray silt/clay.	SS8	NA	NST	NST	NST	NST	0.05 m Dia. PVC screen from 2.50 m to 2.75 m BGS
2.5	2.62			Greenish gray silt/clay.	SS9	NA	NST	NST	NST	NST	
	2.90			Greenish gray silt/clay (90%). Greenish gray fine sand (10%). Hand auger refusal.	SS10	NA	NST	NST	NST	NST	Hydraulic Conductivity 6.62 E-5 m/s Pointed end-cap at 2.90 m
				End of Test Pit							

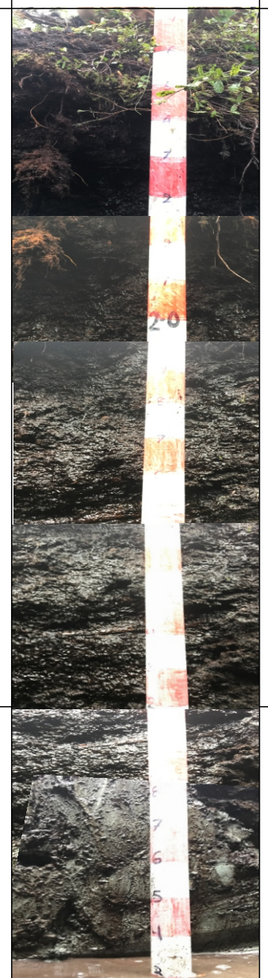
Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550670.2
Northing (UTM Zone 15): 5693930.1
Elevation (m): 400.8

Log of Test Pit: TP-PS-29

Project No.: 3134
Date: August 18, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
				Root mat. Wet, dark brown peat and organic material	SS1	NA[2]	NA	NA	NA	NA	Water level at 0.13 m BGS (Sept. 04, 2020) Stick-up of 0.50 m AGS 0.05 m Dia. PVC riser from 0.50 m AGS to 1.00 m BGS
1.80											0.05 m Dia. PVC screen from 1.00 m to 1.70 m BGS Hydraulic Conductivity 1.04 E-4 m/s
2.0				Dry, greenish gray clay. Sticky.	SS2	Pene: 0.75 / 0.5 / 0.75 Shear: 4.0 / 3.75 / 4.25	Opt. moisture: 17.9 % Max. dry unit weight: 16.88 kN/m³	27.4	Silt and Clay, trace Sand, trace Gravel	CL (Lean clay)	Water level at 2.00 m BGS (Aug. 18, 2020)
2.70											
2.80				Wet, greenish gray sand/silt. Gravels and cobbles.	SS3	Pene: 0.5 / 0.5 / 0.25 Shear: 0.75 / 0.25 / 0.25	NST[3]	NST	NST	NST	Pointed end-cap at 2.80 m
			Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 2.80 m. End of Test Pit							

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting[1] *(UTM Zone 15):* 550832.0
Northing[1] *(UTM Zone 15):* 5693836.0
Elevation[1] *(m):* 401.5

Log of Test Pit: TP-PS-30D
(Hand augering)

Project No.: 3134
Date: August 06, 2020

Depth m	Depth below GS m	Symbol	Photo	Field Description	Sample No.	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							
	0.53		Not available	Peat, roots and organic material.	SS1	NA[2]	NA	NA	NA	NA	No well installed
0.5	0.83			Light brown peat, roots and organic material.	SS2	NA	NA	NA	NA	NA	
	0.95			Brown peat (50%). Black dirt (30%). Light gray clay (20%).	SS3	NA	NST[3]	NST	NST	NST	
1.0	1.04			Brown/black organic material (50%). Wet sand (25%).	SS4	NA	NST	NST	NST	NST	
				Assumed bedrock encountered at 1.04 m. End of Test Pit							
1.5											
2.0											

Note: 1. From the lidar data provided by First Mining Gold
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 550475.8
Northing (UTM Zone 15): 5694188.5
Elevation (m): 405.0

Log of Test Pit: TP-PS-31

Project No.: 3134
Date: July 21, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement[1] Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	Soil Classification (From Laboratory Analysis) USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.15			Root mat.	–	NA[2]	NA	NA	NA	NA	Stick-up of 1.75 m AGS
	0.22			Wet, dark brown peat.	–	NA	NST[3]	NST	NST	NST	
	0.40			Wet, olive gray, fine to medium sand. Cobbles and boulders.	SS1	Pene: 3 / 4 / 1.5 / 2 / 3	NST	27.9	Sandy Silt, some Gravel, some Clay	ML (Sandy silt with gravel)	0.05 m Dia. PVC riser from 1.75 m AGS to 0.25 m AGS
0.5	0.90			Wet, light gray clay. Cohesive.	SS2	Pene: 1.75 / 0.5 / 0.5 Shear: 3.5 / 2 / 2 / 1.75 / 2 / 3.5 / 3 / 4.5 /	Opt. moisture: 15.9 % Max. dry unit weight: 17.50 kN/m³	23.0	Clayey Silt, some Sand	CL (Lean clay)	Water level at 0.65 m BGS (Sept. 04, 2020)
1.0	1.40			Wet, olive gray and dark gray sand. Cobbles and boulders.	SS3	Pene: 0.19 / 0.20 / 0.14	NST	NST	NST	NST	0.05 m Dia. PVC screen from 0.25 m AGS to 1.25 m BGS
1.5			Note: Scale of photo with 10 cm marks.	Assumed bedrock encountered at 1.40 m. End of Test Pit							Water level at 1.25 m BGS (July 21, 2020)
2.0											Pointed end-cap at 1.40 m

Note: 1. The values were provided by in-situ measurements
2. Not Applicable (NA)
3. No Sample Tested (NST)

Project: Geotechnical Investigation
Location: Springpole Lake, ON
Client: First Mining Gold/Gold Canyon Resources

Easting (UTM Zone 15): 549748.3
Northing (UTM Zone 15): 5695043.8
Elevation (m): 400.6

Log of Test Pit: TP-WSF1-32

Project No.: 3134
Date: July 6, 2020

Depth m	*Depth below GS* m	*Symbol*	*Photo*	*Field Description*	*Sample No.*	Field Measurement Pene: Penetrometer (kg/cm²) Shear: Shear vane (kg/cm²)	Laboratory Analysis Proctor Test	Moisture Content %	Soil Classification (From Laboratory Analysis) CFEM	 USCS	Well / Standpipe
0.0	0.0			Ground Surface							Locking J-Plug
	0.15			Root mat.	–	NA[1]	NA	NA	NA	NA	Water levels at 0.14 m BGS (Sept. 06, 2020) at 0.30 m BGS (July 6, 2020)
	0.25			Wet, dark brown peat.	–	NA	NA	NA	NA	NA	
0.5	0.58			Wet, light and dark olive gray clay. Gravels and cobbles. Cohesive.	SS1	NA	NST[2]	NST	NST	NST	
	0.60		Note: Scale of photo with 10 cm marks.	Wet, dark olive gray. Medium to coarse sand. Assumed bedrock encountered at 0.60 m. End of Test Pit	SS2	NA	NST	NST	NST	NST	Stick-up of 1.05 m AGS 0.05 m Dia. PVC screen from 1.05 m AGS to 0.45 m BGS Pointed end-cap at 0.60 m
1.0											
1.5											
2.0											

Note: 1. Not Applicable (NA)
2. No Sample Tested (NST)

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AA	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	19/Feb/2022
Coordinates/System	549892E, 5692507N / WGS84 UTM Zone 15 N	**Total Depth**	30.6 m	**Date Completed**	19/Feb/2022
Core Size	HQ3	**Elevation**	400 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			ICE (0 to 5.79 m) ICE and WATER; Springpole Lake.	0						RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
5	395		**BOULDER** (5.79 to 6.87 m) BOULDER.		SPT-01	105	SPT	1/2/20 +	R	R	
			BEDROCK (6.87 to 30.6 m) BEDROCK; Bluish grey; white veinlets; phenocryst; fine-grained; slightly weathered to fresh; strong	88				90			
				98				90			
10	390			100				90			
				99				90			
				100				90			
15	385			99				90			
				100				90			

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

Knight Piésold CONSULTING

P/A NO.	REF. NO.	REV
VA101-00567/04	1	A

FIGURE B.1

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AA**	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	19/Feb/2022
Coordinates/System	549892E, 5692507N / WGS84 UTM Zone 15 N	**Total Depth**	30.6 m	**Date Completed**	19/Feb/2022
Core Size	HQ3	**Elevation**	400 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (6.87 to 30.6 m) *continued from previous page*	100				90		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
				97				90			
				100				90			
20	380			97				80			
					UCS-01	100	UCS				
				100				90			
				100				90			
25	375			100				90			
				98				90			
				100				80			
30	370			95				90			
			End of Drillhole: 30.6 m Reason for Termination: Target depth achieved								

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

Knight Piésold CONSULTING

P/A NO.	REF. NO.	REV
VA101-00567/04	1	A

FIGURE B.1

Contractor	Rodren	**Drillhole No**	DH22-AC	**Page**	1 of 4
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	11/Feb/2022
Coordinates/System	550039E, 5692409N / WGS84 UTM Zone 15 N	**Total Depth**	202.94 m	**Date Completed**	17/Feb/2022
Hole Size		**Elevation**	407 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) BLOW COUNTS (PER 6")	UCS LAB SPT N' VALUE	KEY ROCK MASS PARAMETERS RQD RMR SPT 'N' VALUES - x	NOTES
0	407		**ICE** (0 to 12.52 m) ICE and WATER; Springpole Lake.	0							
10	400		**GRAVEL** (12.52 to 14.85 m) Gravely, coarse; COBBLES, fine.	0							
			BEDROCK (14.85 to 107 m) BEDROCK; Medium to dark grey; fresh; veins and veinlets; phenocrysts; vuggy; moderately fractured	57				60			
				100				60			
20	390			100				70			
				100				70			
				100				70			
				92				70			
				100				70			
				93				70			
30	380			100	UCS-01	100	UCS	70			
				99				90			
				93				90			
				100				90			
				100				70			
				100				60			
40	370			100				60			
				97				70			
				100				70			
				100				70			
				100	UCS-02	100	UCS	80			
				95				80			
				100				70			
50	360			100				80			
				100				80			
				99				80			
				100				80			
				100				80			
				100				80			
				100				80			

GENERAL REMARKS:

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

Knight Piésold CONSULTING

P/A NO.	REF. NO.	REV
VA101-00567/04	1	A

FIGURE B.2

Contractor	Rodren	**Drillhole No**	DH22-AC	**Page**	2 of 4
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	11/Feb/2022
Coordinates/System	550039E, 5692409N / WGS84 UTM Zone 15 N	**Total Depth**	202.94 m	**Date Completed**	17/Feb/2022
Hole Size		**Elevation**	407 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (14.85 to 107 m) *continued from previous page*	100				80		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
	350			97				80			
				32				80			
60				100				80			
				100				80			
				100				80			
				100				80			
				100				80			
	340			100				80			
				100				80			
70				100				90			
				93				90			
				88				90			
				100				90			
				100				90			
	330			100				90			
				80				90			
80				100				100			
				100				90			
				100				70			
				100				90			
				100				90			
	320			93				90			
				93				90			
90				81				90			
				100				90			
				98				90			
				100				90			
	310			99				90			
				100				90			
100				100				90			
				95				90			
				100				90			
				100				90			
				100				90			
	300		**BEDROCK** (107 to 146 m)	100				80			
			BEDROCK; brownish grey; vesicular; vuggy; dark and light banding;	100				80			
				99				90			

GENERAL REMARKS:

FIRST MINING GOLD CORPORATION
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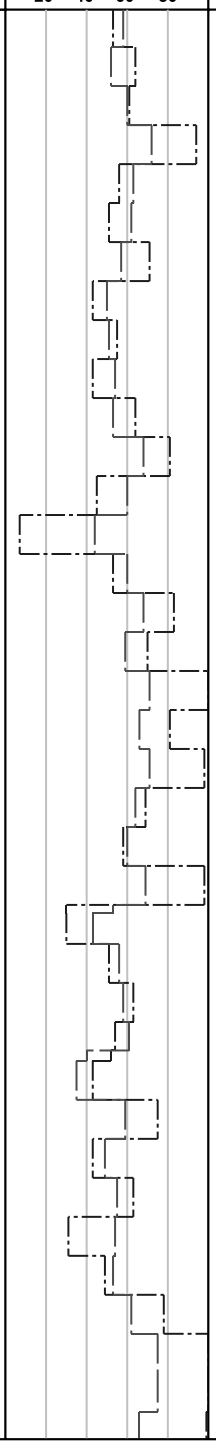
FIGURE B.2

Contractor	Rodren	**Drillhole No**	DH22-AC	**Page**	3 of 4
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	11/Feb/2022
Coordinates/System	550039E, 5692409N / WGS84 UTM Zone 15 N	**Total Depth**	202.94 m	**Date Completed**	17/Feb/2022
Hole Size		**Elevation**	407 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (107 to 146 m) *continued from previous page*	99				90			
				97				90			
				97				90			
				100				90			
	290			100				90			
				100				80			
120				100				80			
				100				80			
				91				80			
				100				80			
				100				80			
	280			100	UCS-03	100	UCS	80			
				90				80			
130				97				80			
				100				80			
				99				80			
				100				80			
				100				80			
	270			99				80			
				100				80			
140				100				80			
				100				80			
				100				80			
			BEDROCK (146 to 161 m) BEDROCK; light green to grey matrix with red blocks; vugging	100				70			
				100				40			
	260			100				40			
				100	UCS-04	100	UCS	40			
150				96				90			
				97				40			
				100				40			
				100				40			
				100				60			
	250			100				60			
				100				60			
				97				50			
160				93				60			
			BEDROCK (161 to 202.94 m) BEDROCK; black to grey rock; silification; calcite infill; veinlets; light banding;	100				75			
				100				80			
				100				80			



GENERAL REMARKS:

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

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P/A NO.	REF. NO.	REV
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FIGURE B.2

Contractor	Rodren	**Drillhole No**	DH22-AC	**Page**	4 of 4
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	11/Feb/2022
Coordinates/System	550039E, 5692409N / WGS84 UTM Zone 15 N	**Total Depth**	202.94 m	**Date Completed**	17/Feb/2022
Hole Size		**Elevation**	407 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
170	240		**BEDROCK** (161 to 202.94 m) *continued from previous page*	100				80		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
				97				60			
				94				60			
				100				60			
				100				60			
				100				60			
				92				60			
				100				60			
	230			99				60			
				100				60			
180				47				60			
				53				40			
				72				60			
				100				60			
				99				60			
	220			100	UCS-05	100	UCS	70			
				93				70			
190				100				70			
				97				70			
				96				70			
				100				70			
				100				70			
	210			97				70			
				100				50			
200				98				70			
				100				70			
			End of Drillhole: 202.94 m Reason for Termination: Hit desired depth in bedrock								
	200										
210											
	190										

GENERAL REMARKS:

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SPRINGPOLE GOLD PROJECT

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FIGURE B.2

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AD	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	10/Feb/2022
Coordinates/System	550105E, 5692448N / WGS84 UTM Zone 15 N	**Total Depth**	33.2 m	**Date Completed**	11/Feb/2022
Hole Size	HQ3	**Elevation**	405 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
5	400		**ICE** (0 to 10.7 m) ICE and WATER; Springpole Lake.	0						RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
10	395		**BOULDERS AND COBBLES** (10.7 to 12.3 m) BOULDER and COBBLES; mix of several different rock types; redrilled core								
15	390		**BEDROCK** (12.3 to 33.2 m) BEDROCK; medium to dark grey; fine-grained; slightly weathered; veins	100				75			
				100	UCS-01	100	UCS	75			
				100				75			
				100				80			

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.3

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AD	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	10/Feb/2022
Coordinates/System	550105E, 5692448N / WGS84 UTM Zone 15 N	**Total Depth**	33.2 m	**Date Completed**	11/Feb/2022
Hole Size	HQ3	**Elevation**	405 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (12.3 to 33.2 m) *continued from previous page*	100				80		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
				100				80			
20	385			100				80			
				97				80			
				100				80			
				97				80			
25	380			99				75			
				97				75			
				100				50			
30	375			100	UCS-02	100	UCS	75			
				100				80			
			End of Drillhole: 33.2 m Reason for Termination: Hit desired depth in bedrock								

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.3

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AE	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	18/Feb/2022
Coordinates/System	550112E, 5692408N / WGS84 UTM Zone 15 N	**Total Depth**	33.3 m	**Date Completed**	18/Feb/2022
Core Size	HQ3	**Elevation**	392 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	390		**ICE** (0 to 8.18 m) ICE and WATER; Springpole Lake.	0						RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
5	385		**GRAVEL** (8.18 to 9.3 m) GRAVEL, fine-grained; and COBBLES; no fines.	0 71							
10	380		**BEDROCK** (9.3 to 33.3 m) BEDROCK; dark grey, light banding, lightly to moderately fractured; fresh; veins	100 100 100 92 100 97				60 60 70 70 80 80			
15											

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.4

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AE	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	18/Feb/2022
Coordinates/System	550112E, 5692408N / WGS84 UTM Zone 15 N	**Total Depth**	33.3 m	**Date Completed**	18/Feb/2022
Core Size	HQ3	**Elevation**	392 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (9.3 to 33.3 m) *continued from previous page*	97				80		RQD, RMR; 20 40 60 80	
				100				80			
20				94				80			
	370			100				80			
				100				80			
25				100				80			
				97				80			
	365			99				80			
				100				80			
30											
	360										
			End of Drillhole: 33.3 m Reason for Termination: Hit desired depth in bedrock								

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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VA101-00567/04	1	A

FIGURE B.4

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AF	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	09/Feb/2022
Coordinates/System	550203E, 5692406N / WGS84 UTM Zone 15 N	**Total Depth**	21.58 m	**Date Completed**	09/Feb/2022
Core Size	HQ3	**Elevation**	394 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
1	393		**ICE** (0 to 7.01 m) ICE and WATER; Springpole Lake.	0						RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
2	392										
3	391										
4	390										
5	389										
6	388										
7	387		**BEDROCK** (7.01 to 21.58 m) BEDROCK; light to medium grey; highly fractured; light banding; veins	60				70			
8	386			100				70			
9	385										
10	384			100	UCS-01	100	UCS	70			
11	383			100				70			
12	382										
13	381			94				90			
14	380			97				90			

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

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FIGURE B.5

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AF**	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	09/Feb/2022
Coordinates/System	550203E, 5692406N / WGS84 UTM Zone 15 N	**Total Depth**	21.58 m	**Date Completed**	09/Feb/2022
Core Size	HQ3	**Elevation**	394 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
16	378		**BEDROCK** (7.01 to 21.58 m) *continued from previous page*	97				90		RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
17	377			100	UCS-02	100	UCS	90			
18	376			100				90			
19	375			100				80			
20	374										
21	373			100				70			
22	372		End of Drillhole: 21.58 m Reason for Termination: Hit desired depth in bedrock								
23	371										
24	370										
25	369										
26	368										
27	367										
28	366										
29	365										

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.5

Last modified date: 2022-07-07 Printed date: 2022-09-07

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AG	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	08/Feb/2022
Coordinates/System	550203E, 5692346N / WGS84 UTM Zone 15 N	**Total Depth**	24.54 m	**Date Completed**	09/Feb/2022
Hole Size	HQ3	**Elevation**	391 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
1	390		**ICE** (0 to 9.62 m) ICE and WATER; Springpole Lake.							RQD, RMR; 20 40 60 80	
2	389										
3	388										
4	387										
5	386			0							
6	385										
7	384										
8	383										
9	382										
10	381		(9.62 to 10.21 m) No recovery	0							
11	380		**BEDROCK** (10.21 to 24.54 m) BEDROCK; dark grey; fine grained; moderately fractured	100				100			
12	379			68				100			
13	378				UCS-01	100	UCS				
14	377			100				100			

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.6

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AG**	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	08/Feb/2022
Coordinates/System	550203E, 5692346N / WGS84 UTM Zone 15 N	**Total Depth**	24.54 m	**Date Completed**	09/Feb/2022
Hole Size	HQ3	**Elevation**	391 m	**Logged By**	AB/KRH
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (10.21 to 24.54 m) *continued from previous page*	100				100		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
16	375			100				100			
17	374										
18	373			85				100			
19	372			97				60			
20	371										
21	370			100				60			
22	369			100				75			
23	368				UCS-02	100	UCS				
24	367			100				75			
25	366		End of Drillhole: 24.54 m Reason for Termination: Hit desired depth in bedrock								
26	365										
27	364										
28	363										
29	362										

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

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FIGURE B.6

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AH	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	20/Feb/2022
Coordinates/System	550901E, 5693293N / WGS84 UTM Zone 15 N	**Total Depth**	27.22 m	**Date Completed**	20/Feb/2022
Core Size	HQ3	**Elevation**	402 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
1	401		**ICE** (0 to 4.72 m) ICE and WATER; Springpole Lake.							RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
2	400			0							
3	399										
4	398										
5	397		**BEDROCK** (4.72 to 27.22 m) BEDROCK; dark grey, fine gained; moderately fractured; veins; fresh; vugs	100				70			
6	396			100				80			
7	395			100				80			
8	394			100				80			
9	393			100	UCS-02	100	UCS	80			
10	392			100				80			
11	391			100				80			
12	390			100				80			
13	389			100				80			
14	388										

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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SPRINGPOLE GOLD PROJECT

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FIGURE B.7

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AH**	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	20/Feb/2022
Coordinates/System	550901E, 5693293N / WGS84 UTM Zone 15 N	**Total Depth**	27.22 m	**Date Completed**	20/Feb/2022
Core Size	HQ3	**Elevation**	402 m	**Logged By**	AB/KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (4.72 to 27.22 m) *continued from previous page*	100				80		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
16	386			100				80			
17	385				UCS-01	100	UCS				
				100				80			
18	384										
19	383			100				80			
20	382										
				100				80			
21	381										
22	380			100				80			
23	379										
				97				80			
24	378										
25	377			99				80			
26	376										
				95				80			
27	375										
			End of Drillhole: 27.22 m Reason for Termination: Hit desired depth in bedrock								
28	374										
29	373										

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

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FIGURE B.7

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AI	**Page**	1 of 3
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	15/Mar/2022
Coordinates/System	550851E, 5693304N / WGS84 UTM Zone 15 N	**Total Depth**	41 m	**Date Completed**	17/Mar/2022
Hole Size	HQ3	**Elevation**	391 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) BLOW COUNTS (PER 6")	UCS LAB SPT N' VALUE	KEY ROCK MASS PARAMETERS — RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	NOTES
1	390		**ICE** (0 to 7.97 m) ICE and WATER; Springpole Lake.								
2	389										
3	388										
4	387			0							
5	386										
6	385										
7	384										
8	383		**CLAY** (7.97 to 13.59 m) CLAY, some silt, trace sand; fine-grained; uniformly graded; medium to high plasticity; grey; moist to wet; soft to slightly stiff	48	SPT-01	48	SPT	0/0/0/0	0	x	
9	382			100	SPT-02	100	SPT	0/0/0/0	0	x	
10	381										
11	380										
12	379										
13	378		**CLAYEY SAND** (13.59 to 14.32 m) Clayey SAND and GRAVEL, some silt; fine-grained; angular; gap graded; medium plasticity; consolidated; grey; wet.	123	SPT-03	122	SPT	0/0/0/0	0	x	
14	377		**GRAVEL** (14.32 to 15.22 m) GRAVEL, some sand, trace silt; mostly coarse-grained; poorly graded; non-plastic; loose; polymictic; wet.	17	SPT-04	17	SPT	0/3/8/6	11	x	
				30	SPT-05	30	SPT	5/5/21/24	26	x	

GENERAL REMARKS:
On ice drilling on Lake Springpole.

FIRST MINING GOLD CORPORATION
SPRINGPOLE GOLD PROJECT

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FIGURE B.8

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AI**	**Page**	2 of 3
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	15/Mar/2022
Coordinates/System	550851E, 5693304N / WGS84 UTM Zone 15 N	**Total Depth**	41 m	**Date Completed**	17/Mar/2022
Hole Size	HQ3	**Elevation**	391 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			GRAVEL (14.32 to 15.22 m) *continued from previous page*	30							
16	375		**SAND** (15.22 to 16.5 m) SAND, some gravel, trace silt; fine to coarse-grained; angular; grey; gap graded; no to low plasticity; wet.	20	SPT-06	20	SPT	10/12/8/8	20	x	
				32	SPT-07	32	SPT	4/6/4/(R)	R	R	
17	374		**BEDROCK** (16.5 to 41 m) BEDROCK; medium to dark grey, fine grained, lightly fractured; veins; fresh	95				70			
18	373			88				70			
19	372			100				70			
				100				70			
20	371			68				70			
21	370			100				70			
22	369			100				70			
23	368			100				80			
24	367										
25	366			100				80			
26	365			100				80			
27	364										
28	363			100				80			
29	362			100				80			

KEY ROCK MASS PARAMETERS: RQD, RMR

SPT 'N' VALUES - x: 20 40 60 80

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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FIGURE B.8

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AI	**Page**	3 of 3
Location	Cofferdam	**Drill Type**	MP Discovery 1.5	**Date Started**	15/Mar/2022
Coordinates/System	550851E, 5693304N / WGS84 UTM Zone 15 N	**Total Depth**	41 m	**Date Completed**	17/Mar/2022
Hole Size	HQ3	**Elevation**	391 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (16.5 to 41 m) *continued from previous page*	100				80		RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
31	360			100				80			
32	359			100				80			
33	358			100				80			
34	357			100				80			
35	356			100				80			
36	355			100				80			
37	354			100				80			
38	353			100				80			
39	352			100				80			
40	351			100				80			
41	350		End of Drillhole: 41 m Reached Target Depth								
42	349										
43	348										
44	347										

GENERAL REMARKS:
On ice drilling on Lake Springpole.

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FIGURE B.8

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-11	**Page**	1 of 1
Location	Cofferdam	**Drill Type**	MP1	**Date Started**	18/Mar/2022
Coordinates/System	550508E, 5693162N / WGS84 UTM Zone 15 N	**Total Depth**	13.55 m	**Date Completed**	18/Mar/2022
Core Size	HQ3	**Elevation**	391 m	**Logged By**	MSA
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x (20 40 60 80)	NOTES
1	390		**ICE** (0 to 7 m) ICE and WATER; Springpole Lake.								
2	389										
3	388			0							
4	387										
5	386										
6	385										
7	384		**ORGANIC SILT/CLAY** (7 to 9.2 m) Organic SILT and CLAY; poorly graded; dark brown; saturated; very soft; spongy; low to no plasticity.	0	SPT-01	0	SPT	0/0/0/0	0		
8	383			60	SPT-02	60	SPT	0/0/0/0	0		
9	382			100	SPT-03	100	SPT	0/0/0/3	0		
10	381		**SANDY GRAVEL** (9.2 to 10.2 m) Sandy GRAVEL, trace clay; some broken bedock; fine to coarse; well graded; grey; non-plastic; wet.	28	SPT-04	28	SPT	3/23/12/14	35	x	
				28	SPT-05	28	SPT	25/(R)	R	R	
11	380		(10.2 to 10.55 m) No Recovery.	0							
			GRAVEL (10.55 to 11.45 m) GRAVEL; some broken bedrock; coarse; grey; non-plastic.	55							
12	379			100				70			
			BEDROCK (11.45 to 13.55 m) BEDROCK; Medium to dark grey; fine-grained; lightly fractured; veins, clay infill								
13	378			90				60			
14	377		End of Drillhole: 13.55 m Reached Target Depth								

GENERAL REMARKS:
On ice drilling on Lake Springpole. Approximately 4 - 5 feet of ice.

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FIGURE B.9

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-10	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP 1.5 Discovery	**Date Started**	07/Mar/2022
Coordinates/System	549897E, 5692046N / WGS84 UTM Zone 15 N	**Total Depth**	97 m	**Date Completed**	07/Mar/2022
Core Size	HQ3	**Elevation**	390 m	**Logged By**	KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x (20 40 60 80)	NOTES
5	385		**ICE** (0 to 19.16 m) ICE and WATER; Springpole Lake.								
10	380										
15	375										
20	370		**CLAY** (19.16 to 22.06 m) CLAY, some silt, trace sand; fine-grained; poorly graded; no to low plasticity; grey; soft; saturated/wet.		SPT-01	26	SPT	0/0/0/0	0	x	
25	365		(22.06 to 27.53 m) CLAY and SAND, some silt, some gravel; fine to coarse-grained; angular; gap graded; medium plasticity; soft to compact; grey; moist to wet.		SPT-02	120	SPT	2/2/9/6	11	x	
30	360		**CLAY** (27.53 to 27.99 m) CLAY, some silt, trace sand; fine-grained; poorly graded; no to low plasticity; grey; soft; saturated/wet.		SPT-03 SPT-04	123 0	SPT SPT	13/13/11/13 9/4/3/6	24 7	x	x
35	355		(27.99 to 28.14 m) CLAY and SAND, some silt, some gravel; fine to coarse-grained; angular; gap graded; medium plasticity; soft to compact; grey; moist to wet.								
40	350		(28.14 to 32 m) No recovery **GRAVEL** (32 to 34.7 m) POLYMICTIC GRAVELS; coarse-grained to cobble-sized.								
45	345		**BEDROCK** (34.7 to 35 m) BEDROCK; Weathered bedrock **BEDROCK** (35 to 97 m) BEDROCK; FMG logged this portion of the hole; KP has not received this log								

GENERAL REMARKS:
On ice drilling on Lake Springpole

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FIGURE B.10

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-10	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP 1.5 Discovery	**Date Started**	07/Mar/2022
Coordinates/System	549897E, 5692046N / WGS84 UTM Zone 15 N	**Total Depth**	97 m	**Date Completed**	07/Mar/2022
Core Size	HQ3	**Elevation**	390 m	**Logged By**	KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS — RQD, RMR / SPT 'N' VALUES - x (20 40 60 80)	NOTES
55	335		**BEDROCK** (35 to 97 m) *continued from previous page*								
60	330										
65	325										
70	320										
75	315										
80	310										
85	305										
90	300										
95	295										
			End of Drillhole: 97 m Reached Target Depth								

GENERAL REMARKS:
On ice drilling on Lake Springpole

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FIGURE B.10

Contractor	Rodren Drilling Ltd.	**Drillhole No**	ARD-P7	**Page**	1 of 2
Location	Cofferdam	**Drill Type**	MP2	**Date Started**	04/Mar/2022
Coordinates/System	549889E, 5693073N / WGS84 UTM Zone 15 N	**Total Depth**	47 m	**Date Completed**	05/Mar/2022
Core Size	HQ3	**Elevation**	394 m	**Logged By**	KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS — RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	FIELD VANE (kPa) — PEAK, RESIDUAL, REMOLDED (0 20 40 60 80 100)	NOTES
0	395		**ICE** (0 to 22.06 m) ICE and WATER; Springpole Lake.									
5	390											
10	385											
15	380											
20	375		**CLAY** (22.06 to 23.56 m) CLAY, some silt, trace sand; fine-grained; poorly graded; low to medium plasticity; soft; grey; wet.									
			(23.56 to 24.15 m) SAND and CLAY, silt, gravel; fine to coarse-grained; gap graded; low plasticity; grey; soft; wet.		SPT-01	115	SPT	0/0/0/1	0	x		
	370		(24.15 to 25.3 m) No recovery		SPT-02	49	SPT	3/4/8/4	12	x	•	

GENERAL REMARKS:
On ice drilling on Lake Springpole

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FIGURE B.11

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**ARD-P7**	**Page**	2 of 2
Location	Cofferdam	**Drill Type**	MP2	**Date Started**	04/Mar/2022
Coordinates/System	549889E, 5693073N / WGS84 UTM Zone 15 N	**Total Depth**	47 m	**Date Completed**	05/Mar/2022
Core Size	HQ3	**Elevation**	394 m	**Logged By**	KRH
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT 'N' VALUE	KEY ROCK MASS PARAMETERS — RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	FIELD VANE (kPa) — PEAK, RESIDUAL, REMOLDED (0 20 40 60 80 100)	NOTES
			(24.15 to 25.3 m) *continued from previous page*									
			(25.3 to 46.75 m) Polymictic gravels									
	365											
30												
	360											
35												
	355											
40												
	350											
45			**BEDROCK** (46.75 to 47 m) BEDROCK; Weathered rock									
			End of Drillhole: 47 m Reached Target Depth									
	345											

GENERAL REMARKS:
On ice drilling on Lake Springpole

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FIGURE B.11

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AK**	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	11/Apr/2022
Coordinates/System	547333E, 5692756N / WGS84 UTM Zone 15 N	**Total Depth**	10 m	**Date Completed**	11/Apr/2022
Core Size	HQ3	**Elevation**	403 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	FIELD VANE (kPa)	NOTES
0	403		**TOP SOIL** (0 to 2.4 m) PEAT; dark brown; firm; fibrous; frozen/wet	0	SPT-01	67	SPT	2/4/1/1	5	x		
1	402			0	SPT-02	33	SPT	1/0/1/1	1	x		
2	401			0	SPT-03	25	SPT	1/0/1/1	1	x		
			SILT (2.4 to 5.3 m) SILT; some clay; low plasticity; grey; soft; massive; moist	0	SPT-04	50	SPT	1/0/1/0	1	x		
3	400			0	FVT-01	0						
					FVT-02	0	ST					
4	399				ST-01	100						
					GB-01	100	GB					
5	398			0	SPT-05	0	SPT	5/(R)	R	R		
			BEDROCK (5.3 to 10 m) BEDROCK; grey; fine grained; foliated; fresh	100				100				
6	397				UCS-01	100	UCS					
7	396			100				140				
8	395											
9	394			100				180				
10	393			100				180				
			End of Drillhole: 10 m Reason for Termination: Target depth achieved									
11	392											
12	391											
13	390											
14	389											

KEY ROCK MASS PARAMETERS: RQD, RMR

SPT 'N' VALUES - x: 20 40 60 80

FIELD VANE (kPa): PEAK, RESIDUAL, REMOLDED; 0 20 40 60 80 100

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.1

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AL	**Page**	1 of 2
Location	WMF	**Drill Type**	Track	**Date Started**	06/Apr/2022
Coordinates/System	548487E, 5692136N / WGS84 UTM Zone 15 N	**Total Depth**	20.15 m	**Date Completed**	07/Apr/2022
Core Size	HQ3	**Elevation**	404 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	404		**PEAT** (0 to 0.05 m) PEAT; dark brown to black; firm; frozen/wet ; fibrous	100	SPT-01	57	SPT	(R)	R	R	
1	403		**BOULDER** (0.05 to 1.3 m) BOULDER	73							
2	402		**SAND** (1.3 to 2.3 m) SAND, fine to coarse; trace gravel, fine to coarse, subrounded to angular; some silt; some clay; well graded; grey to brown; loose; massive; moist	13	SPT-02	42	SPT	7/4/3/4	7	x	
3	401			75	SPT-03	41	SPT	4/(R)	R	R	
4	400		**BEDROCK** (2.3 to 20.15 m) BEDROCK; grey; fine grained; foliated; moderately to slightly weathered discontinuity surfaces; chaotic veinlets	100				60			
5	399				UCS-01	100	UCS	140			
6	398			100				180			
7	397			100				180			
8	396			100				180			
9	395			100				180			
10	394			100				180			
11	393			100				180			
12	392			100				180			
13	391			100				180			
14	390			100				180			

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.2

Last modified date: 2022-07-05 Printed date: 2022-09-07

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AL**	**Page**	2 of 2
Location	WMF	**Drill Type**	Track	**Date Started**	06/Apr/2022
Coordinates/System	548487E, 5692136N / WGS84 UTM Zone 15 N	**Total Depth**	20.15 m	**Date Completed**	07/Apr/2022
Core Size	HQ3	**Elevation**	404 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
16	388		**BEDROCK** (2.3 to 20.15 m) *continued from previous page*	100				180		RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
17	387			100				180			
18	386			100				200			
19	385			100				200			
20	384										
21	383		End of Drillhole: 20.15 m Reason for Termination: Target depth achieved								
22	382										
23	381										
24	380										
25	379										
26	378										
27	377										
28	376										
29	375										

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.2

Last modified date: 2022-07-05 Printed date: 2022-09-07

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AM**	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	04/Apr/2022
Coordinates/System	548034E, 5692166N / WGS84 UTM Zone 15 N	**Total Depth**	12.5 m	**Date Completed**	05/Apr/2022
Core Size	HQ3	**Elevation**	404 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	FIELD VANE (kPa)	NOTES
0			**TOP SOIL** (0 to 5.25 m) PEAT; dark brown to black; firm; frozen; fibrous	0	SPT-01	33	SPT	3/2/0/1	2	x		
1	403			0	SPT-02	50	SPT	2/3/2/4	5	x		
2	402			53	SPT-03	67	SPT	1/7/9/5	16	x		
3	401			0	SPT-04	0	SPT	4/2/1/1	3	x		
					SPT-05	0	SPT	1/1/1/1	2	x		
4	400			1	SPT-06	0	SPT	1/0/0/0	0	x		SPT-06: Rods sunk under weight of hammer and rods
5	399			0	SPT-07	0	SPT	0/0/0/0	0	x		SPT-07: Rods sunk under weight of hammer and rods
6	398		**CLAY** (5.25 to 7.25 m) CLAY; some silt; low plasticity; grey; very soft; moist/wet	0	SPT-08	100	SPT	2/1/0/0	1	x		SPT-08: Rods sunk under weight of hammer and rods
7	397			0								
			BEDROCK (7.25 to 12.5 m) BEDROCK; grey; fine grained; foliated; fresh	89	FVT-01	0					•	
					UCS-01	100	UCS	100			•	
8	396			100				100				
9	395			100				140				
10	394			100				140				
11	393											
12	392											
13	391		End of Drillhole: 12.5 m Reason for Termination: Bedrock confirmed									
14	390											

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.3

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AN**	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	01/Apr/2022
Coordinates/System	549001E, 5692440N / WGS84 UTM Zone 15 N	**Total Depth**	10.35 m	**Date Completed**	01/Apr/2022
Core Size	HQ3	**Elevation**	409 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT 'N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	409		**TOP SOIL** (0 to 0.2 m) Organic CLAY and SILT; low plasticity; dark brown to brown; very soft; fibrous; dry	13	SPT-01	83	SPT	5/10/10/43	20	x	
1	408		**SILT** (0.2 to 0.6 m) SILT; some sand, fine to coarse; trace gravel, angular, fine; no plasticity; greyish brown; stiff; fissured; dry	100	SPT-02	100	SPT	(R)	R	R	
				100				70			
2	407			100				120			
3	406		**GRAVEL** (0.6 to 1 m) GRAVEL, angular to subrounded, fine to coarse; some sand, fine to coarse; trace silt; well graded; greenish grey; very dense; massive; wet	100				140			
4	405		**BEDROCK** (1 to 10.15 m) BEDROCK; greenish grey; fine grained; foliated; moderately weather discontinuity surfaces;	100				140			
5	404				UCS-01	100	UCS				
6	403			100				140			
7	402			100				140			
8	401										
9	400			100				140			
10	399		**BEDROCK** (10.15 to 10.35 m) FAULT; gouge located on top and bottom extents with clay located near the center	100				140			
				100				5			
11	398		End of Drillhole: 10.35 m Reason for Termination: Target depth achieved								
12	397										
13	396										
14	395										

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.4

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AO**	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	31/Mar/2022
Coordinates/System	549132E, 5693037N / WGS84 UTM Zone 15 N	**Total Depth**	10.92 m	**Date Completed**	31/Mar/2022
Hole Size	HQ3	**Elevation**	412 m	**Logged By**	SUS
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT 'N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	412		**TOP SOIL** (0 to 0.1 m) Organic CLAY and SILT; medium plasticity; brown; soft; fibrous; wet	73	SPT-01	75	SPT	11/13/14/38	27	x (20 40 60 80)	
1	411		**SILT** (0.1 to 1.5 m) SILT; some clay; trace sand, fine to coarse; trace gravel, subangular to angular, fine; low plasticity; greyish brown; very stiff; fissured; wet/frozen	7	SPT-02	100	SPT	24/(R)	R	R (RQD / RMR)	
2	410			100				80			
3	409		**BEDROCK** (1.5 to 10.92 m) BEDROCK; greenish grey; fine grained; massive; fresh	100				140			
4	408			100				140			
5	407			100	UCS-01	100	UCS	140			
6	406										
7	405			100				140			
8	404			100				140			
9	403			100				15			
10	402			100				140			
11	401		End of Drillhole: 10.92 m Reason for Termination: Target depth achieved								
12	400										
13	399										
14	398										

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.5

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Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AP**	**Page**	1 of 1
Location	WMF	**Drill Type**	MP1	**Date Started**	24/Mar/2022
Coordinates/System	548717E, 5693306N / WGS84 UTM Zone 15 N	**Total Depth**	9.57 m	**Date Completed**	26/Mar/2022
Hole Size	HQ3	**Elevation**	413 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	FIELD VANE (kPa)	NOTES
0			**SILT** (0 to 0.6 m) SILT, some organics, trace clay; gap graded; low plasticity; stratified; dark brown to brown; frozen and moist.	67	SPT-01	67	SPT	5/3/3/5	6	x		
1	412			50								
			(0.6 to 1.22 m) No Recovery	100	SPT-02	25	SPT	3/(R)	R	R		
2	411		**GRAVEL** (1.22 to 1.37 m) GRAVEL; coarse; well graded; pink and grey; wet; massive.	99				70				
3	410		**BEDROCK** (1.37 to 9.57 m) BEDROCK; medium to dark grey; fine grained; moderately fractured; fresh	100	UCS-01	100	UCS	70				
4	409											
5	408			100				80				
6	407			100				80				
7	406			99				80				
8	405											
9	404											
10	403		End of Drillhole: 9.57 m Reason for Termination: Target depth achieved									
11	402											
12	401											
13	400											
14	399											

KEY ROCK MASS PARAMETERS: RQD, RMR

SPT 'N' VALUES - x: 20 40 60 80

FIELD VANE (kPa): PEAK, RESIDUAL, REMOLDED; 0 20 40 60 80 100

GENERAL REMARKS:
Elevated area; muddy ground, spruce and poplar trees and visible outcrops within 50 m

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FIGURE B1.6

Last modified date: 2022-07-08 Printed date: 2022-09-07

Contractor	Rodren Drilling Ltd.	**Drillhole No**	DH22-AQ	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	27/Mar/2022
Coordinates/System	548909E, 5693419N / WGS84 UTM Zone 15 N	**Total Depth**	11.17 m	**Date Completed**	30/Mar/2022
Core Size	HQ3	**Elevation**	403 m	**Logged By**	SUS
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	403		**TOP SOIL** (0 to 0.8 m) Organic CLAY and SILT; some sand, fine to medium; some silt; gap graded; amorphous; dark brown; frozen; roots	44	GB-01	100	GB			RQD / RMR; SPT 'N' VALUES - x (20 40 60 80)	
					SPT-01	58	SPT	3/1/1/4	2	x	
1	402			90	SPT-02	68	SPT	1/3/(R)	R	R	
			SILT (0.8 to 1.07 m) Gravely, fine to coarse, angular; SILT; some sand, fine to coarse; well graded; non-plastic; saturated; massive	100				90			
2	401				UCS-01	100	UCS				
3	400		**BEDROCK** (1.07 to 11.17 m) BEDROCK; grey; fine grained; massive; fresh; veinlets	100				140			
4	399			100				140			
5	398										
6	397			100				140			
7	396			100				140			
8	395										
9	394			100				140			
10	393			100				140			
11	392										
12	391		End of Drillhole: 11.17 m Reason for Termination: Target depth achieved								
13	390										
14	389										

GENERAL REMARKS:
Flat area, muddy and soft ground; dominated by tall black spruce trees

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FIGURE B1.7

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AR**	**Page**	1 of 2
Location	WMF	**Drill Type**	MP1	**Date Started**	20/Mar/2022
Coordinates/System	547984E, 5694299N / WGS84 UTM Zone 15 N	**Total Depth**	18.62 m	**Date Completed**	22/Mar/2022
Core Size	HQ3	**Elevation**	406 m	**Logged By**	MSA
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0			**ORGANIC SILT/CLAY** (0 to 0.75 m) Organic SILT and CLAY, some gravel, trace peat; fine-grained; gap graded; forzen and moist; very soft; amorphous; stratified; dark brown.	51	SPT-01	51	SPT	0.5/0.5/5/4	5.5	x	
1	405			37	SPT-02	37	SPT	6/2/3/2	5	x	
2	404		**SILT** (0.75 to 1.5 m) SILT, some sand, some gravel; fine to medium; gap graded; brown; stratified; wet; no to low plasticity.	42	SPT-03	42	SPT	4/5/1/2	6	x	
3	403			50	SPT-04	50	SPT	5/8/9/7	17	x	
			SILTY SAND (1.5 to 3.3 m) Silty SAND, some gravel; fine to medium; angular; gap graded; stratified; brown; wet; non-plastic.	50	SPT-05	25	SPT	10/4/(R)	R	R	
4	402			100				60			
			BEDROCK (3.3 to 18.62 m) BEDROCK; medium to dark grey; fine grained; moderately fractured; massive	100				70			
5	401										
6	400			100				70			
7	399			100				70			
8	398										
9	397			100				70			
10	396			100				70			
11	395										
12	394			100				100			
13	393			98				100			
14	392			99				100			

KEY ROCK MASS PARAMETERS: RQD, RMR

SPT 'N' VALUES - x: 20 40 60 80

GENERAL REMARKS:
Flat area; dominated by tall black spruce trees

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FIGURE B1.8

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AR**	**Page**	2 of 2
Location	WMF	**Drill Type**	MP1	**Date Started**	20/Mar/2022
Coordinates/System	547984E, 5694299N / WGS84 UTM Zone 15 N	**Total Depth**	18.62 m	**Date Completed**	22/Mar/2022
Core Size	HQ3	**Elevation**	406 m	**Logged By**	MSA
		Azimuth, Inclination	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
			BEDROCK (3.3 to 18.62 m) *continued from previous page*	99				100		RQD, RMR; SPT 'N' VALUES - x (20 40 60 80)	
16	390			100				100			
17	389			100				80			
18	388			100				80			
19	387		End of Drillhole: 18.62 m Reason for Termination: Target depth achieved								
20	386										
21	385										
22	384										
23	383										
24	382										
25	381										
26	380										
27	379										
28	378										
29	377										

GENERAL REMARKS:
Flat area; dominated by tall black spruce trees

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FIGURE B1.8

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Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AS**	**Page**	1 of 2
Location	WMF	**Drill Type**	MP1	**Date Started**	22/Mar/2022
Coordinates/System	548062E, 5694449N / WGS84 UTM Zone 15 N	**Total Depth**	21.42 m	**Date Completed**	24/Mar/2022
Hole Size	HQ3	**Elevation**	407 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x (20 40 60 80)	NOTES
0			**ORGANIC SILT/CLAY** (0 to 2.85 m) Organic SILT and CLAY; amorphous; dark brown; wet and frozen; poorly graded; amorphous; non-plastic.	53	SPT-01	53	SPT	7/3/0/0	3	x	
1	406			0	SPT-02	0	SPT	0/1/1/1	2	x	
2	405			17	SPT-03	17	SPT	0/0/1/2	0	x	
				58	SPT-04	58	SPT	2/3/2/5	5	x	
3	404		**CLAY** (2.85 to 5 m) CLAY; poorly graded; grey; high plasticity; wet; massive; firm	86	ST-01 SB-01	86 86	ST ST				
4	403			92	SPT-05	92	SPT	1/2/3/3	5	x	
5	402			42	SPT-06	42	SPT	5/6/15/9	21	x	
			GRAVELY SAND (5 to 5.85 m) Gravelly, fine-grained, angular; SAND, fine-grained; well graded; grey; non-plastic; wet; massive.	38	SPT-07	38	SPT	0/10/15/(R)	R	R	
6	401			80	SPT-08	17	SPT	70			
			BEDROCK (5.85 to 21.42 m) BEDROCK; medium to dark grey; lightly fractured; veins; fresh	100				100			
7	400										
8	399			100				100			
9	398										
10	397			98				100			
11	396										
12	395			100				100			
13	394			100				100			
14	393			100				100			

GENERAL REMARKS:
Low area; soft ground with tall trees

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FIGURE B1.9

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AS**	**Page**	2 of 2
Location	WMF	**Drill Type**	MP1	**Date Started**	22/Mar/2022
Coordinates/System	548062E, 5694449N / WGS84 UTM Zone 15 N	**Total Depth**	21.42 m	**Date Completed**	24/Mar/2022
Hole Size	HQ3	**Elevation**	407 m	**Logged By**	MSA
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
16	391		**BEDROCK** (5.85 to 21.42 m) *continued from previous page*	100				100		RQD, RMR; SPT 'N' VALUES - x (20, 40, 60, 80)	
17	390			100				80			
18	389			98				100			
19	388			98				100			
20	387			100				100			
21	386										
22	385		End of Drillhole: 21.42 m Reason for Termination: Target depth achieved								
23	384										
24	383										
25	382										
26	381										
27	380										
28	379										
29	378										

GENERAL REMARKS:
Low area; soft ground with tall trees

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FIGURE B1.9

Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-AX**	**Page**	1 of 1
Location	WMF	**Drill Type**	Track	**Date Started**	12/Apr/2022
Coordinates/System	546800E, 5693717N / WGS84 UTM Zone 15 N	**Total Depth**	10 m	**Date Completed**	12/Apr/2022
Hole Size	HQ3	**Elevation**	415 m	**Logged By**	SUS
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	NOTES
0	415		**PEAT** (0 to 0.8 m) PEAT; dark brown; firm/spongy; wet/frozen ; fibrous	0	SPT-01	38	SPT	1/0/1/3	1		
1	414		**BEDROCK** (0.8 to 10 m) BEDROCK; grey; fine grained; foliated; moderately weathered to fresh		SPT-02		SPT	(R)	R		
2	413			95	UCS-01	100	UCS	100			
3	412			100				140			
4	411			100				140			
5	410			100				180			
6	409										
7	408			100				180			
8	407										
9	406			100				180			
10	405		End of Drillhole: 10 m Reason for Termination: Target depth achieved	100				180			
11	404										
12	403										
13	402										
14	401										

KEY ROCK MASS PARAMETERS: RQD, RMR

SPT 'N' VALUES - x: 20 40 60 80

GENERAL REMARKS:
Flat area; thick forest with tall dark spruce

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FIGURE B1.10

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Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-BB**	**Page**	1 of 2
Location	WMF	**Drill Type**	Track	**Date Started**	02/Apr/2022
Coordinates/System	547694E, 5692269N / WGS84 UTM Zone 15 N	**Total Depth**	15.7 m	**Date Completed**	03/Apr/2022
Hole Size	HQ3	**Elevation**	403 m	**Logged By**	SUS
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x (20 40 60 80)	FIELD VANE (kPa) (0 20 40 60 80 100)	NOTES
0			**TOP SOIL** (0 to 0.75 m) Organic CLAY and SILT; low plasticity; dark brown to brown; firm; fibrous; wet/frozen	67	SPT-01	83	SPT	5/12/5/1	17	x		
1	402			0	SPT-02	17	SPT	1/1/0/1	1	x		
			PEAT (0.75 to 3.4 m) PEAT; black; spongy; wet ; fibrous	0	SPT-03	33	SPT	0/1/0/1	1	x		SPT-03: Rods sunk under weight of hammer and rods
2	401			0	SPT-04	25	SPT	1/0/1/1	1	x		
3	400			0	SPT-05	75	SPT	0/0/0/0	0	x		SPT-05: Rods sunk under weight of hammer and rods
			CLAY (3.4 to 7.9 m) CLAY; trace silt; low plasticity; grey; very soft; massive; moist	0							• •	
4	399										• •	
5	398				ST-01	57	ST					
6	397			88	GB-01	100	GB				• •	
7	396				GB-02	100	GB				• •	
					ST-02	100	ST					
8	395		**SILT** (7.9 to 11 m) SILT; some gravel, subangular to subrounded, fine to coarse; some sand, fine to coarse; some clay; well graded; grey; loose; massive; wet; low plasticity	100	GB-03	100	GB				• •	
9	394			0	SPT-06	33	SPT	6/7/2/3	9	x		
10	393			0	SPT-07	0	SPT	8/2/1/1	3	x		
11	392		**BEDROCK** (11 to 15.7 m) BEDROCK; grey; fine grained; foliated; fresh	100				100				
12	391			100				140				
13	390			100	UCS-01	100	UCS	140				
14	389			100				140				

GENERAL REMARKS:

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FIGURE B1.11

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Contractor	Rodren Drilling Ltd.	**Drillhole No**	**DH22-BB**	**Page**	2 of 2
Location	WMF	**Drill Type**	Track	**Date Started**	02/Apr/2022
Coordinates/System	547694E, 5692269N / WGS84 UTM Zone 15 N	**Total Depth**	15.7 m	**Date Completed**	03/Apr/2022
Hole Size	HQ3	**Elevation**	403 m	**Logged By**	SUS
Core Size	HQ3	**Azimuth, Inclination**	, -90°	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	GRAPHIC LOG	MATERIAL DESCRIPTION	RUN RECOVERY (%)	SAMPLE NO	SAMPLE REC. (%)	SAMPLE TYPE	UCS FIELD (MPa) / BLOW COUNTS (PER 6")	UCS LAB / SPT N' VALUE	KEY ROCK MASS PARAMETERS / SPT 'N' VALUES - x	FIELD VANE (kPa)	NOTES
			BEDROCK (11 to 15.7 m) *continued from previous page*	100				140		RQD, RMR; 20 40 60 80	PEAK, RESIDUAL, REMOLDED; 0 20 40 60 80 100	
16	387		End of Drillhole: 15.7 m Reason for Termination: Bedrock confirmed									
17	386											
18	385											
19	384											
20	383											
21	382											
22	381											
23	380											
24	379											
25	378											
26	377											
27	376											
28	375											
29	374											

GENERAL REMARKS:

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FIGURE B1.11

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AA**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	07/Mar/2022
Coordinates	547341E, 5692721N	**Total Depth**	3.75 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	405 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	404	GB	GB-01		**ORGANIC SILT/CLAY** (0 to 2.2 m) Clayey; Organics silt/clay; well graded, dark brown/rust orange, medium plasticity, amorphous, moist.	
2	403					
3	402	GB	GB-02		**CLAY** (2.2 to 3.75 m) CLAY; poorly graded, high plasticity, light grey, soft, massive, moist.	
4	401				End of Test Pit: 3.75 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Test Pit next to a low land/swamp, lots of tag alders, black spruce and a few small pine trees

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FIGURE B2.1

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AB**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	07/Mar/2022
Coordinates	547681E, 5692641N	**Total Depth**	2.1 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	418 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
0					**PEAT** (0 to 0.15 m) PEAT; some organic silt/clay; well graded, non-plastic, dark brown, spongy, fibrous, frozen, some root inclusions.	
					GRAVELY SAND (0.15 to 1 m) Gravely; SAND, fine to coarse; some cobbles, subangular; well graded, non-plastic, brown, massive, moist.	
1	417					
		GB	GB-01		**SAND** (1 to 2.1 m) SAND, fine; some gravel, fine, subangular; trace cobbles, subangular; well graded, non-plastic, light brown, massive, dry.	
2	416					
					End of Test Pit: 2.1 m Reason for Termination: Bedrock	
3	415					
4	414					

GENERAL REMARKS:
Area dominated by tall black spruce and poplar trees, difficult to dig, Test Pit location changed because of bedrock near surface at proposed location.

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FIGURE B2.2

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AC**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	08/Mar/2022
Coordinates	547678E, 5692274N	**Total Depth**	3.4 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	406 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	405				**PEAT** (0 to 0.15 m) PEAT; some organics; spongy, dark brown, fibrous, roots and moss inclusions. **ORGANIC SILT/CLAY** (0.15 to 1.8 m) Organics silt/clay; poorly graded, plastic, dark brown, sprongy and soft.	
2	404	GB	GB-01		**CLAY** (1.8 to 3.4 m) CLAY; trace gravel, fine to coarse, subangular; poorly to gap graded, high-plasticity, grey, firm, massive, moist and wet (depending on depth of the clay layer).	Groundwater encountered at 1.80 m
3	403					
4	402				End of Test Pit: 3.4 m Reason for Termination: Bedrock	

GENERAL REMARKS:
Low area, lots of black spruce, small pines and some poplar trees

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FIGURE B2.3

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AD**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	09/Mar/2022
Coordinates	548015E, 5692179N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	400 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.9 m) ORGANICS SILT/CLAY; well graded, non-plastic, dark brown, soft, massive, wet.	Groundwater encountered at 0.50 m.
1	399				**CLAY** (0.9 to 3.8 m) (WEST WALL) CLAY; poorly graded, high-plasticity, grey, very soft, massive, wet and moist. **ORGANIC SILT/CLAY** (0.9 to 3.8 m) (EAST WALL) ORGANICS SILT/CLAY; well graded, non-plastic, dark brown, soft, massive, wet.	Sample taken from Clay layer on the West wall of the Test Pit
2	398	GB	GB-01			
3	397					
4	396				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in a low swamp area, tag alders, and black spruce trees on the edge of a swamp.

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FIGURE B2.4

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AE**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	10/Mar/2022
Coordinates	547984E, 5691979N	**Total Depth**	0.95 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	401 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.2 m) ORGANICS SILT/CLAY; some peat; some sand, fine to medium; well graded, non-plastic, brown, massive, frozen.	
		GB	GB-01		**SAND** (0.2 to 0.95 m) SAND, fine to coarse; some gravel, fine to coarse, subangular; some cobbles, subangular; well graded, non-plastic, brown, massive, dry.	
1	400				End of Test Pit: 0.95 m Reason for Termination: Bedrock	
2	399					
3	398					
4	397					

GENERAL REMARKS:
Located in an area of relatively higher elevation with mixed hardwoods.

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FIGURE B2.5

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AF**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	06/Mar/2022
Coordinates	548480E, 5692189N	**Total Depth**	2.5 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	403 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.8 m) ORGANICS SILT/CLAY; gap graded, plastic, black, amorphous, frozen (top 0.40 m) and moist (0.40 m to 0.80 m)	
1	402	GB	GB-01		**CLAYEY SAND** (0.8 to 1.4 m) Clayey; SAND, fine to coarse; some gravel, fine, subangular; some silt; well graded, low-plasticity, brown, massive, wet.	
2	401	GB	GB-02		**CLAY** (1.4 to 2.5 m) CLAY; trace silt; poorly graded, high plasticity, grey, massive, wet.	Groundwater encountered at 2.50 m
3	400				End of Test Pit: 2.5 m Reason for Termination: Bedrock	
4	399					

GENERAL REMARKS:
Test Pit next to a bedrock outcrop, black spurce, tag alders, poplars, labrador tea and in a realatively low area.

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FIGURE B2.6

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AG**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	06/Mar/2022
Coordinates	548569E, 5692382N	**Total Depth**	2.5 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	404 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.1 m) PEAT; some organics silt/clay; well graded, non-plastic, brown, spongy, fibrous, frozen, tree roots inclusions.	
		GB	GB-01		**SILTY SAND** (0.1 to 0.9 m) Silty; SAND, fine to coarse; some gravel, subangular; some clay; well graded, non-plastic, brown, massive, frozen.	
1	403				**GRAVELY SAND** (0.9 to 2.5 m) Gravely; SAND, fine to coarse; some gravel, fine to coarse, subangular; some cobbles, subangular; well graded, non-plastic, brown, moist and wet (near bottom of test pit).	Groundwater encountered at 2.40 m
2	402					
3	401				End of Test Pit: 2.5 m Reason for Termination: Bedrock	
4	400					

GENERAL REMARKS:
Located in a flat area with poplar, jack pines and black spruce trees.

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FIGURE B2.7

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AH**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	05/Mar/2022
Coordinates	548949E, 5692402N	**Total Depth**	3.3 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	408 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.2 m) ORGANICS SILT/CLAY; some peat; well graded, non-plastic, brown, fibrous, massive, frozen.	
1	407	GB	GB-01		**SAND** (0.2 to 3.3 m) SAND; fine to coarse; some gravel, fine to coarse, subangular; well graded, non-plastic, brown, massive, wet.	Groundwater encountered at 2.80 m
2	406					
3	405					
					End of Test Pit: 3.3 m Reason for Termination: Bedrock	
4	404					

GENERAL REMARKS:
Test Pit location moved approximately 30m South West of proposed location because of bedrock at proposed location.

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FIGURE B2.8

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AI**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	05/Mar/2022
Coordinates	549266E, 5692677N	**Total Depth**	1.4 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	402 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.15 m) ORGANICS SILT/CLAY; some peat; well graded, spongy, dark brown, fibrous, frozen, roots inclusions.	
		GB	GB-01		**SILTY SAND** (0.15 to 0.9 m) Sandy; SILT; some cobbles, subangular; some gravel, fine to coarse, subangular to subrounded; well graded, non-plastic, brown, tightly packed, frozen.	
1	401				**GRAVELY SAND** (0.9 to 1.4 m) Gravely; SAND, fine to coarse; some cobbles, subangular; trace silt; well graded, non-plastic, brown, dry.	
					End of Test Pit: 1.4 m Reason for Termination: Bedrock	
2	400					
3	399					
4	398					

GENERAL REMARKS:
Test Pit located near exposed bedrock, with a change in elevation, change in vegetation from open black spruce forest to thick black spurce forest with small jack pines.

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FIGURE B2.9

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AJ**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	05/Mar/2022
Coordinates	549112E, 5692682N	**Total Depth**	0.95 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	407 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.15 m) ORGANICS SILT/CLAY; some peat; amorphous, spongy, dark brown, frozen, root inclusions	
		GB	GB-01		**GRAVELY SAND** (0.15 to 0.95 m) Gravely; SAND, fine to coarse; well graded, non-plastic, brown, dry and frozen (0.15 m to 0.50 m)	
1	406				End of Test Pit: 0.95 m Reason for Termination: Bedrock	
2	405					
3	404					
4	403					

GENERAL REMARKS:
Area with mostly black spruce and small pine trees.

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FIGURE B2.10

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AK**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	15/Mar/2022
Coordinates	548680E, 5692836N	**Total Depth**	3.35 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	398 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	397				**ORGANIC SILT/CLAY** (0 to 1.8 m) Organics Silt/Clay; trace boulders, subrounded; well graded, dark brown, amorphous, massive, frozen and moist.	
2	396	GB	GB-01		**CLAY** (1.8 to 3.35 m) CLAY; some sand, fine; some silt; gap graded; high plasticity, brown and grey, soft, stratified, moist.	Groundwater encountered at 2.75 m
3	395					
4	394				End of Test Pit: 3.35 m Reason for Termination: Bedrock	

GENERAL REMARKS:
Located in a bog/swamp on the edge of a bedrock outcrop that streches approximately 200 m and is to the west of one of the ponds in the WMF area

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FIGURE B2.11

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AL**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	15/Mar/2022
Coordinates	548407E, 5692652N	**Total Depth**	3.85 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	410 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	409				**ORGANIC SILT/CLAY** (0 to 1.5 m) ORGANICS SILT/CLAY; trace peat	
2	408	GB	GB-01		**ORGANIC CLAY** (1.5 to 2.9 m) Organic; CLAY; poorly graded, low to medium plasticity, light brown, very soft, stratified, moist.	
3	407				**CLAYEY SAND** (2.9 to 3.85 m) (WEST WALL) Sandy, fine to medium; CLAY; gap graded, high plasticity, grey, soft. **SAND** (2.9 to 3.85 m) (EAST WALL) SAND, fine to medium; poorly graded, non-plastic, grey, massive, wet.	Groundwater encountered at 3.00 m
4	406				End of Test Pit: 3.85 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in an open area with spruce trees

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FIGURE B2.12

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AM**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	15/Mar/2022
Coordinates	548057E, 5692518N	**Total Depth**	1.95 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	404 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.05 m) Peat; well graded, dark brown, spongy, frozen.	
					SILTY SAND (0.05 to 0.5 m) Silty; SAND, fine; trace gravel, fine, subrounded; well graded, non-plastic, brown, massive, moist.	
1	403				**SAND** (0.5 to 1.95 m) SAND, fine to medium; some silt; some gravel, fine to coarse, subangular; some cobbles, angular, well graded, non-plastic, brown, massive, wet.	
2	402				End of Test Pit: 1.95 m Reason for Termination: Bedrock	
3	401					
4	400					

GENERAL REMARKS:
Located in a flat area with lots of pine trees, some spruce trees

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FIGURE B2.13

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AN**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	07/Mar/2022
Coordinates	547989E, 5692799N	**Total Depth**	1.15 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	417 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.1 m) ORGANICS SILT/CLAY; some peat; well graded, spongy, black and brown, fibrous, frozen.	
1	416	GB	GB-01		**SAND** (0.1 to 1.15 m) SAND; fine to coarse; some gravel, fine to medium, subangular; some cobbles, subangular; trace boulders, angular; well graded, non-plastic, brown, massive, moist.	
2	415				End of Test Pit: 1.15 m Reason for Termination: Bedrock	
3	414					
4	413					

GENERAL REMARKS:
Area dominated by black spruce and small pine trees.

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FIGURE B2.14

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AO**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	07/Mar/2022
Coordinates	548249E, 5692968N	**Total Depth**	0.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	422 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.3 m) ORGANICS SILT/CLAY; some peat; amorphous, spongy, dark brown, wet, roots inclusions.	
		GB	GB-01		**SILTY SAND** (0.3 to 0.6 m) Silty; SAND, fine; poorly graded, non-plastic, brown, massive, moist and frozen (top of layer)	
					BEDROCK (0.6 to 0.8 m) BEDROCK, shale rock; laminated, grey, breaks easily	
1	421				End of Test Pit: 0.8 m Reason for Termination: Bedrock	
2	420					
3	419					
4	418					

GENERAL REMARKS:
Located in an area with black spruce and small pines, bedrock visible from ground surface approximately 40 m North from Test Pit.

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FIGURE B2.15

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AP**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	06/Mar/2022
Coordinates	548535E, 5693149N	**Total Depth**	1.2 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	410 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.1 m) PEAT; well graded, spongy, dark brown, amorphous, frozen, root inclusions	
					ORGANIC SILT/CLAY (0.1 to 0.6 m) ORGANICS SILT/CLAY; some gravel, fine to coarse; well graded, non-plasitc, dark brown, massive, frozen.	
1	409	GB	GB-01		**SILT** (0.6 to 1.2 m) SILT; some sand, fine to medium; trace clay; well graded, low-plasticity, brown, massive, moist.	Groundwater encountered at 1.20 m
2	408				End of Test Pit: 1.2 m Reason for Termination: Bedrock	
3	407					
4	406					

GENERAL REMARKS:
Located in an area with black spruve, poplar, white birch, labrador tea, small jack pines, and tag alders.

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FIGURE B2.16

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AQ**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	04/Mar/2022
Coordinates	549051E, 5693215N	**Total Depth**	0.75 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	402 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.15 m) ORGANICS SILT/CLAY; some peat; well graded, spongy, dark brown, frozen, roots and stick inclusions.	
		GB	GB-01		**SAND** (0.15 to 0.4 m) SAND, fine to coarse; some gravel, fine to coarse, subangular; some silt; trace cobbles, subangular; well graded, non-plastic, brown, moist.	
					CLAYEY SILT (0.4 to 0.55 m) Clayey; SILT; well graded, low-plasticity, light brown, firm to soft massive, moist.	
1	401				**SILTY SAND** (0.55 to 0.75 m) Silty; SAND, fine to coarse; well graded, non-plastic, brown, massive, dry.	
					End of Test Pit: 0.75 m Reason for Termination: BEdrock	
2	400					
3	399					
4	398					

GENERAL REMARKS:
Area dominated by black spruce

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FIGURE B2.17

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AR**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	04/Mar/2022
Coordinates	548662E, 5693441N	**Total Depth**	3.6 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	409 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	408	GB	GB-01		**ORGANIC SILT/CLAY** (0 to 1.9 m) ORGANICS SILT/CLAY; well graded, soft, dark brown, amorphous, moist and wet.	
2	407				**CLAYEY SILT** (1.9 to 2.7 m) Clayey; SILT; some organics silt/clay; poorly graded, medium plasticity, light brown, wet.	Groundwater encountered at 1.90 m
3	406	GB	GB-02		**CLAY** (2.7 to 3.6 m) CLAY; some silt; poorly graded, high plasticity, grey, massive, saturated.	
4	405				End of Test Pit: 3.6 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Excavator could to not dig any further. A bigger excavator would have been better. Located in a low soft area with lots of tag alders within black spruce trees.

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FIGURE B2.18

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AS**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	04/Mar/2022
Coordinates	548666E, 5693773N	**Total Depth**	1 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	407 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.2 m) ORGANICS SILT/CLAY; some peat; well graded, dark brown, amorphous, moist, roots inclusions.	
					ORGANIC SILT/CLAY (0.2 to 0.4 m) ORGANICS SILT/CLAY; poorly graded, black, amorphous, moist.	
		GB	GB-01		**CLAYEY SAND** (0.4 to 1 m) Clayey; SAND; some silt; trace cobbles, subangular; poorly graded, brown, low-plasticity, brown, dry.	
1	406				End of Test Pit: 1 m Reason for Termination: Bedrock	
2	405					
3	404					
4	403					

GENERAL REMARKS:
Area dominated by small jack pine trees and spruce trees.

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FIGURE B2.19

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AT**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	04/Mar/2022
Coordinates	548335E, 5693897N	**Total Depth**	0.75 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	414 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
		GB	GB-01		**ORGANIC SILT/CLAY** (0 to 0.25 m) ORGANICS SILT/CLAY; well graded, dark brown, fibrous, frozen and moist.	
		GB	GB-02		**SILTY SAND** (0.25 to 0.75 m) Silty; SAND; trace clay, trace cobbles; well graded, low-plasticity, brown, moist.	
1	413				End of Test Pit: 0.75 m Reason for Termination: Bedrock	
2	412					
3	411					
4	410					

GENERAL REMARKS:
Hydraulic leak on excavator going into the test pit location.
Excavator was repaired the next day to complete the test pit.

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FIGURE B2.20

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AU**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	03/Mar/2022
Coordinates	548290E, 5694224N	**Total Depth**	0.82 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	420 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.2 m) ORGANICS SILT/CLAY; well graded, dark brown, fibrous, moist and frozen.	
		GB	GB-01		**SILTY SAND** (0.2 to 0.82 m) Silty; SAND; trace cobbles, subangular; well graded, non-plastic, brown, massive, dry.	
1	419				End of Test Pit: 0.82 m Reason for Termination: Bedrock	
2	418					
3	417					
4	416					

GENERAL REMARKS:
Flat area located at the North East side of the WMF at the beginning of the burn area from 2021.

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FIGURE B2.21

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AV**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	12/Mar/2022
Coordinates	548032E, 5694464N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	400 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	399				**ORGANIC SILT/CLAY** (0 to 2 m) ORGANICS SILT/CLAY; trace boulders; well graded, plastic, dark brown, spongy and very soft, wet, root and stick inclusions.	Groundwater encountered at 0.20 m
2	398					
3	397	GB	GB-01		**CLAY** (2 to 3.8 m) CLAY; some silt; some sand, fine; gap graded, medium plasticity, grey, firm, stratified, wet.	
4	396				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in a low thick forested area just East of the burn area.

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FIGURE B2.22

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AW**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	13/Mar/2022
Coordinates	547515E, 5694430N	**Total Depth**	2.6 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	408 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	407				**ORGANIC SILT/CLAY** (0 to 1 m) ORGANICS SILT/CLAY; some peat; well graded, non-plastic, dark brown, soft, amorphous, moist and frozen near the surface.	
2	406	GB	GB-01		**CLAYEY SAND** (1 to 2.6 m) Clayey; SAND, fine; gap graded, non-plastic, grey, firm, massive, moist.	Groundwater encountered at 2.50 m
3	405				End of Test Pit: 2.6 m Reason for Termination: Bedrock	
4	404					

GENERAL REMARKS:
Located in a low area in the middle of 4 small hills in the burn area.

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FIGURE B2.23

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AX**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	13/Mar/2022
Coordinates	547454E, 5694793N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	396 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	395				**ORGANIC SILT/CLAY** (0 to 2 m) Organics Silt/Clay; some peat; well graded, non-plastic, dark brown, very soft, fibrous, saturated.	
2	394				**ORGANIC SILT/CLAY** (2 to 2.8 m) Organics; SAND, fine; well graded, non-plastic, brown, massive, wet.	
3	393				**CLAY** (2.8 to 3.8 m) CLAY; trace silt; trace sand, fine; poorly graded, medium plasticity, grey, very soft, massive, saturated.	
4	392				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in a low area North of a small lake surrounded by pine trees and tag laders, test pit filled with water after 10 min

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FIGURE B2.24

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-AY**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	14/Mar/2022
Coordinates	547100E, 5694685N	**Total Depth**	2.6 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	401 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	400				**ORGANIC SILT/CLAY** (0 to 2.6 m) ORGANICS SILT/CLAY; some peat; trace boulders, subangular; fibrous, dark brown, spongy, wet, wood inclusions.	
2	399					
3	398				End of Test Pit: 2.6 m Reason for Termination: Bedrock	
4	397					

GENERAL REMARKS:
Test Pit location moved due to accessibility issues. Proposed test pit location is on a steep bedrock outcrop on the edge of one the small lakes located within the WMF.

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FIGURE B2.25

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BA**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	14/Mar/2022
Coordinates	546670E, 5694261N	**Total Depth**	2.55 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	397 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	396	GB	GB-01		**ORGANIC SILT/CLAY** (0 to 2.55 m) ORGANICS SILT/CLAY; trace peat; well graded, amorphous, non-plastic, dark brown, moist, woody debris. (Topsoil)	Groundwater encountered at 0.40 m
2	395					
3	394				End of Test Pit: 2.55 m Reason for Termination: Bedrock	
4	393					

GENERAL REMARKS:
Low area with tag alder, birch and pine trees, soft ground.

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FIGURE B2.26

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BB**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	11/Mar/2022
Coordinates	546825E, 5693723N	**Total Depth**	1.65 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	414 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.15 m) PEAT; well graded, spongy, dark brown, frozen, roots and moss inclusions.	
					ORGANIC SILT/CLAY (0.15 to 0.4 m) ORGANICS SILT/CLAY; some sand, fine; well graded, non-plastic, dark brown, soft, amorphous, moist and frozen.	
1	413	GB	GB-01		**SAND** (0.4 to 1.65 m) SAND, fine; some clay; some gravel, fine to coarse, subangular/subrounded; well graded, non-plastic, brown, massive, wet.	
2	412				End of Test Pit: 1.65 m Reason for Termination: Bedrock	
3	411					
4	410					

GENERAL REMARKS:
Low area with cedar trees, pine trees and labrator tea

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FIGURE B2.27

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BC**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	11/Mar/2022
Coordinates	547066E, 5693155N	**Total Depth**	1 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	409 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ICE (0 to 0.1 m) ICE	
		GB	GB-01		**ORGANIC SILT/CLAY** (0.1 to 0.7 m) ORGANICS SILT/CLAY; some sand, fine to coarse; well graded, non-plastic, dark brown, amorphous, spongy, frozen and wet.	Groundwater encountered at 0.30 m
1	408				**SAND** (0.7 to 1 m) SAND, fine to coarse; some silt; some gravel, fine to coarse, angular/subangular; well graded, non-plastic, brown, moist.	
					End of Test Pit: 1 m Reason for Termination: Bedrock	
2	407					
3	406					
4	405					

GENERAL REMARKS:
Cleared area from a previous drillhole last year, lots of black spruce trees.

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FIGURE B2.28

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BD**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	14/Mar/2022
Coordinates	546805E, 5694542N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	402 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	401				**ORGANIC SILT/CLAY** (0 to 2.55 m) ORGANIC SILT/CLAY; trace peat; well graded, dark brown, spongy, soft, amorphous, massive, moist.	
2	400					
3	399	GB	GB-01		**CLAY** (2.55 to 3.8 m) CLAY; some sand, fine; well graded, high plasticity, grey, soft and firm, massive, wet.	
4	398				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in an area with spruce, birch and tag alder trees.

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FIGURE B2.29

Last modified date: 2022-05-06 Printed date: 2022-09-07

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BE**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	14/Mar/2022
Coordinates	546912E, 5694095N	**Total Depth**	0.7 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	410 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.05 m) PEAT; trace organics silt/clay; gap graded, dark brown, fibrous, spongy, frozen, root inclusions.	
		GB	GB-01		**SILTY SAND** (0.05 to 0.7 m) Sandy; SILT; some cobbles, subangular; trace gravel, coarse, subangular to angular; well graded, non-plastic, brown, massive, dry.	
1	409				End of Test Pit: 0.7 m Reason for Termination: Bedrock	
2	408					
3	407					
4	406					

GENERAL REMARKS:
Test pit location moved 20 m because of bedrock at proposed location.
Test pit in an area with brich trees and pine trees.

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FIGURE B2.30

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BF**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	12/Mar/2022
Coordinates	547263E, 5694259N	**Total Depth**	0.15 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	422 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.15 m) PEAT; trace organics silt/clay; well graded, non-plastic, dark brown, fibrous, frozen, root inclusions. End of Test Pit: 0.15 m Reason for Termination: Bedrock	
1	421					
2	420					
3	419					
4	418					

GENERAL REMARKS:
Located in the burn area from 2021, lots of fallen trees and located at a high spot in the WMF area

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FIGURE B2.31

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BG**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	11/Mar/2022
Coordinates	547452E, 5694069N	**Total Depth**	0.6 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	417 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.1 m) PEAT; some organics silt/clay.	
		GB	GB-01		**SAND** (0.1 to 0.6 m) SAND, fine to medium; some gravel, fine to medium, subrounded; trace cobbles, subrounded; trace silt; well graded, non-plastic, brown, massive, moist.	
1	416				End of Test Pit: 0.6 m Reason for Termination: Bedrock	
2	415					
3	414					
4	413					

GENERAL REMARKS:
Located in the burn area from 2021

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FIGURE B2.32

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BH**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	11/Mar/2022
Coordinates	547044E, 5693543N	**Total Depth**	0.85 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	415 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.15 m) PEAT; some organics silt/clay; well graded, non-plastic, dark brown, spongy, fibrous, frozen, roots and moss inclusions.	
		GB	GB-01		**SAND** (0.15 to 0.85 m) SAND, fine to coarse; some gravel, fine to coarse, subangular and subrounded; some cobbles, subangular; trace boulders, subangular to angular; well graded, non-plastic, rust brown, massive, dry.	
1	414				End of Test Pit: 0.85 m Reason for Termination: Bedrock	
2	413					
3	412					
4	411					

GENERAL REMARKS:
Located in a spot of relatively higher elevation.

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FIGURE B2.33

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BI**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	11/Mar/2022
Coordinates	547341E, 5693623N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	412 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	411	GB	GB-01		**ORGANIC SILT/CLAY** (0 to 3.8 m) ORGANICS SILT/CLAY; some peat; poorly graded, brown, non-plastic, very soft, saturated, massive.	Groundwater encountered at 0.30 m
2	410					
3	409					
4	408				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in a bog with spruce trees and in an open area

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FIGURE B2.34

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BJ**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	12/Mar/2022
Coordinates	547858E, 5693918N	**Total Depth**	1.05 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	415 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
1	414	GB	GB-01		**PEAT** (0 to 0.05 m) PEAT; some organic silt/clay; well graded, non-plastic, dark brown, spongy, fibrous, massive, frozen, root inclusions. **GRAVELY SAND** (0.05 to 1.05 m) Gravely, fine to coarse, subrounded; SAND, fine to coarse; trace cobbles, subrounded; well graded, non-plastic, brown, massive, wet.	
2	413				End of Test Pit: 1.05 m Reason for Termination: Bedrock	
3	412					
4	411					

GENERAL REMARKS:
Located in the burn area from 2021

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FIGURE B2.35

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BK**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	10/Mar/2022
Coordinates	547641E, 5693238N	**Total Depth**	3.8 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	410 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.1 m) PEAT; some organics silt/clay; well graded, spongy, dark brown, fibrous, frozen, roots and moss inclusions.	Groundwater encountered at 0.30 m
					ORGANIC SILT/CLAY (0.1 to 3.65 m) ORGANICS SILT/CLAY; some clay; gap graded, very soft, dark brown, spongy, fibrous, organic materials (trees and branches) in soil layer.	
1	409					
		GB	GB-01			
2	408					
3	407				**CLAY** (3.65 to 3.8 m) CLAY; some silt; some organics silt/clay; poorly graded, low-plasticity, very soft, light brown, wet.	
4	406				End of Test Pit: 3.8 m Reason for Termination: Max Reach of Excavator	

GENERAL REMARKS:
Located in a low bog area with lots of moss and short pine trees and labrador tea

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FIGURE B2.36

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BL**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	12/Mar/2022
Coordinates	548244E, 5693571N	**Total Depth**	0.95 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	410 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					ORGANIC SILT/CLAY (0 to 0.2 m) ORGANICS SILT/CLAY; some peat; gap graded, non-plastic, dark brown, spongy, fibrous, frozen.	
		GB	GB-01		**SILTY SAND** (0.2 to 0.95 m) Silty; SAND, fine; some clay; trace gravel, fine to coarse, subrounded; trace cobbles, subrounded; gap graded, low-plasticity, brown, massive, wet.	
1	409				End of Test Pit: 0.95 m Reason for Termination: Bedrock	
2	408					
3	407					
4	406					

GENERAL REMARKS:
Cleared are with tag alders

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FIGURE B2.37

Contractor	Green Acres Contracting	**Test Pit No**	**TP22-BM**	**Page**	1 of 1
Location	WMF	**Equipment Used**	Case CX145D	**Date Completed**	10/Mar/2022
Coordinates	547380E, 5693049N	**Total Depth**	1.3 m	**Logged By**	MSA
Coordinate System	WGS84 UTM Zone 15 N	**Elevation**	404 m	**Reviewed By**	DBR

DEPTH - (M)	ELEVATION - (M)	SAMPLE TYPE	SAMPLE NO	GRAPHIC LOG	MATERIAL DESCRIPTION	NOTES
					PEAT (0 to 0.1 m) PEAT; well graded, dark brown, spongy, amorphous, moss inclusions.	
					ORGANIC SILT/CLAY (0.1 to 0.4 m) ORGANICS SILT/CLAY; some sand; well graded, non-plastic, dark brown, soft, amorphous, moist.	Groundwater encountered at 1.25 m
1	403	GB	GB-01		**SILTY SAND** (0.4 to 1.3 m) Silty; SAND; fine to coarse; some gravel, fine to coarse, subangular; trace clay; well graded, non-plastic, brown, massive, moist.	
2	402				End of Test Pit: 1.3 m Reason for Termination: Bedrock	
3	401					
4	400					

GENERAL REMARKS:
Located in a relatively flat area with small pine trees

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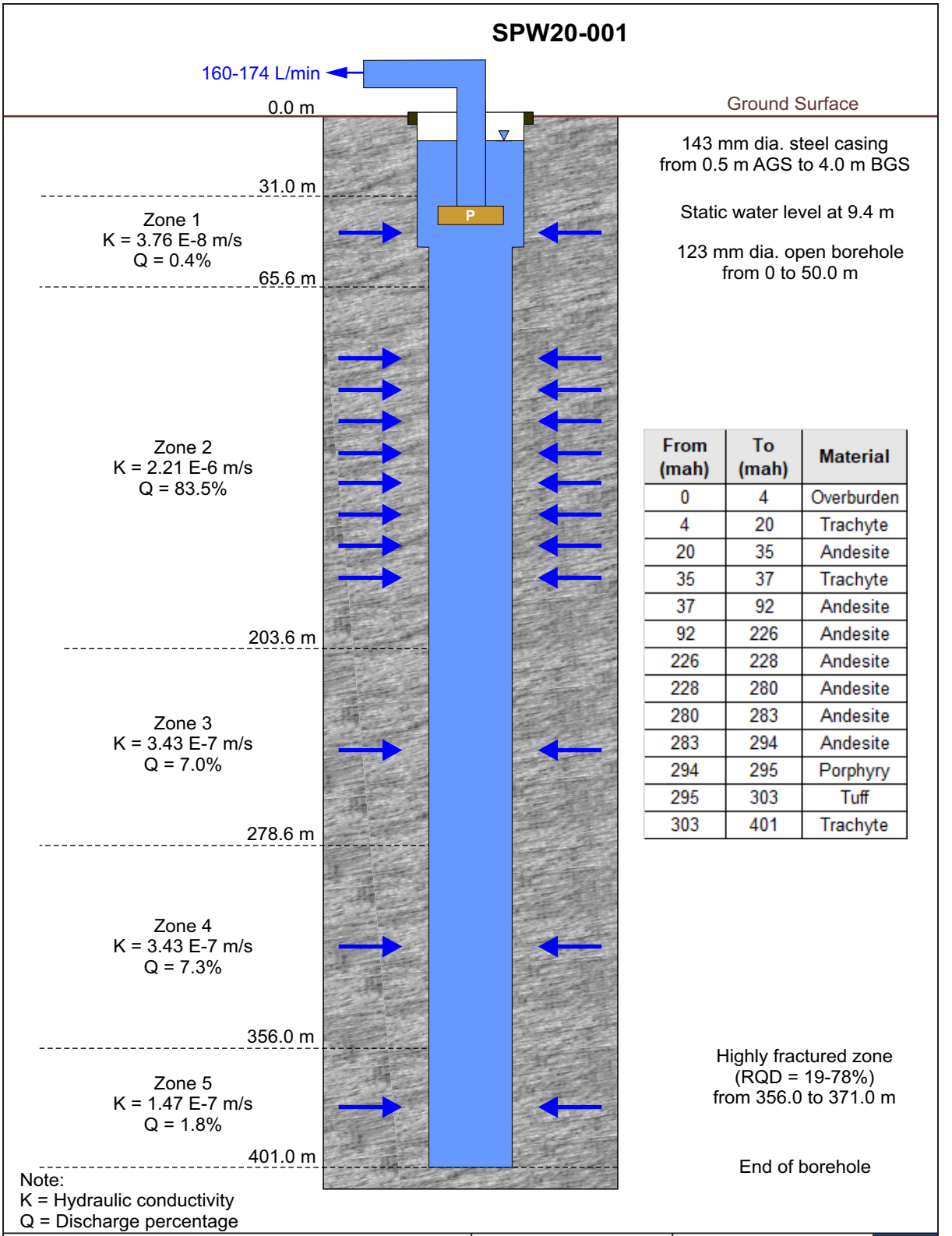
FIGURE B2.38



From (mah)	To (mah)	Material
0	4	Overburden
4	20	Trachyte
20	35	Andesite
35	37	Trachyte
37	92	Andesite
92	226	Andesite
226	228	Andesite
228	280	Andesite
280	283	Andesite
283	294	Andesite
294	295	Porphyry
295	303	Tuff
303	401	Trachyte

Figure 6.1 Schematic of Test Well showing K values and percent flow from different zones.

Project No.	Document Reference
3134	FFC-NL-3134-002
Location	Date
Springpole, ON	February 2021

FFC

srk consulting

FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

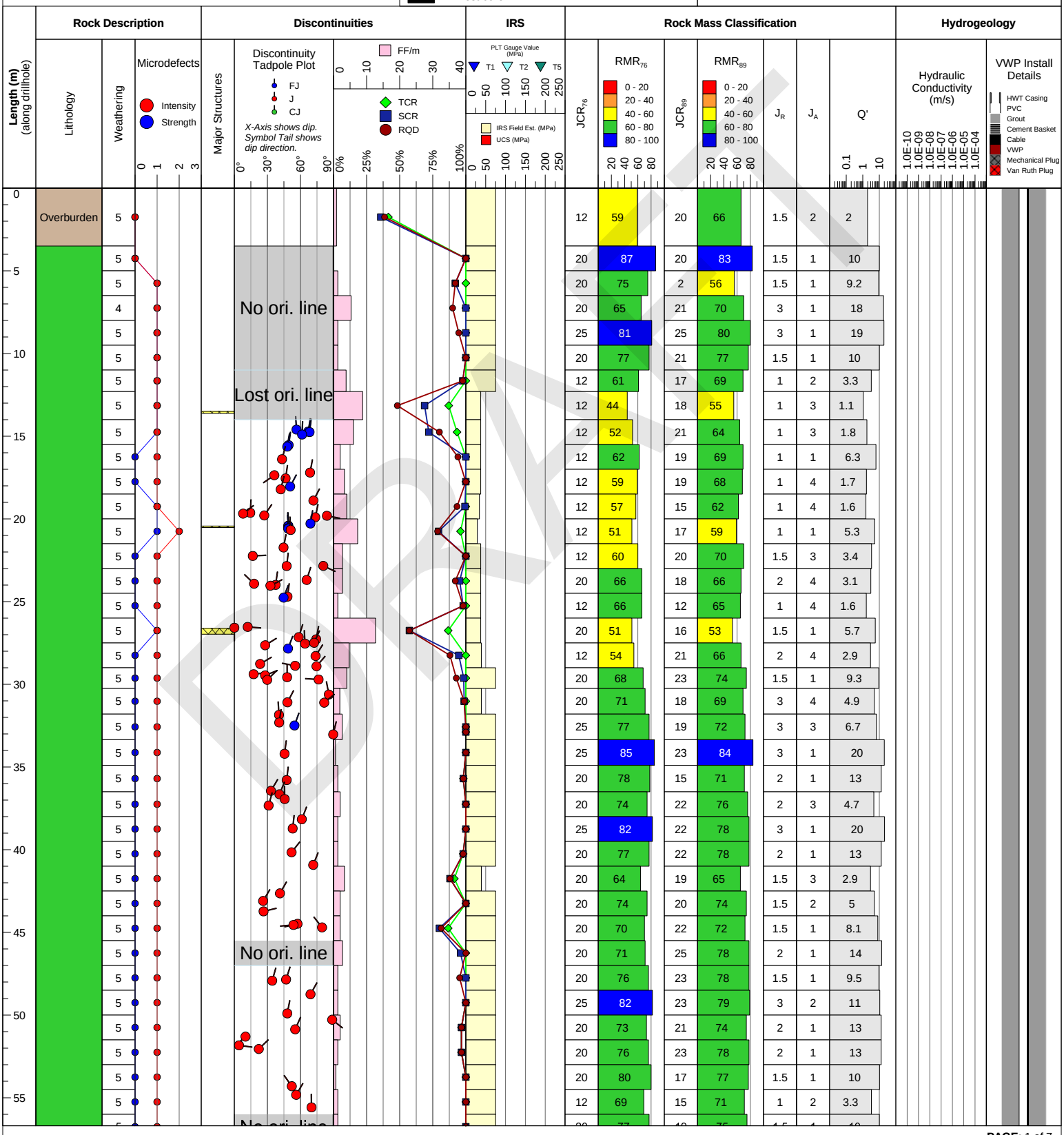
DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: MT/MB/BL

DRILLING DATE: 2/9/2022 **TO:** 2/17/2022
COORDINATES: 549191 m E 5693448 m N
DATUM: UTM WGS84 15N
Elevation (masl): 394
AZIMUTH: 139° **DIP:** 60°
TOTAL LENGTH (m): 349.1
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
UCS: Uniaxial Compressive Strength

MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
L - Lost core.

NOTES:
Lithology is based on loggin my First Mining Gold
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
0	Overburden	5	12	59	20	66	1.5	2	2
5		5	20	87	20	83	1.5	1	10
		5	20	75	2	56	1.5	1	9.2
		4	20	65	21	70	3	1	18
		5	25	81	25	80	3	1	19
10		5	20	77	21	77	1.5	1	10
		5	12	61	17	69	1	2	3.3
		5	12	44	18	55	1	3	1.1
15		5	12	52	21	64	1	3	1.8
		5	12	62	19	69	1	1	6.3
		5	12	59	19	68	1	4	1.7
		5	12	57	15	62	1	4	1.6
20		5	12	51	17	59	1	1	5.3
		5	12	60	20	70	1.5	3	3.4
		5	20	66	18	66	2	4	3.1
		5	12	66	12	65	1	4	1.6
25		5	20	51	16	53	1.5	1	5.7
		5	12	54	21	66	2	4	2.9
		5	20	68	23	74	1.5	1	9.3
		5	20	71	18	69	3	4	4.9
		5	25	77	19	72	3	3	6.7
30		5	25	85	23	84	3	1	20
		5	20	78	15	71	2	1	13
		5	20	74	22	76	2	3	4.7
		5	25	82	22	78	3	1	20
35		5	20	77	22	78	2	1	13
		5	20	64	19	65	1.5	3	2.9
		5	20	74	20	74	1.5	2	5
		5	20	70	22	72	1.5	1	8.1
40		5	20	71	25	78	2	1	14
		5	20	76	23	78	1.5	1	9.5
		5	25	82	23	79	3	2	11
		5	20	73	21	74	2	1	13
45		5	20	76	23	78	2	1	13
		5	20	80	17	77	1.5	1	10
		5	12	69	15	71	1	2	3.3
50		5							
		5							
		5							
		5							
55		5							

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: MT/MB/BL

DRILLING DATE: 2/9/2022 **TO:** 2/17/2022
COORDINATES: 549191 m E 5693448 m N
DATUM: UTM WGS84 15N
Elevation (masl): 394
AZIMUTH: 139° **DIP:** 60°
TOTAL LENGTH (m): 349.1
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
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MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
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NOTES:
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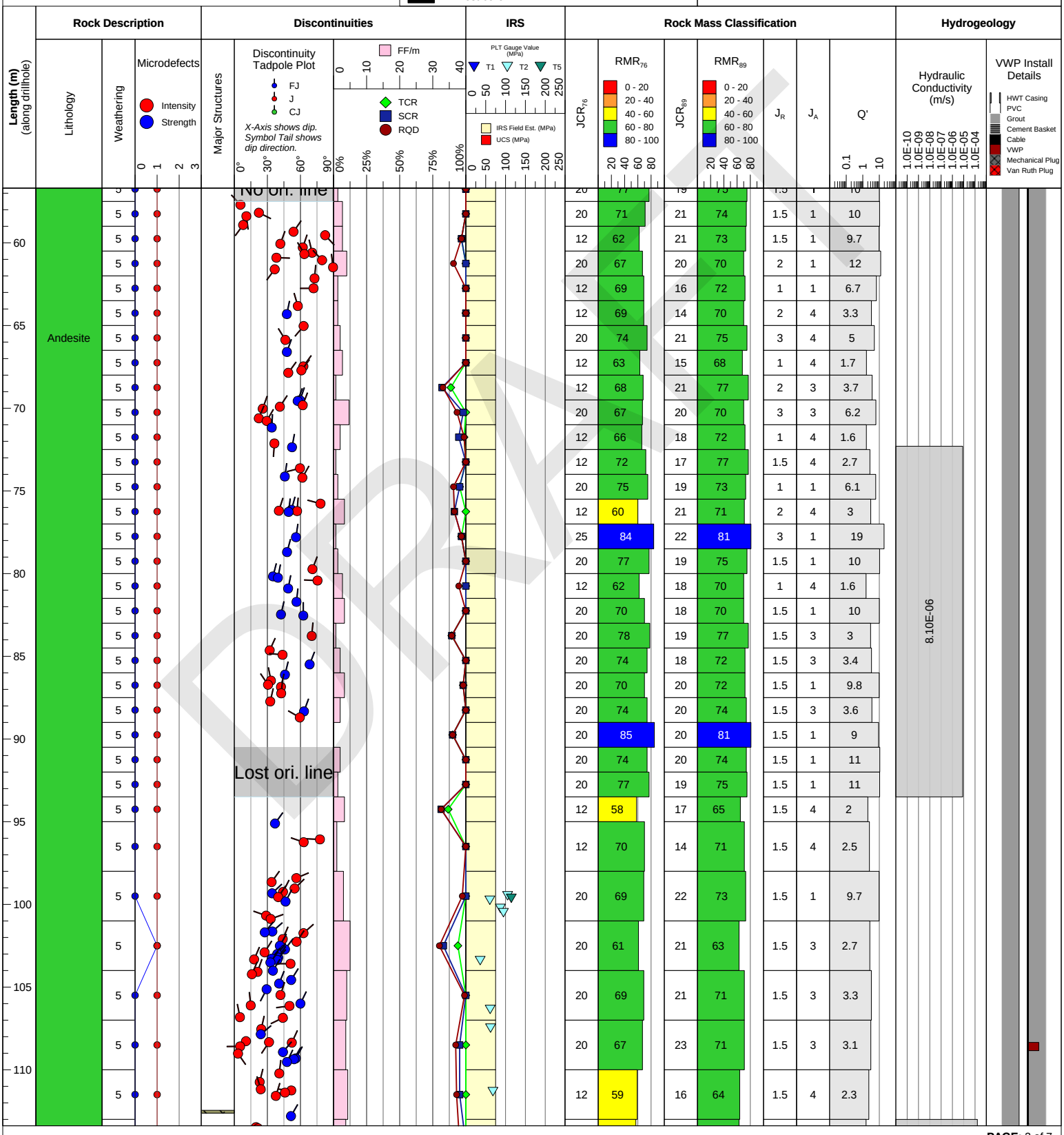
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
60	20	71	21	74	1.5	1	10
	12	62	21	73	1.5	1	9.7
	20	67	20	70	2	1	12
	12	69	16	72	1	1	6.7
65	12	69	14	70	2	4	3.3
	20	74	21	75	3	4	5
	12	63	15	68	1	4	1.7
	12	68	21	77	2	3	3.7
70	20	67	20	70	3	3	6.2
	12	66	18	72	1	4	1.6
	12	72	17	77	1.5	4	2.7
	20	75	19	73	1	1	6.1
75	12	60	21	71	2	4	3
	25	84	22	81	3	1	19
	20	77	19	75	1.5	1	10
	12	62	18	70	1	4	1.6
80	20	70	18	70	1.5	1	10
	20	78	19	77	1.5	3	3
	20	74	18	72	1.5	3	3.4
	20	70	20	72	1.5	1	9.8
85	20	74	20	74	1.5	3	3.6
	20	85	20	81	1.5	1	9
	20	74	20	74	1.5	1	11
	20	77	19	75	1.5	1	11
	12	58	17	65	1.5	4	2
90	12	70	14	71	1.5	4	2.5
	20	69	22	73	1.5	1	9.7
	20	61	21	63	1.5	3	2.7
95	20	69	21	71	1.5	3	3.3
	20	67	23	71	1.5	3	3.1
	12	59	16	64	1.5	4	2.3
100							
105							
110							

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First Mining Gold

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CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
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DRILL TYPE: Diamond
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WATER LEVEL EL (masl): N/A

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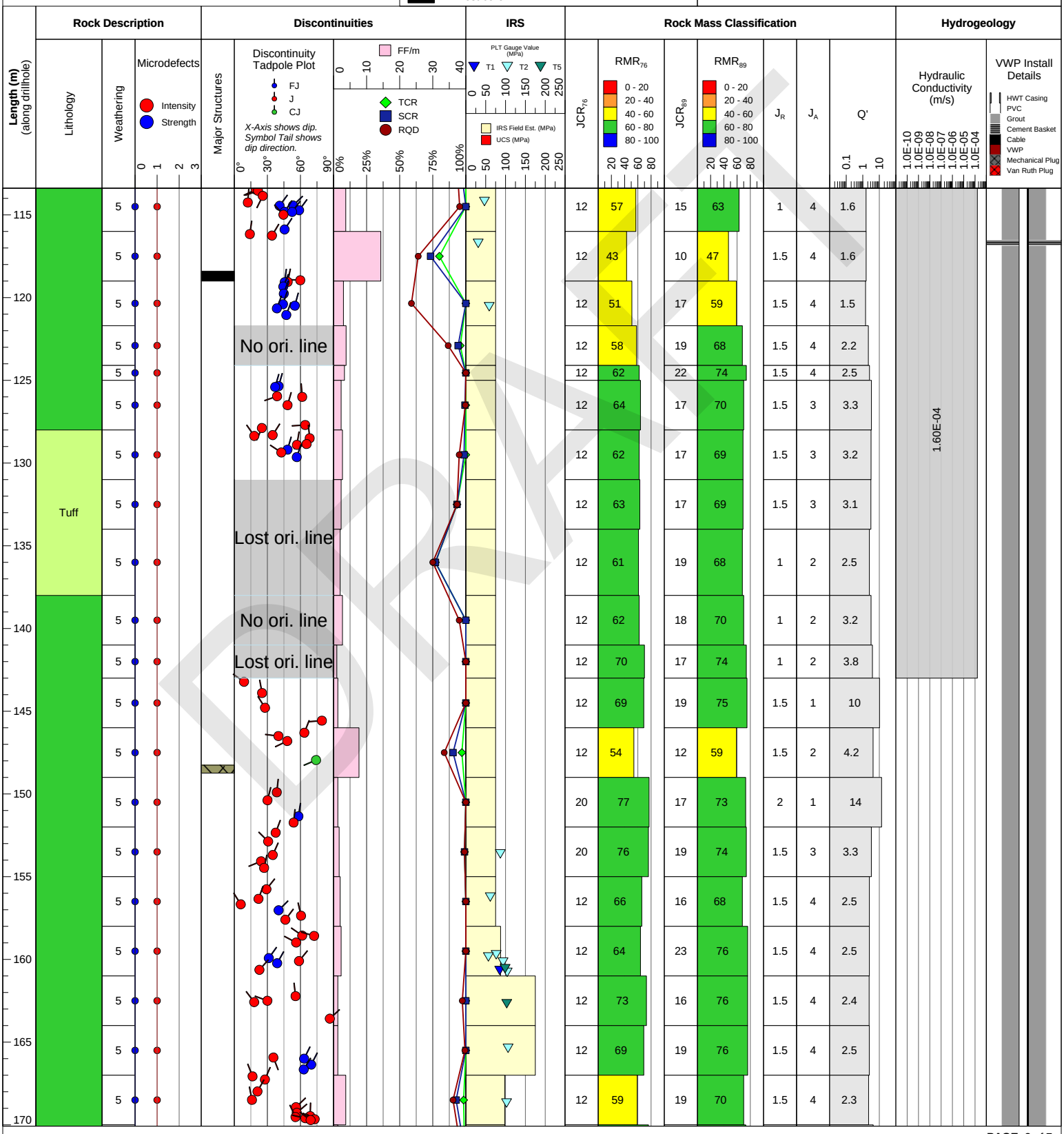

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
115	12	57	15	63	1	4	1.6
	12	43	10	47	1.5	4	1.6
120	12	51	17	59	1.5	4	1.5
	12	58	19	68	1.5	4	2.2
125	12	62	22	74	1.5	4	2.5
	12	64	17	70	1.5	3	3.3
130	12	62	17	69	1.5	3	3.2
	12	63	17	69	1.5	3	3.1
135	12	61	19	68	1	2	2.5
	12	62	18	70	1	2	3.2
140	12	70	17	74	1	2	3.8
	12	69	19	75	1.5	1	10
145	12	54	12	59	1.5	2	4.2
	20	77	17	73	2	1	14
150	20	76	19	74	1.5	3	3.3
	12	66	16	68	1.5	4	2.5
155	12	64	23	76	1.5	4	2.5
	12	73	16	76	1.5	4	2.4
160	12	69	19	76	1.5	4	2.5
	12	59	19	70	1.5	4	2.3
165							
170							

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: MT/MB/BL

DRILLING DATE: 2/9/2022 **TO:** 2/17/2022
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Elevation (masl): 394
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WATER LEVEL EL (masl): N/A

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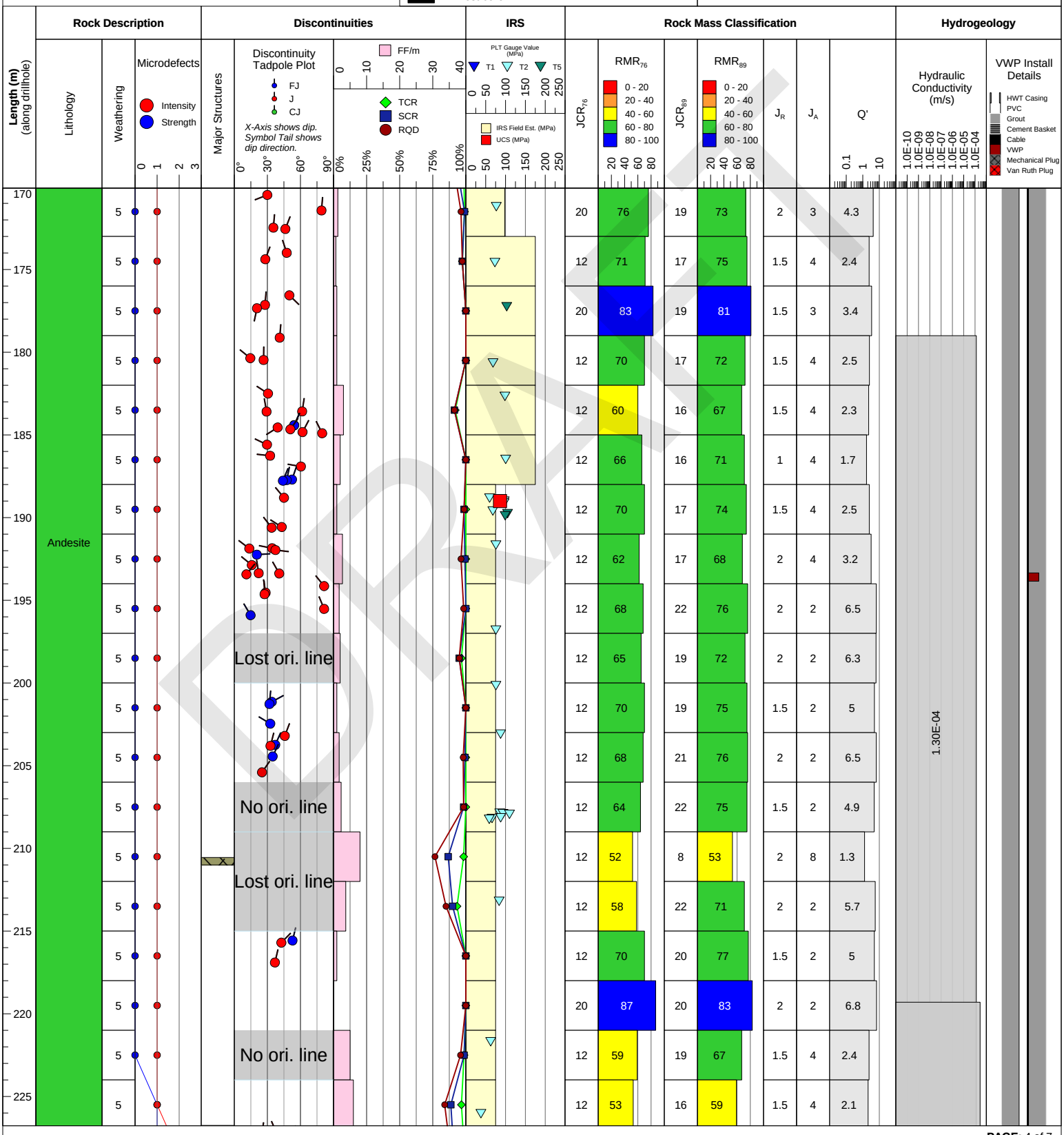

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
170	20	76	19	73	2	3	4.3
175	12	71	17	75	1.5	4	2.4
	20	83	19	81	1.5	3	3.4
180	12	70	17	72	1.5	4	2.5
	12	60	16	67	1.5	4	2.3
185	12	66	16	71	1	4	1.7
	12	70	17	74	1.5	4	2.5
190	12	62	17	68	2	4	3.2
	12	68	22	76	2	2	6.5
195	12	65	19	72	2	2	6.3
	12	70	19	75	1.5	2	5
200	12	68	21	76	2	2	6.5
	12	64	22	75	1.5	2	4.9
205	12	52	8	53	2	8	1.3
	12	58	22	71	2	2	5.7
210	12	70	20	77	1.5	2	5
	20	87	20	83	2	2	6.8
215	12	59	19	67	1.5	4	2.4
	12	53	16	59	1.5	4	2.1
220							
225							

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First Mining Gold

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: MT/MB/BL

DRILLING DATE: 2/9/2022 **TO:** 2/17/2022
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DATUM: UTM WGS84 15N
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WATER LEVEL EL (masl): N/A

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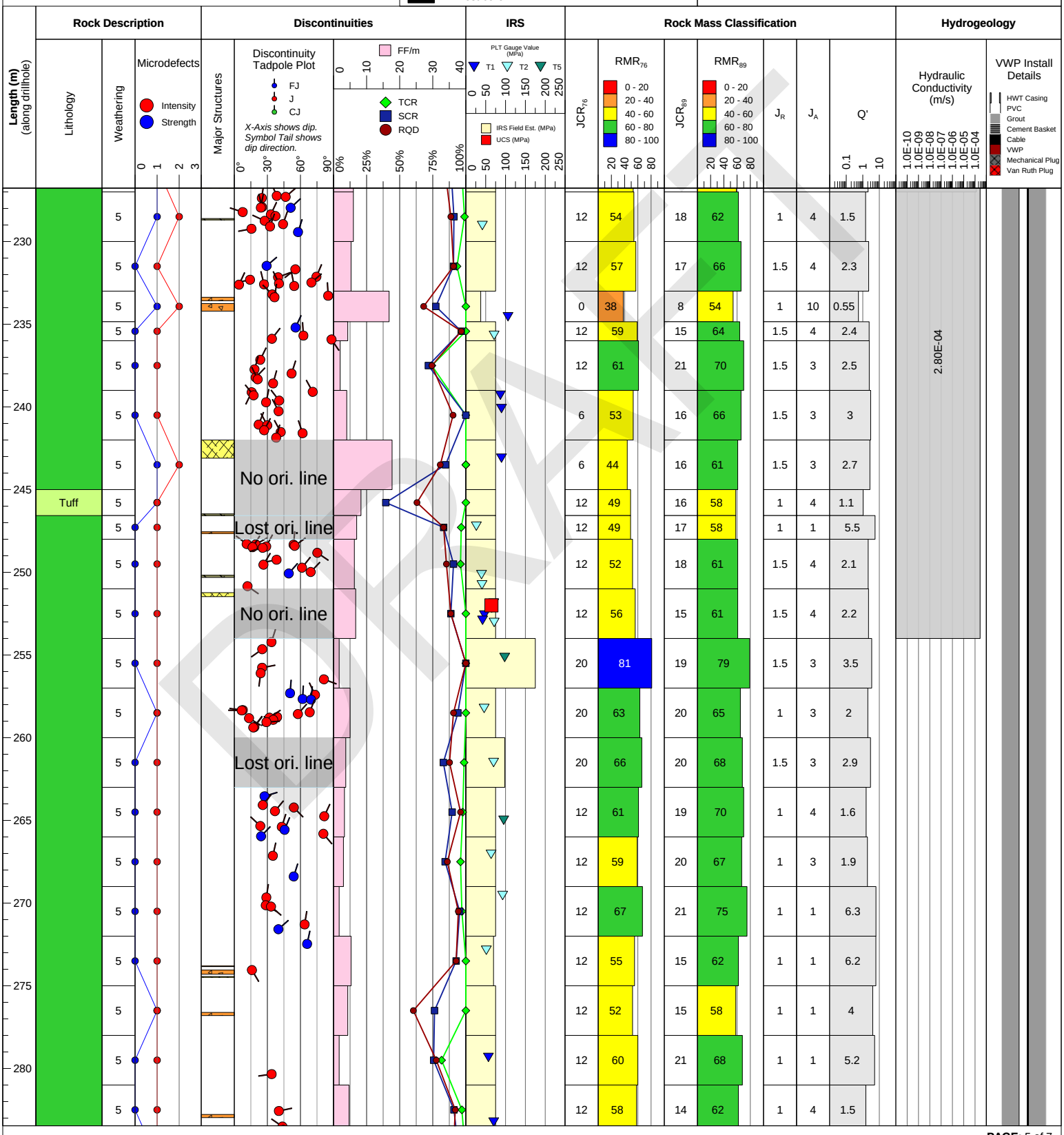

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
230	12	54	18	62	1	4	1.5
	12	57	17	66	1.5	4	2.3
	0	38	8	54	1	10	0.55
235	12	59	15	64	1.5	4	2.4
	12	61	21	70	1.5	3	2.5
240	6	53	16	66	1.5	3	3
	6	44	16	61	1.5	3	2.7
245	12	49	16	58	1	4	1.1
	12	49	17	58	1	1	5.5
250	12	52	18	61	1.5	4	2.1
	12	56	15	61	1.5	4	2.2
255	20	81	19	79	1.5	3	3.5
	20	63	20	65	1	3	2
260	20	66	20	68	1.5	3	2.9
	12	61	19	70	1	4	1.6
265	12	59	20	67	1	3	1.9
	12	67	21	75	1	1	6.3
270	12	55	15	62	1	1	6.2
	12	52	15	58	1	1	4
275	12	60	21	68	1	1	5.2
	12	58	14	62	1	4	1.5
280							

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-008
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: MT/MB/BL

DRILLING DATE: 2/9/2022 **TO:** 2/17/2022
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DATUM: UTM WGS84 15N
Elevation (masl): 394
AZIMUTH: 139° **DIP:** 60°
TOTAL LENGTH (m): 349.1
WATER LEVEL EL (masl): N/A

DEFINITIONS:
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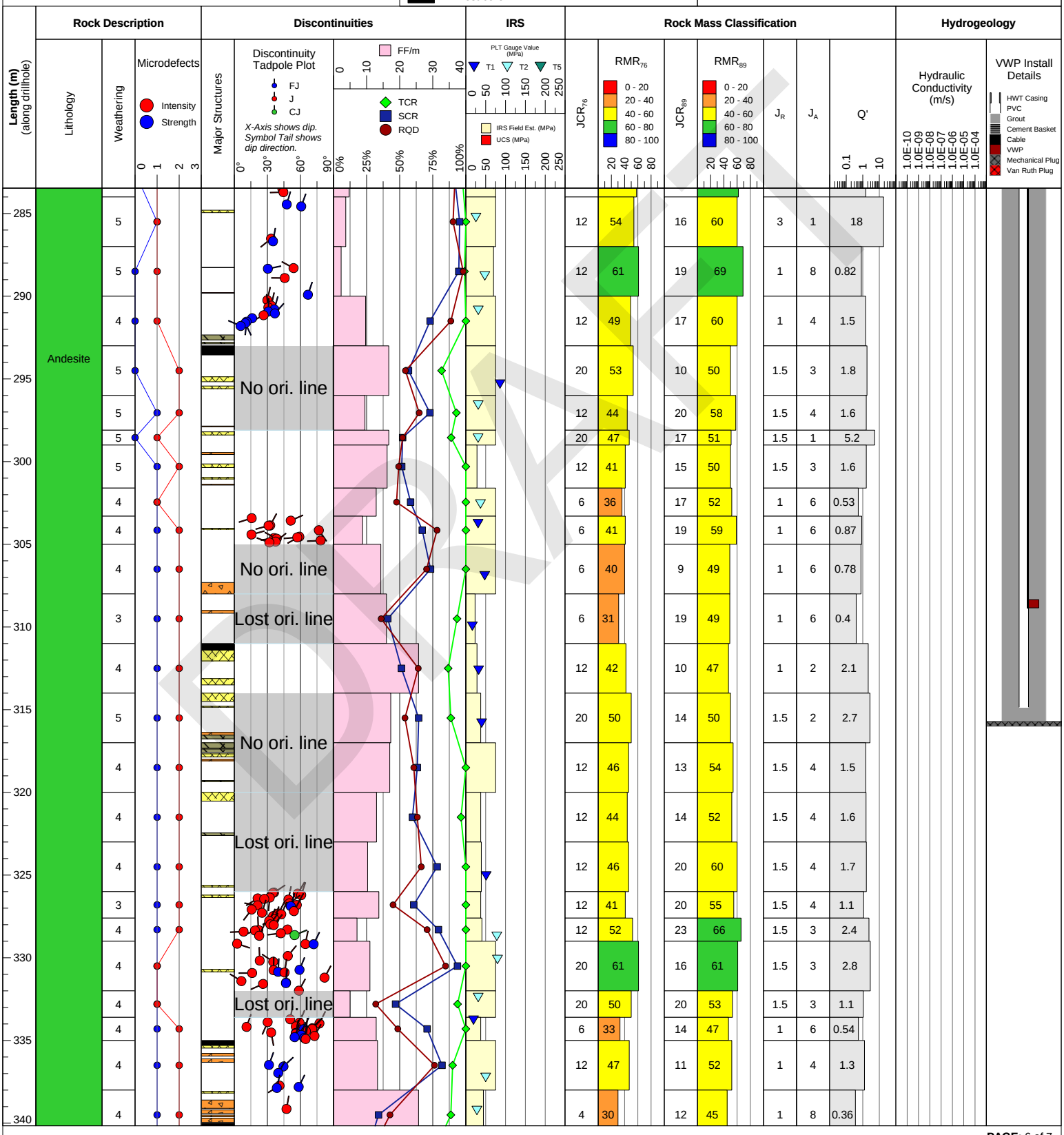

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FIRST MINING GOLD

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DRILLHOLE ID: SG22-008
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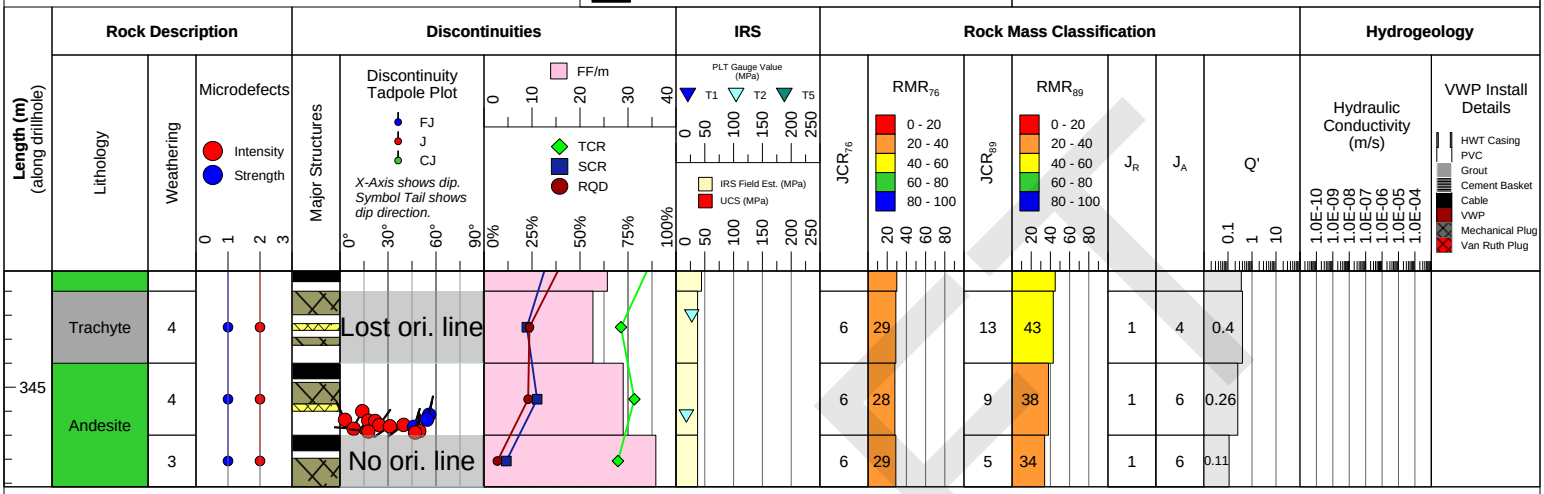

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-017
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/OS/BL/KJ/JCI

DRILLING DATE: 2/23/2022 **TO:** 3/7/2022
COORDINATES: 549971 m E 5693213 m N
DATUM: UTM WGS84 15N
Elevation (masl): 394
AZIMUTH: 130° **DIP:** 60°
TOTAL LENGTH (m): 551.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
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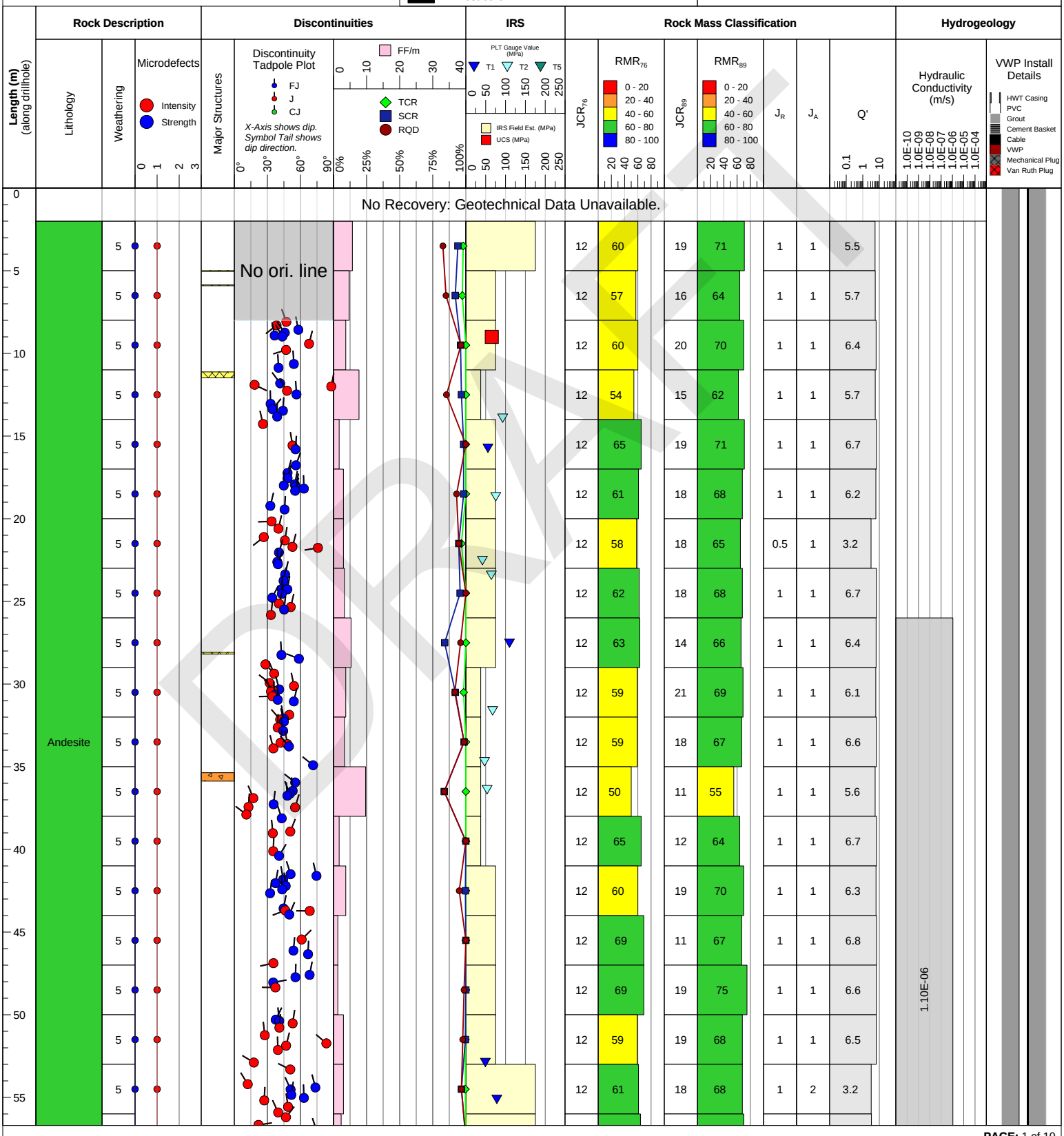

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FIRST MINING GOLD

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LOCATION: Springpole Lake, Ontario
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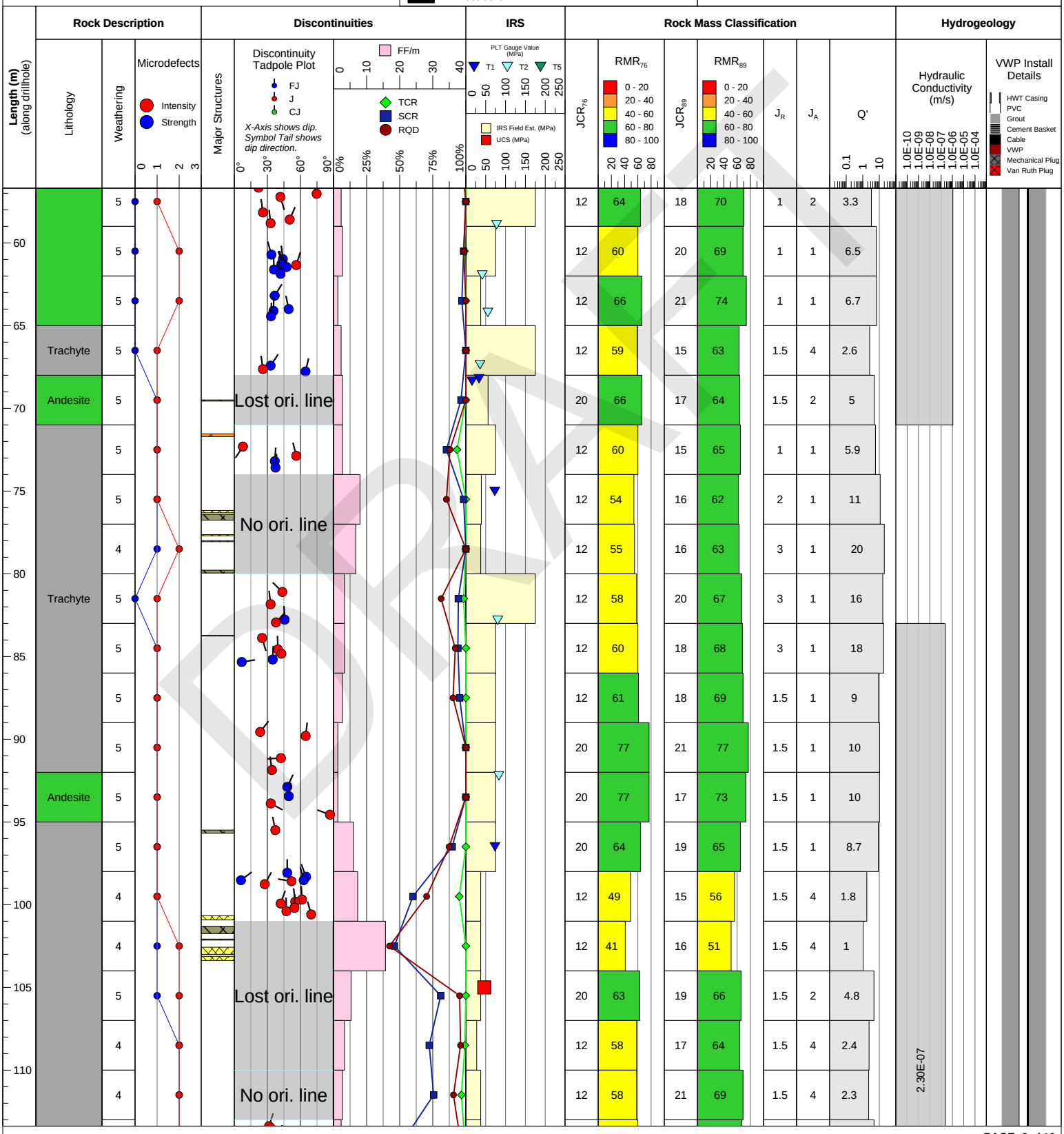

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DRILLHOLE ID: SG22-017
LOCATION: Springpole Lake, Ontario
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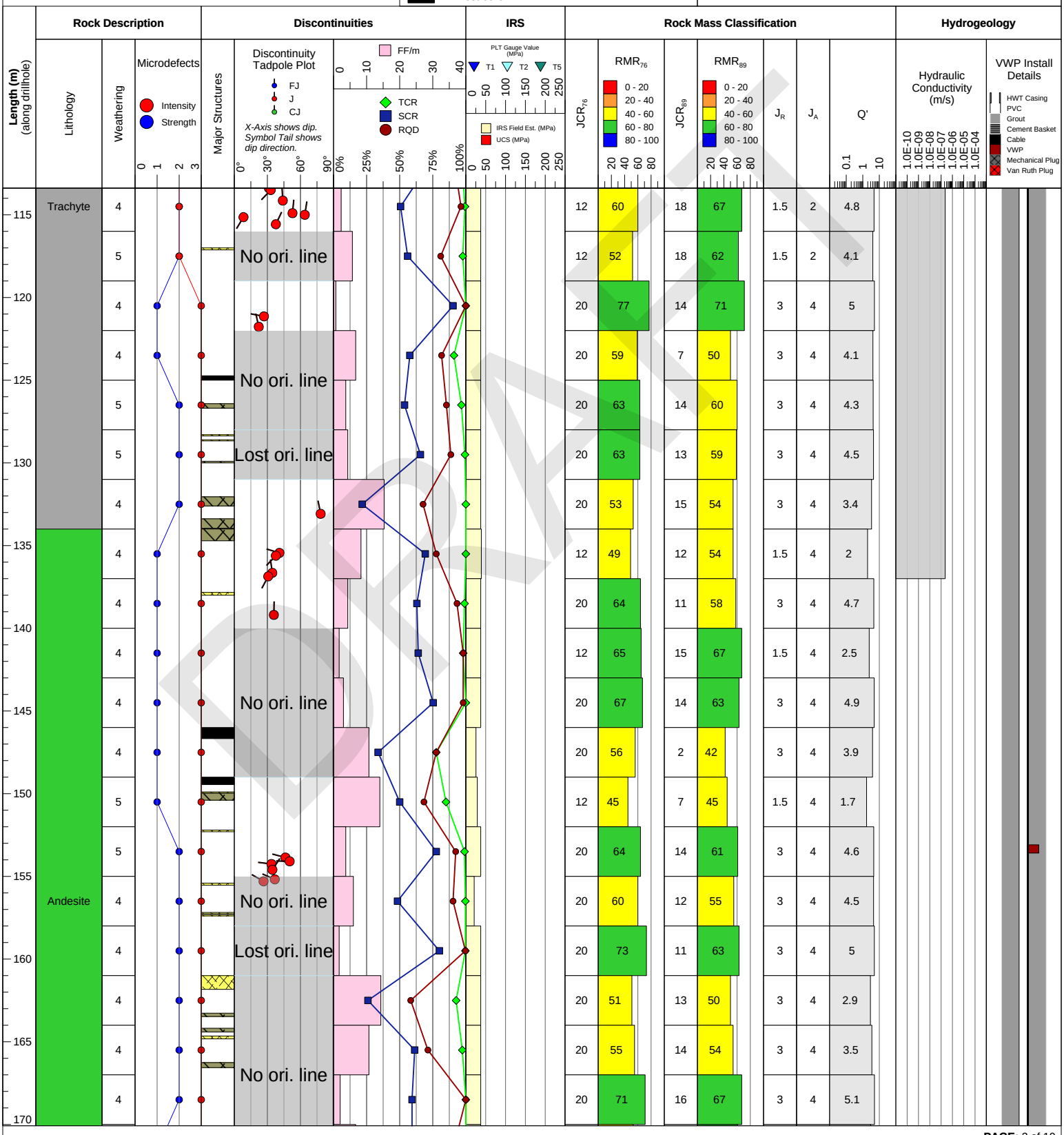

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
115	Trachyte	4	12	60	18	67	1.5	2	4.8
		5	12	52	18	62	1.5	2	4.1
120		4	20	77	14	71	3	4	5
		4	20	59	7	50	3	4	4.1
125		5	20	63	14	60	3	4	4.3
		5	20	63	13	59	3	4	4.5
130		4	20	53	15	54	3	4	3.4
		4	12	49	12	54	1.5	4	2
135	Andesite	4	20	64	11	58	3	4	4.7
		4	12	65	15	67	1.5	4	2.5
140		4	20	67	14	63	3	4	4.9
		4	20	56	2	42	3	4	3.9
145		5	12	45	7	45	1.5	4	1.7
		5	20	64	14	61	3	4	4.6
150		4	20	60	12	55	3	4	4.5
		4	20	73	11	63	3	4	5
155		4	20	51	13	50	3	4	2.9
		4	20	55	14	54	3	4	3.5
160		4	20	71	16	67	3	4	5.1
165									
170									

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-017
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/OS/BL/KJ/JCI

DRILLING DATE: 2/23/2022 **TO:** 3/7/2022
COORDINATES: 549971 m E 5693213 m N
DATUM: UTM WGS84 15N
Elevation (masl): 394
AZIMUTH: 130° **DIP:** 60°
TOTAL LENGTH (m): 551.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
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MAJOR STRUCTURES LEGEND:
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L - Lost core.

NOTES:
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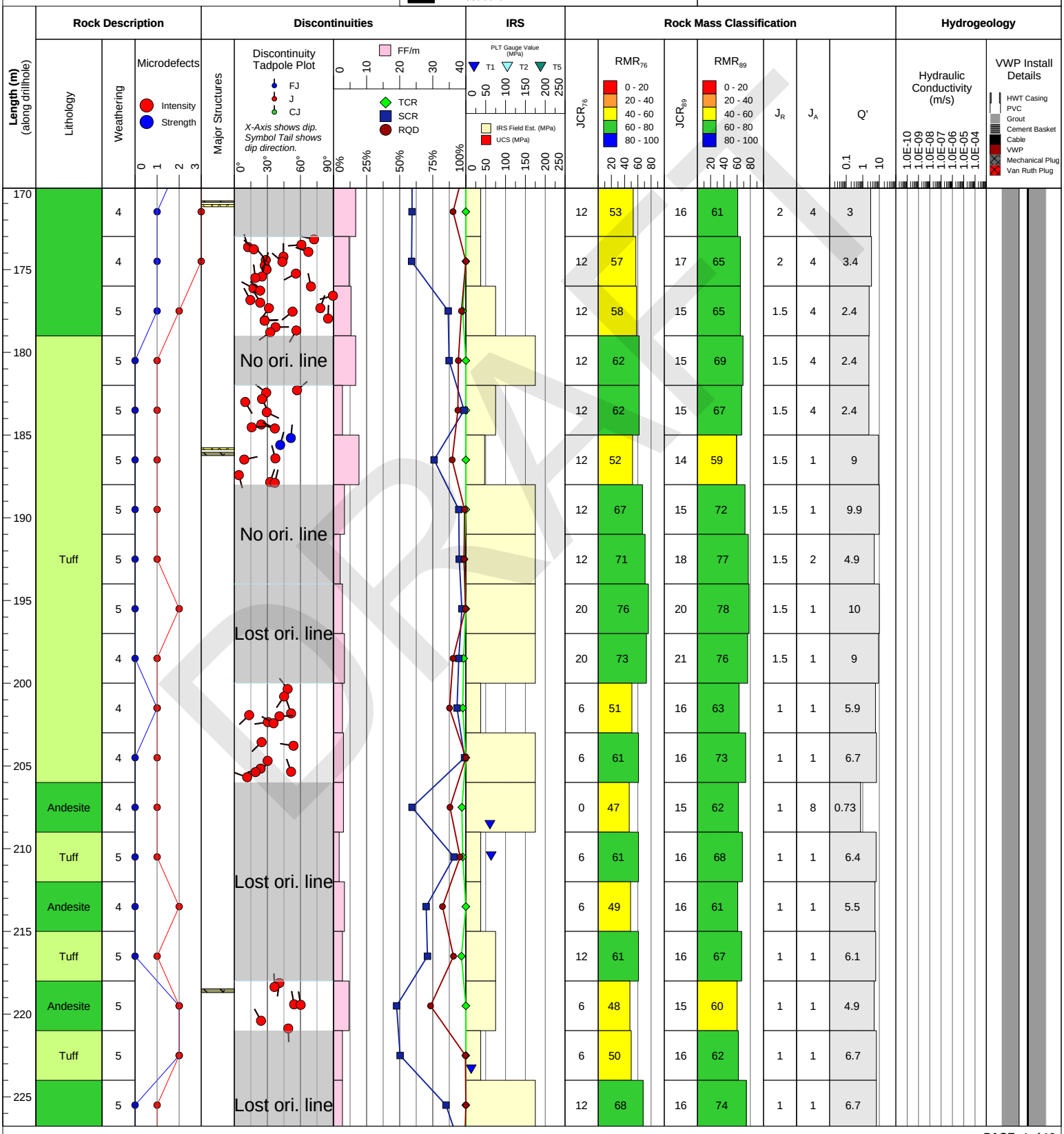
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



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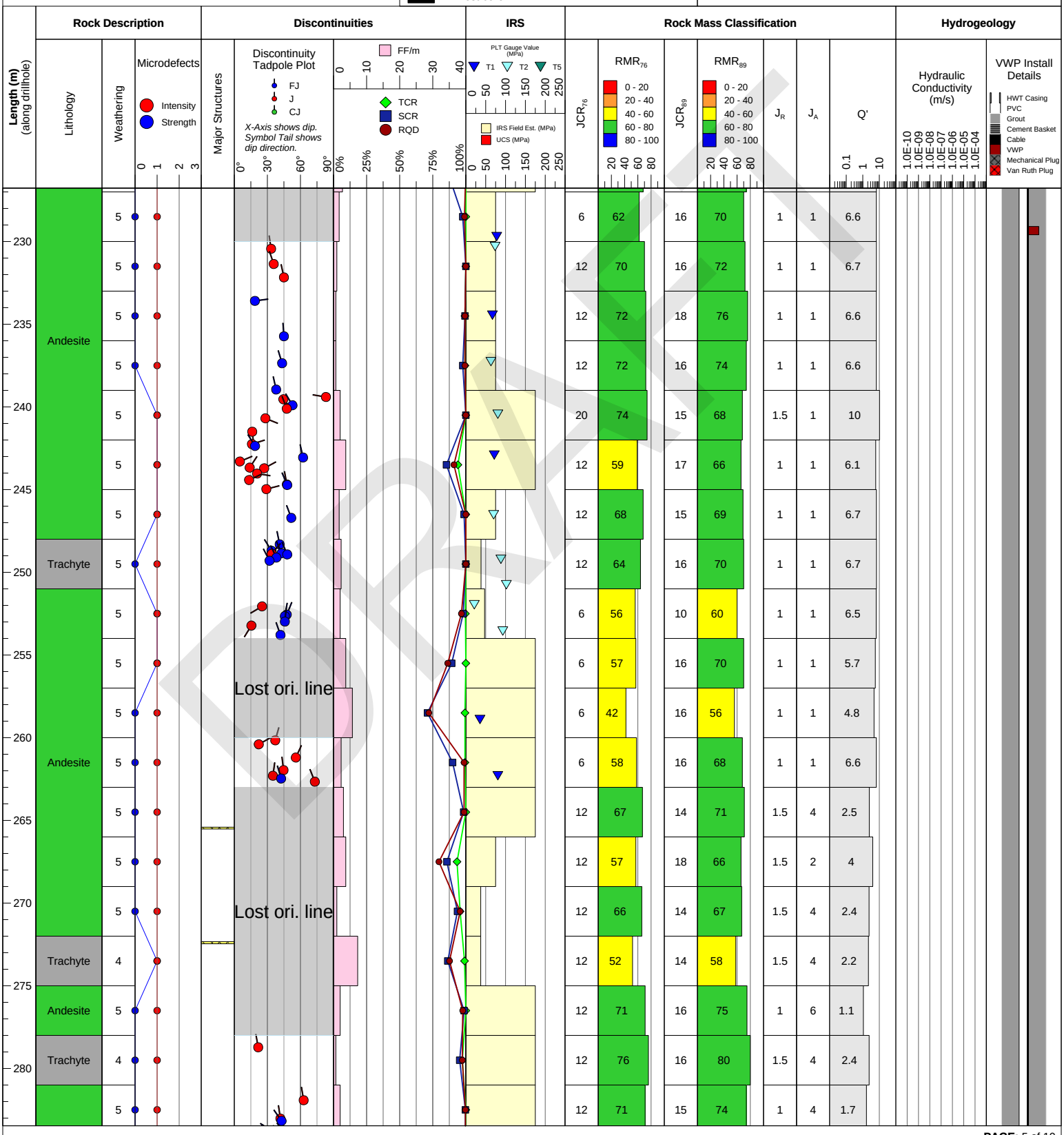

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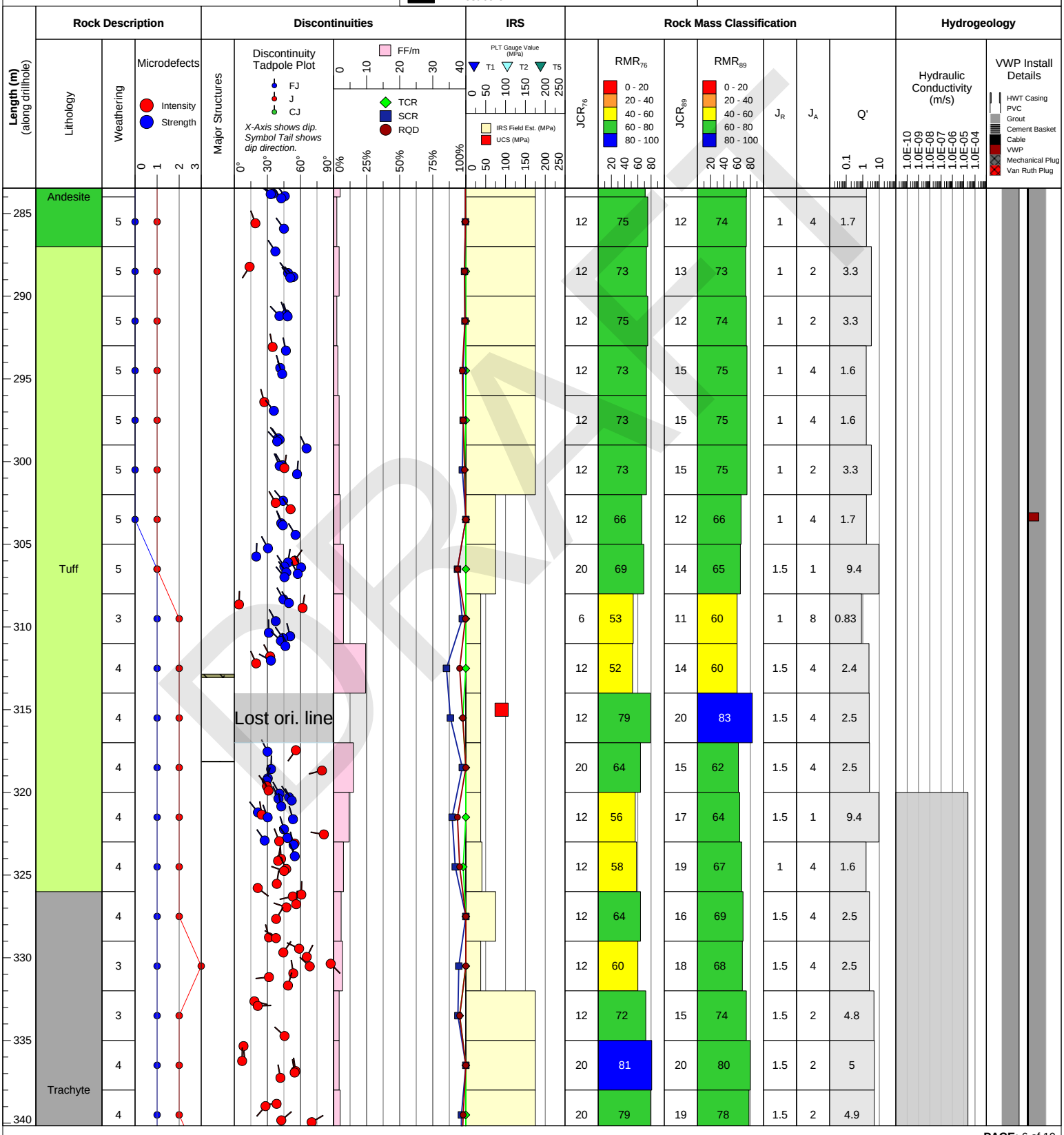

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
285	Andesite	5	12	75	12	74	1	4	1.7
290		5	12	73	13	73	1	2	3.3
		5	12	75	12	74	1	2	3.3
295		5	12	73	15	75	1	4	1.6
		5	12	73	15	75	1	4	1.6
300		5	12	73	15	75	1	2	3.3
		5	12	66	12	66	1	4	1.7
305	Tuff	5	20	69	14	65	1.5	1	9.4
		3	6	53	11	60	1	8	0.83
310		4	12	52	14	60	1.5	4	2.4
		4	12	79	20	83	1.5	4	2.5
315		4	20	64	15	62	1.5	4	2.5
		4	12	56	17	64	1.5	1	9.4
320		4	12	58	19	67	1	4	1.6
		4	12	64	16	69	1.5	4	2.5
325		3	12	60	18	68	1.5	4	2.5
		3	12	72	15	74	1.5	2	4.8
330		4	20	81	20	80	1.5	2	5
	Trachyte	4	20	79	19	78	1.5	2	4.9
335									
340									

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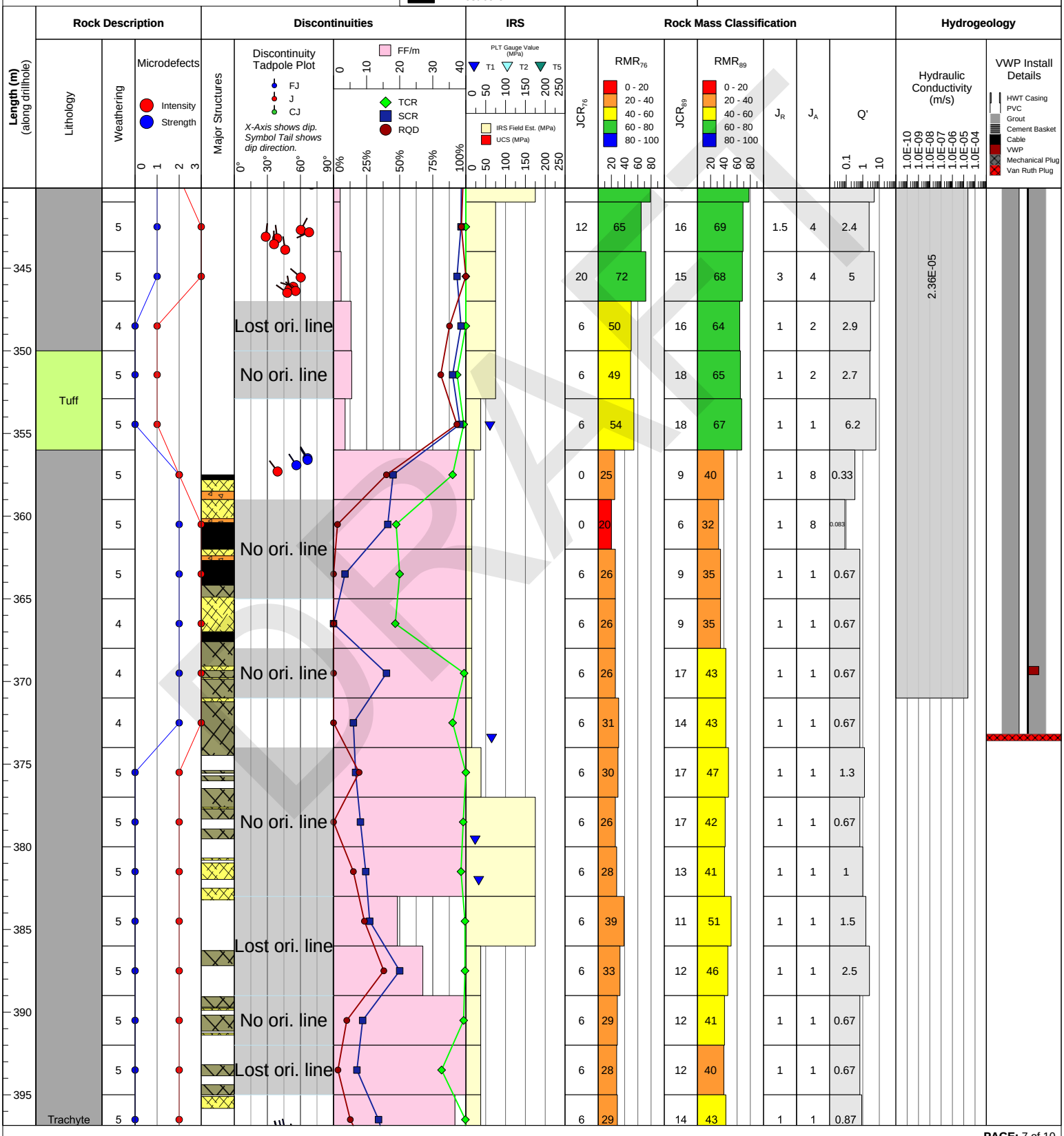

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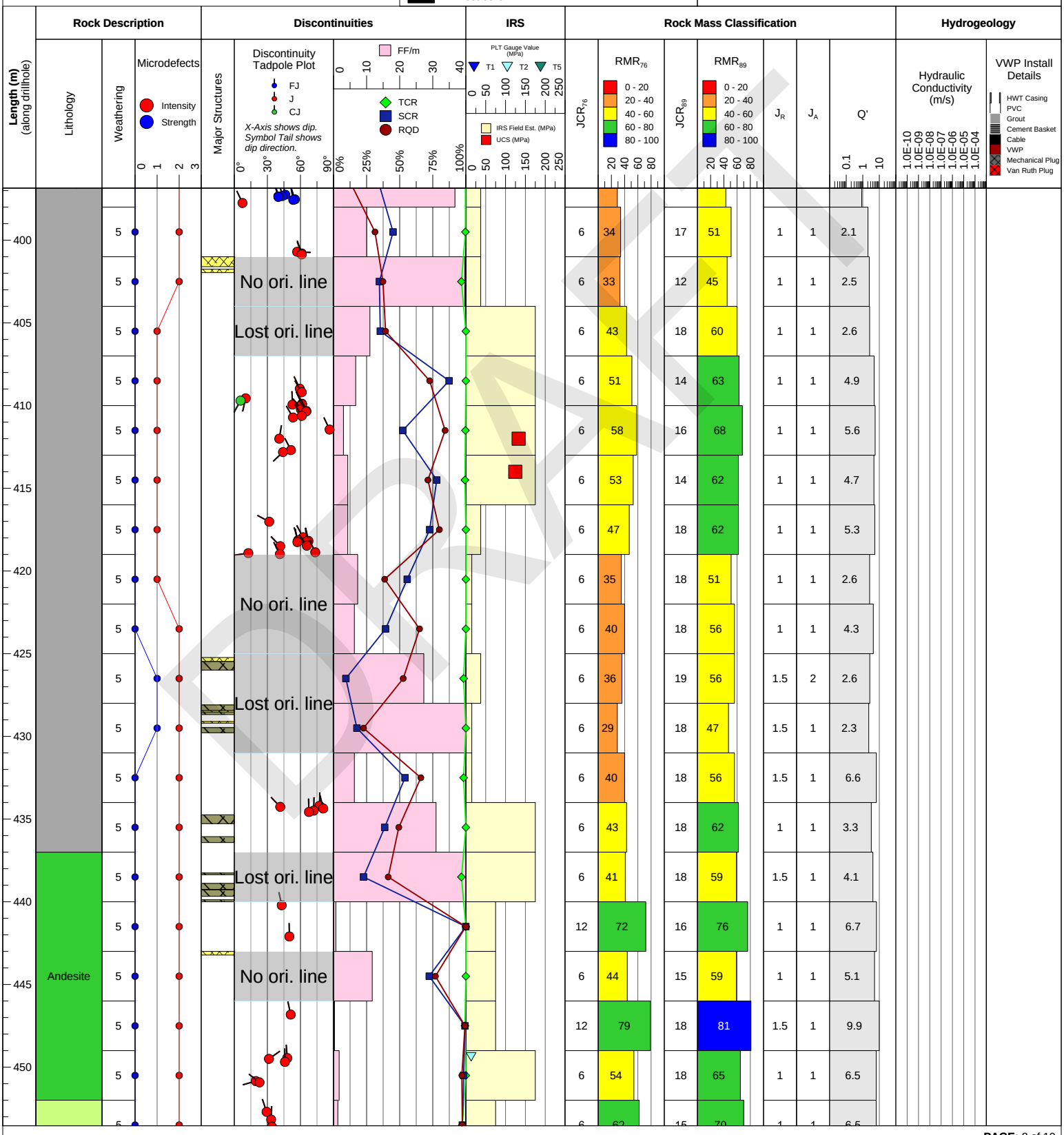

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
400	6	34	17	51	1	1	2.1
	6	33	12	45	1	1	2.5
405	6	43	18	60	1	1	2.6
	6	51	14	63	1	1	4.9
410	6	58	16	68	1	1	5.6
	6	53	14	62	1	1	4.7
415	6	47	18	62	1	1	5.3
	6	35	18	51	1	1	2.6
420	6	40	18	56	1	1	4.3
	6	36	19	56	1.5	2	2.6
425	6	29	18	47	1.5	1	2.3
	6	40	18	56	1.5	1	6.6
430	6	43	18	62	1	1	3.3
	6	41	18	59	1.5	1	4.1
435	12	72	16	76	1	1	6.7
	6	44	15	59	1	1	5.1
440	12	79	18	81	1.5	1	9.9
	6	54	18	65	1	1	6.5
445	6	63	15	70	1	1	6.5

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-017
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
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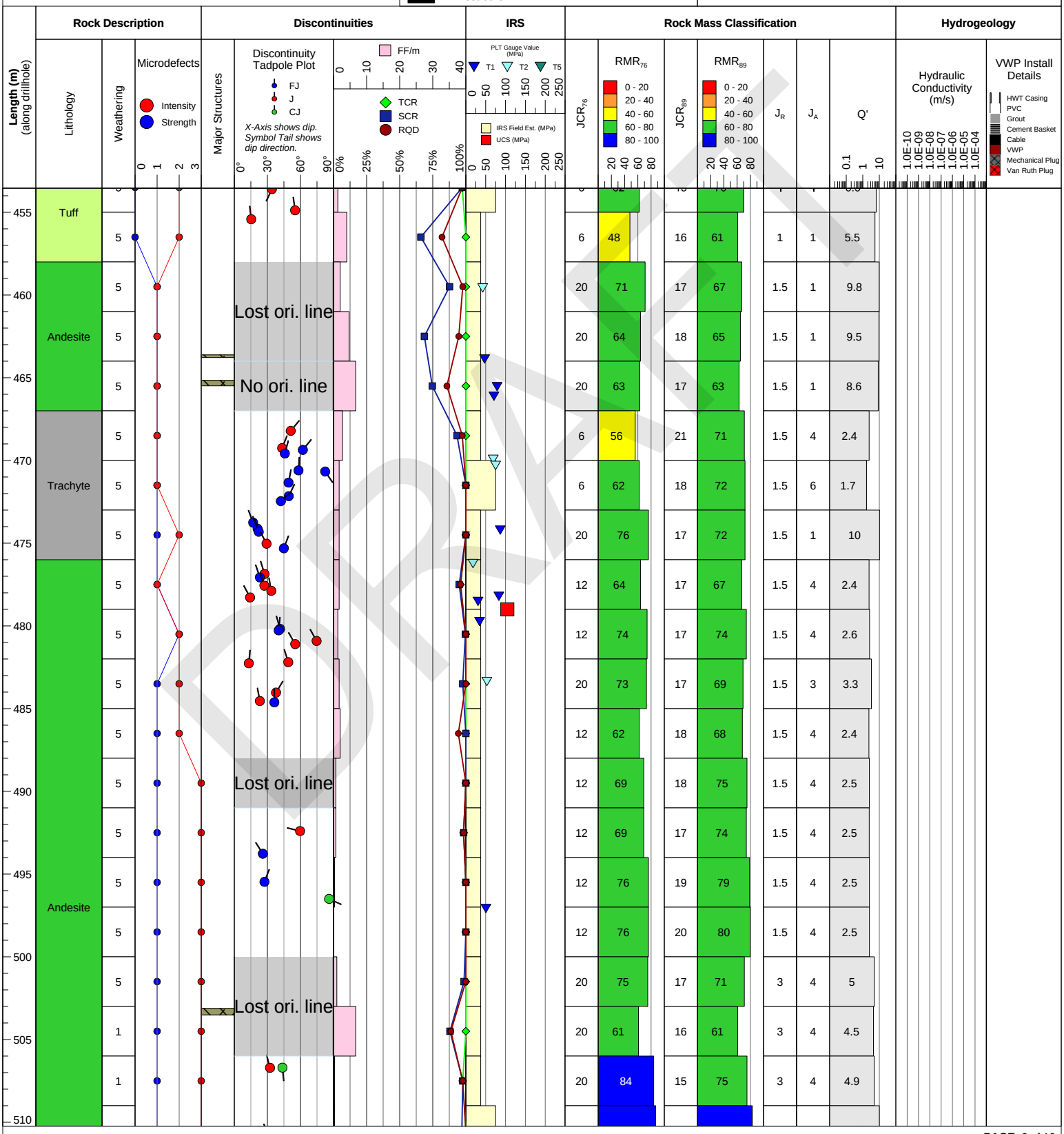

Length (m)	Lithology	Weathering	Microdefects	Major Structures	Discontinuity Tadpole Plot	FF/m	TCR	SCR	RQD	PLT Gauge Value (MPa)	IRS Field Est. (MPa)	UCS (MPa)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'	Hydraulic Conductivity (m/s)	VWP Install Details
455	Tuff																				
		5											6	48	16	61	1	1	5.5		
460	Andesite	5			Lost ori. line								20	71	17	67	1.5	1	9.8		
		5											20	64	18	65	1.5	1	9.5		
465		5			No ori. line								20	63	17	63	1.5	1	8.6		
	Trachyte	5											6	56	21	71	1.5	4	2.4		
470		5											6	62	18	72	1.5	6	1.7		
		5											20	76	17	72	1.5	1	10		
475	Andesite	5											12	64	17	67	1.5	4	2.4		
		5											12	74	17	74	1.5	4	2.6		
480		5											20	73	17	69	1.5	3	3.3		
		5											12	62	18	68	1.5	4	2.4		
485		5			Lost ori. line								12	69	18	75	1.5	4	2.5		
		5											12	69	17	74	1.5	4	2.5		
490		5											12	76	19	79	1.5	4	2.5		
		5											12	76	20	80	1.5	4	2.5		
495		5											20	75	17	71	3	4	5		
		1			Lost ori. line								20	61	16	61	3	4	4.5		
500		1											20	84	15	75	3	4	4.9		
505																					
510																					

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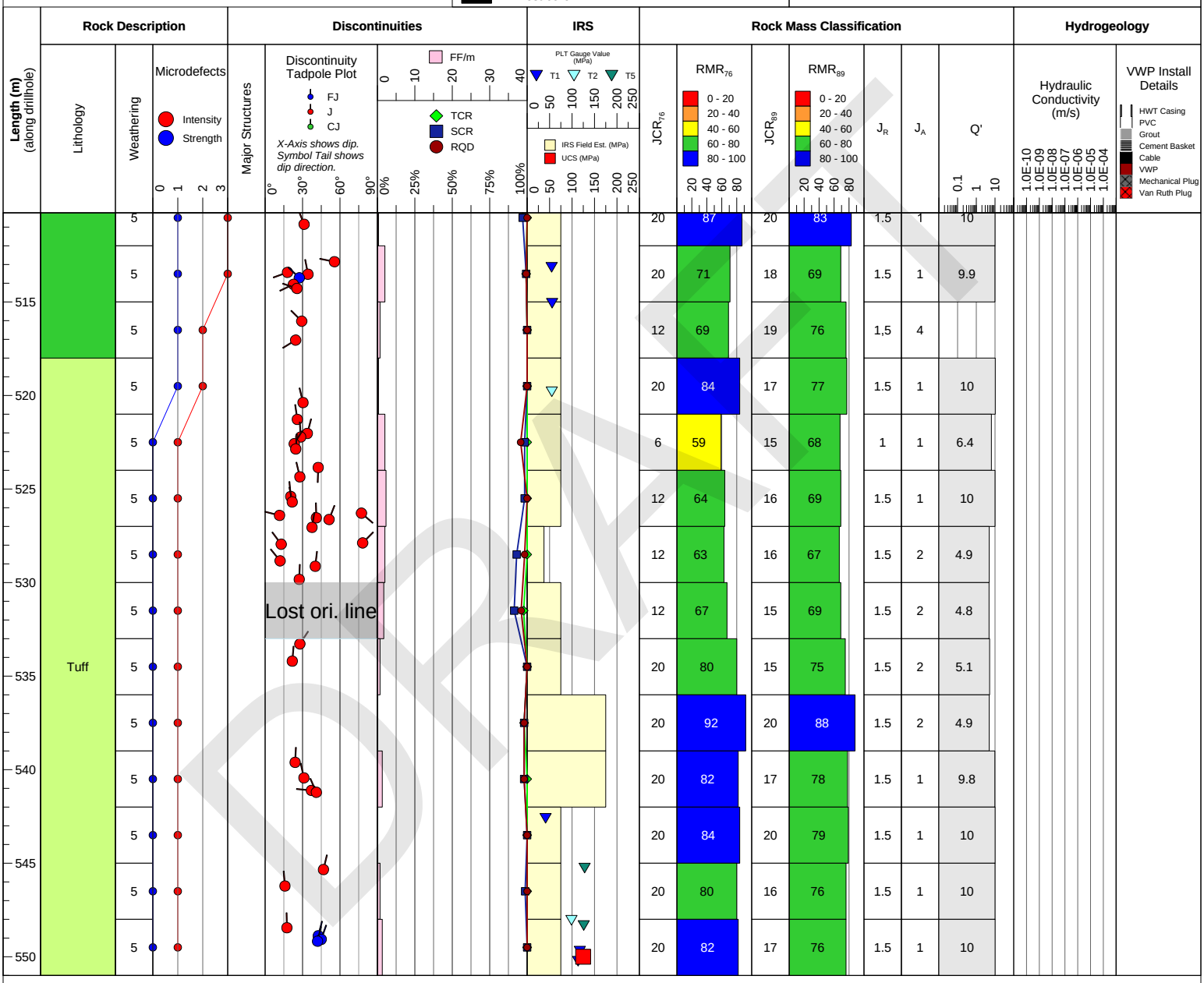

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
515	20	87	20	83	1.5	1	10
	20	71	18	69	1.5	1	9.9
	12	69	19	76	1,5	4	
520	20	84	17	77	1.5	1	10
	6	59	15	68	1	1	6.4
525	12	64	16	69	1.5	1	10
	12	63	16	67	1.5	2	4.9
530	12	67	15	69	1.5	2	4.8
535	20	80	15	75	1.5	2	5.1
	20	92	20	88	1.5	2	4.9
540	20	82	17	78	1.5	1	9.8
	20	84	20	79	1.5	1	10
545	20	80	16	76	1.5	1	10
	20	82	17	76	1.5	1	10
550							

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LOGGED BY: AY/HM/BTS/JCI/KJ/MT

DRILLING DATE: 2/24/2022 **TO:** 3/14/2022
COORDINATES: 549672 m E 5693606 m N
DATUM: UTM WGS84 15N
Elevation (masl): 387
AZIMUTH: 0° **DIP:** 75°
TOTAL LENGTH (m): 281.0
WATER LEVEL EL (masl): N/A

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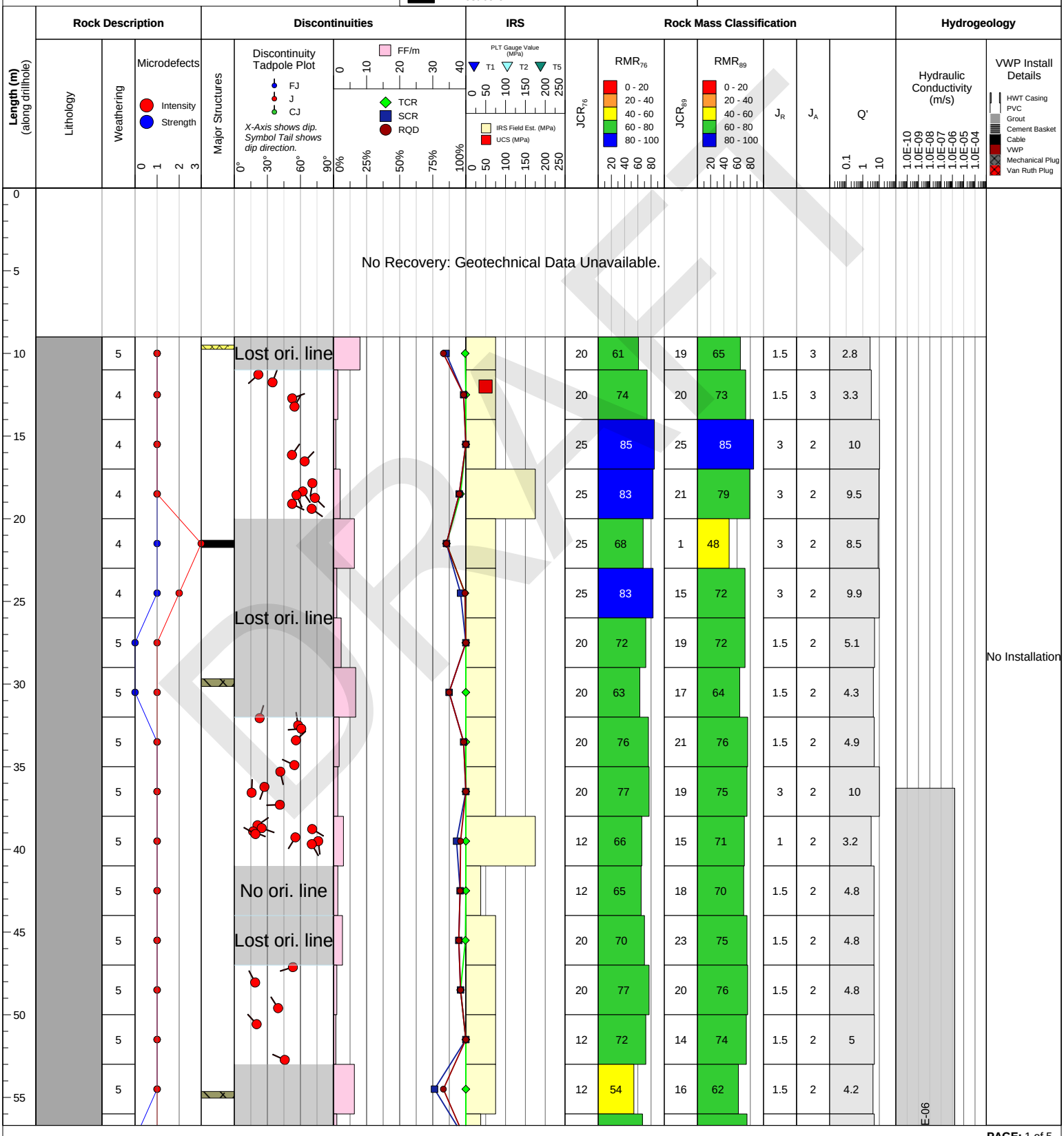

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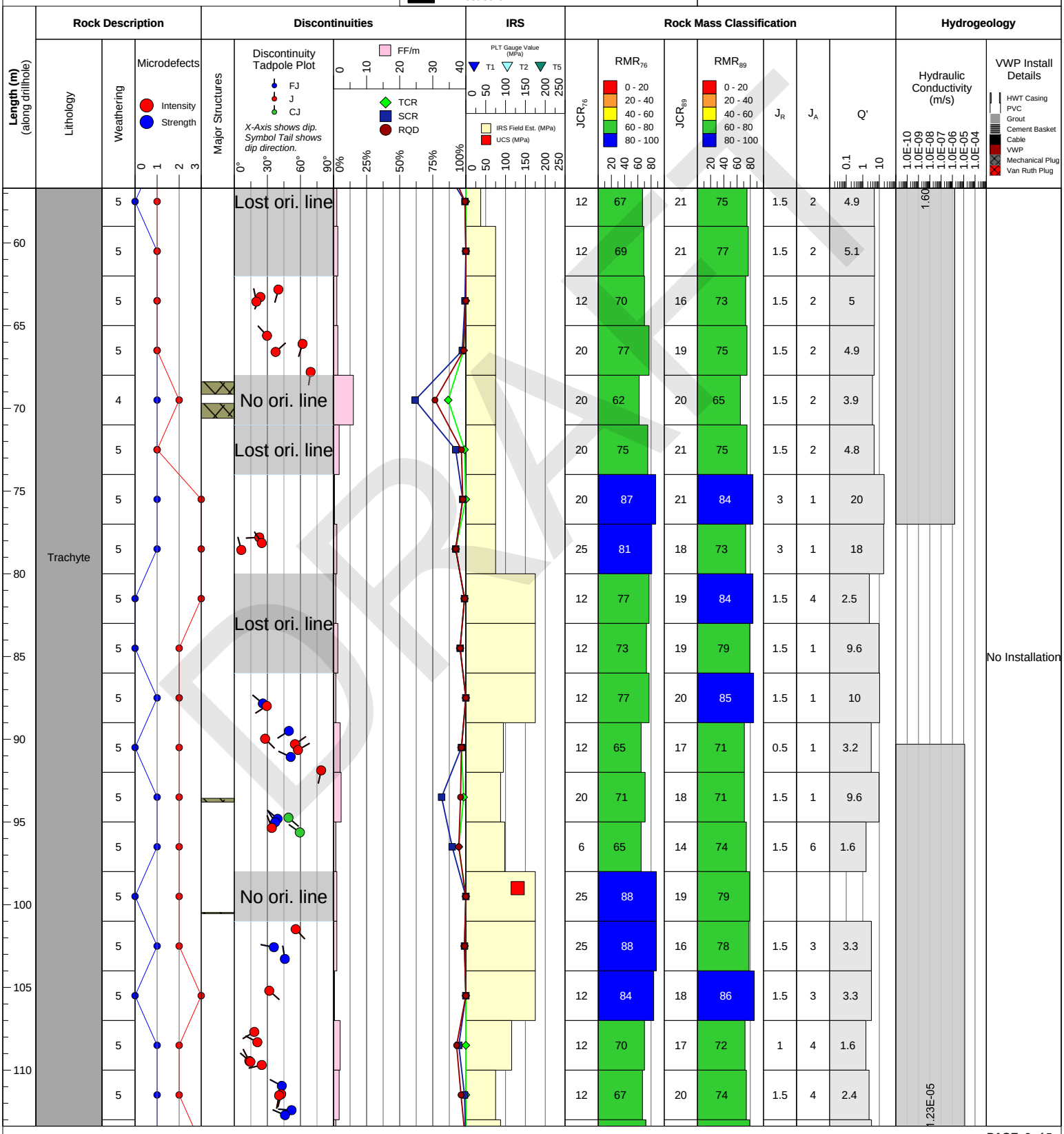

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
60	12	67	21	75	1.5	2	4.9
	12	69	21	77	1.5	2	5.1
	12	70	16	73	1.5	2	5
65	20	77	19	75	1.5	2	4.9
	20	62	20	65	1.5	2	3.9
70	20	75	21	75	1.5	2	4.8
	20	87	21	84	3	1	20
75	25	81	18	73	3	1	18
	12	77	19	84	1.5	4	2.5
80	12	73	19	79	1.5	1	9.6
	12	77	20	85	1.5	1	10
85	12	65	17	71	0.5	1	3.2
	20	71	18	71	1.5	1	9.6
90	6	65	14	74	1.5	6	1.6
	25	88	19	79			
95	25	88	16	78	1.5	3	3.3
	12	84	18	86	1.5	3	3.3
100	12	70	17	72	1	4	1.6
	12	67	20	74	1.5	4	2.4
105							
110							

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DRILLHOLE ID: SG22-019
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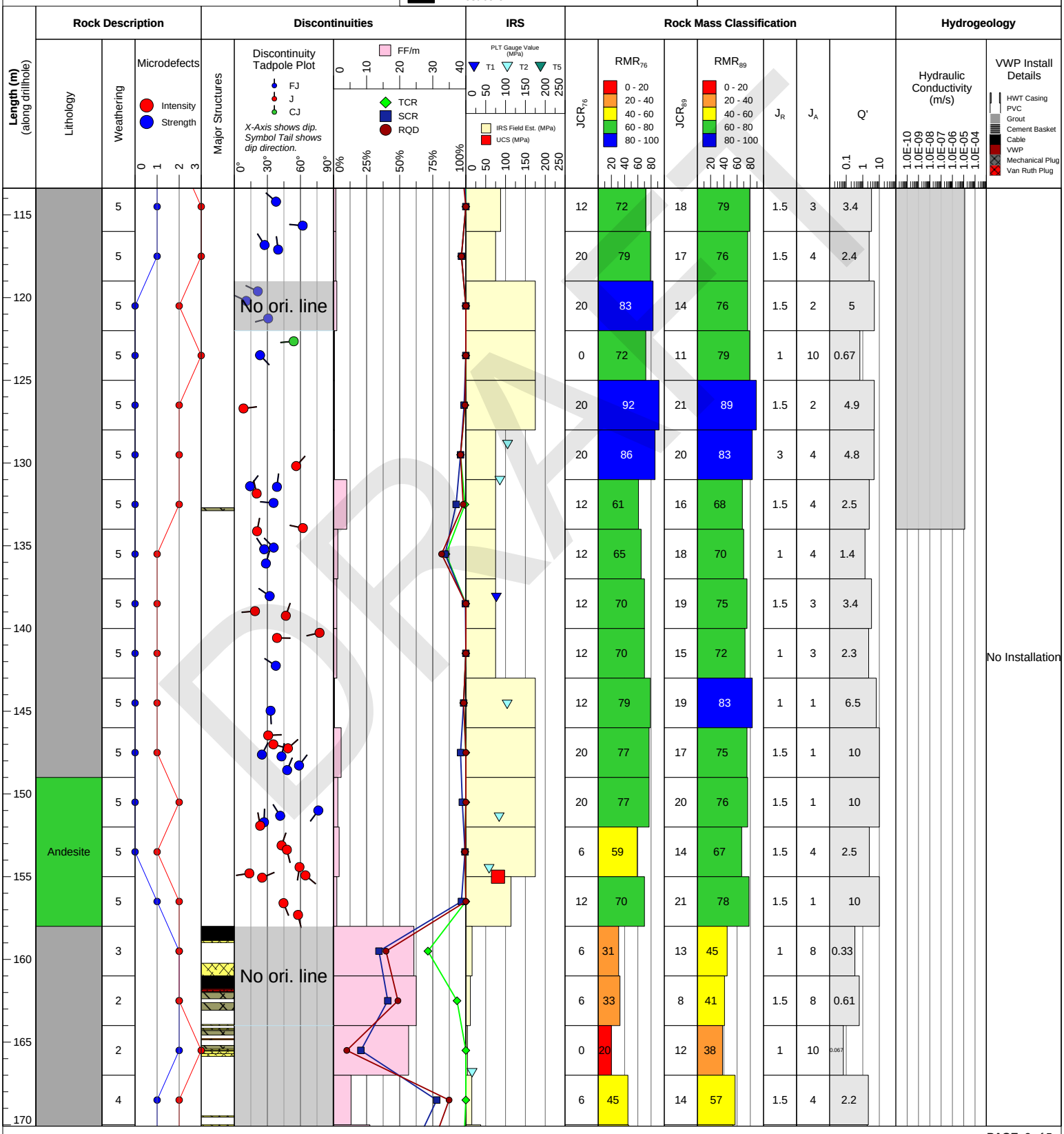

Length (m)	Lithology	Weathering	Major Structures	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
115		5		12	72	18	79	1.5	3	3.4
		5		20	79	17	76	1.5	4	2.4
120		5		20	83	14	76	1.5	2	5
		5		0	72	11	79	1	10	0.67
125		5		20	92	21	89	1.5	2	4.9
		5		20	86	20	83	3	4	4.8
130		5		12	61	16	68	1.5	4	2.5
		5		12	65	18	70	1	4	1.4
135		5		12	70	19	75	1.5	3	3.4
		5		12	70	15	72	1	3	2.3
140		5		12	79	19	83	1	1	6.5
		5		20	77	17	75	1.5	1	10
145		5		20	77	20	76	1.5	1	10
	Andesite	5		6	59	14	67	1.5	4	2.5
150		5		12	70	21	78	1.5	1	10
		3		6	31	13	45	1	8	0.33
155		2		6	33	8	41	1.5	8	0.61
		2		0	20	12	38	1	10	0.067
160		4		6	45	14	57	1.5	4	2.2
165										
170										

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-019
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AY/HM/BTS/JCI/KJ/MT

DRILLING DATE: 2/24/2022 **TO:** 3/14/2022
COORDINATES: 549672 m E 5693606 m N
DATUM: UTM WGS84 15N
Elevation (masl): 387
AZIMUTH: 0° **DIP:** 75°
TOTAL LENGTH (m): 281.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
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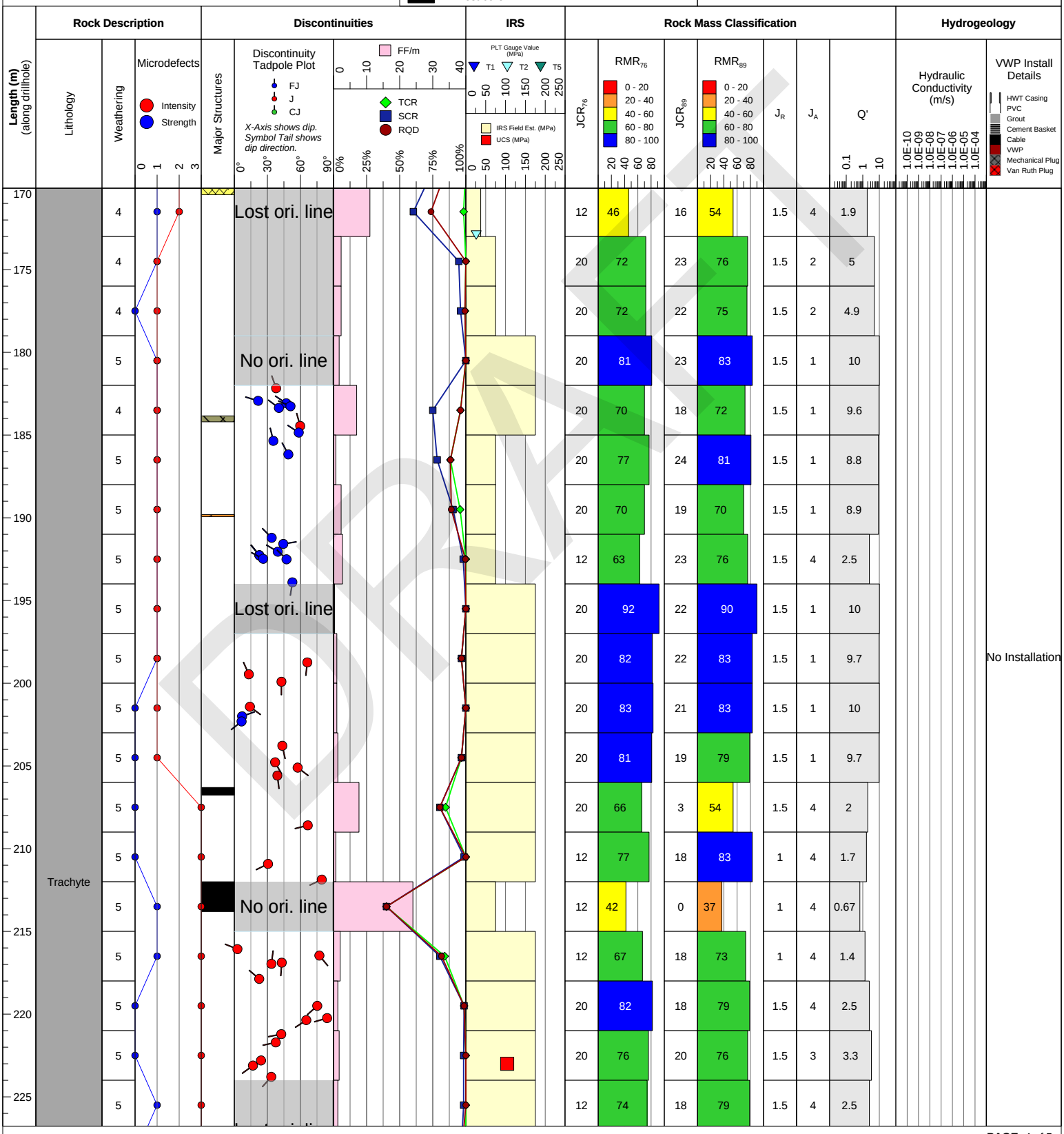
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
170	12	46	16	54	1.5	4	1.9
175	20	72	23	76	1.5	2	5
	20	72	22	75	1.5	2	4.9
180	20	81	23	83	1.5	1	10
	20	70	18	72	1.5	1	9.6
185	20	77	24	81	1.5	1	8.8
	20	70	19	70	1.5	1	8.9
190	12	63	23	76	1.5	4	2.5
	20	92	22	90	1.5	1	10
195	20	82	22	83	1.5	1	9.7
	20	83	21	83	1.5	1	10
200	20	81	19	79	1.5	1	9.7
	20	66	3	54	1.5	4	2
205	12	77	18	83	1	4	1.7
	12	42	0	37	1	4	0.67
210	12	67	18	73	1	4	1.4
	20	82	18	79	1.5	4	2.5
215	20	76	20	76	1.5	3	3.3
	12	74	18	79	1.5	4	2.5
220							
225							

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CLIENT: First Mining Gold Corp

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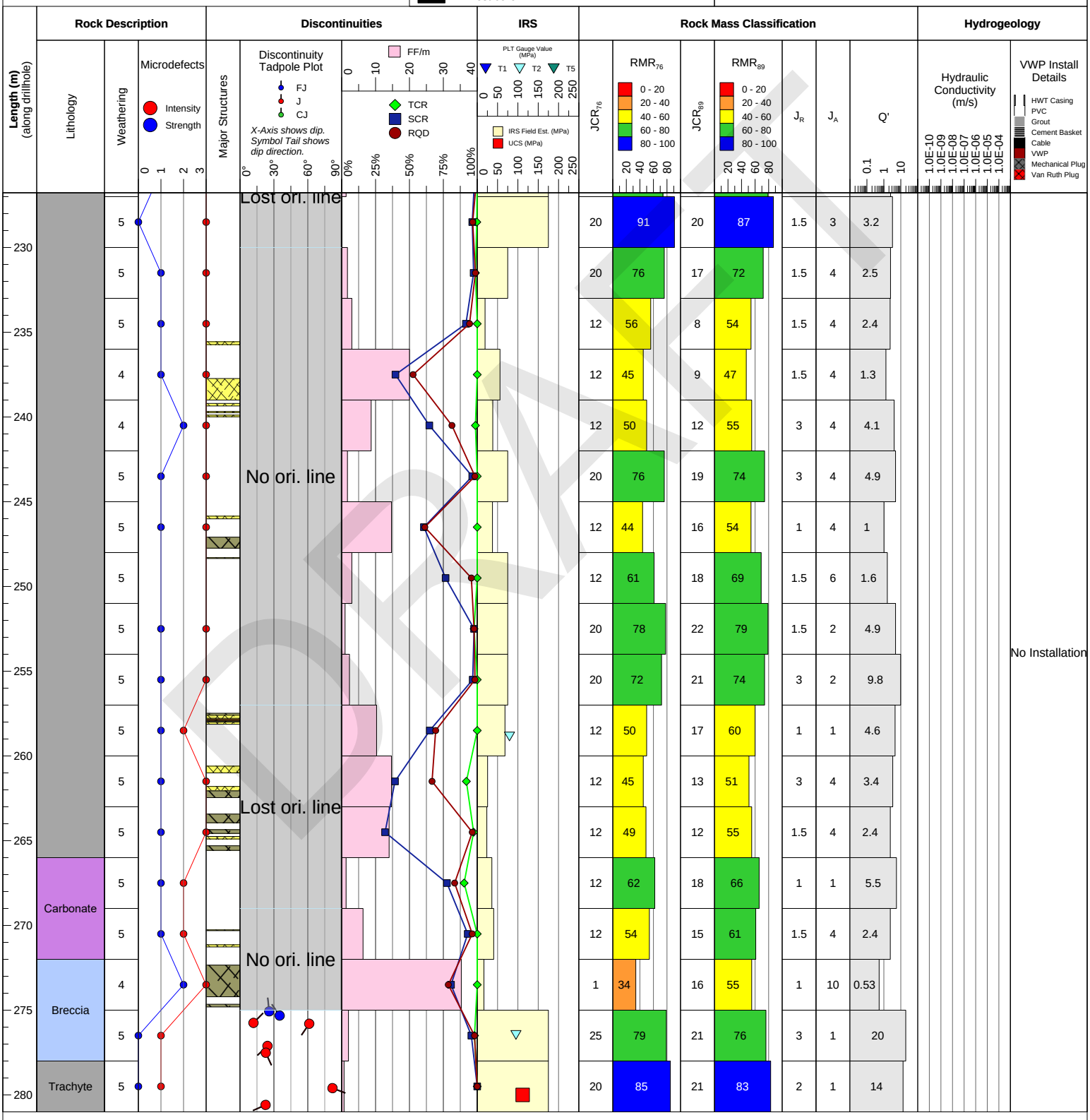

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
230	20	91	20	87	1.5	3	3.2
	20	76	17	72	1.5	4	2.5
235	12	56	8	54	1.5	4	2.4
	12	45	9	47	1.5	4	1.3
240	12	50	12	55	3	4	4.1
	20	76	19	74	3	4	4.9
245	12	44	16	54	1	4	1
	12	61	18	69	1.5	6	1.6
250	20	78	22	79	1.5	2	4.9
	20	72	21	74	3	2	9.8
255	12	50	17	60	1	1	4.6
	12	45	13	51	3	4	3.4
260	12	49	12	55	1.5	4	2.4
	12	62	18	66	1	1	5.5
265	12	54	15	61	1.5	4	2.4
	1	34	16	55	1	10	0.53
270	25	79	21	76	3	1	20
	20	85	21	83	2	1	14
275							
280							

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FIRST MINING GOLD

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CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-021
LOCATION: Springpole Lake, Ontario
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CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/AS/AY/MB/MT

DRILLING DATE: 3/12/2022 **TO:** 3/25/2022
COORDINATES: 549412 m E 5693301 m N
DATUM: UTM WGS84 15N
Elevation (masl): 370
AZIMUTH: 235° **DIP:** 75°
TOTAL LENGTH (m): 551.0
WATER LEVEL EL (masl): N/A

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Rock Description | **Discontinuities** | **IRS** | **Rock Mass Classification** | **Hydrogeology**

Length (m) (along drillhole)
Lithology
Weathering
Microdefects (Intensity, Strength)
Major Structures
Discontinuity Tadpole Plot (FJ, J) — *X-Axis shows dip. Symbol Tail shows dip direction.*
FF/m
TCR, SCR, RQD
PLT Gauge Value (MPa) T1, T2, T5
IRS Field Est. (MPa), UCS (MPa)
JCR_{76}
RMR_{76} (0 - 20, 20 - 40, 40 - 60, 60 - 80, 80 - 100)
JCR_{89}
RMR_{89} (0 - 20, 20 - 40, 40 - 60, 60 - 80, 80 - 100)
J_R
J_A
Q'
Hydraulic Conductivity (m/s)
VWP Install Details (HWT Casing, PVC, Grout, Cement Basket, Cable, VWP, Mechanical Plug, Van Ruth Plug)

No Recovery: Geotechnical Data Unavailable.

No Installation

No ori. line

Lost ori. line

Length (m)	Weathering	JCR_{76}	RMR_{76}	JCR_{89}	RMR_{89}	J_R	J_A	Q'
40 - 45	3	12	43	10	47	1.5	3	2.5
45 - 50	3	12	49	15	57	1	4	1.5
50 - 55	5	12	51	15	57	1.5	4	2.3
55 - 60	5	12	55	12	56	1.5	4	2
60 - 65	5	12	68	18	75	1.5	4	2.4

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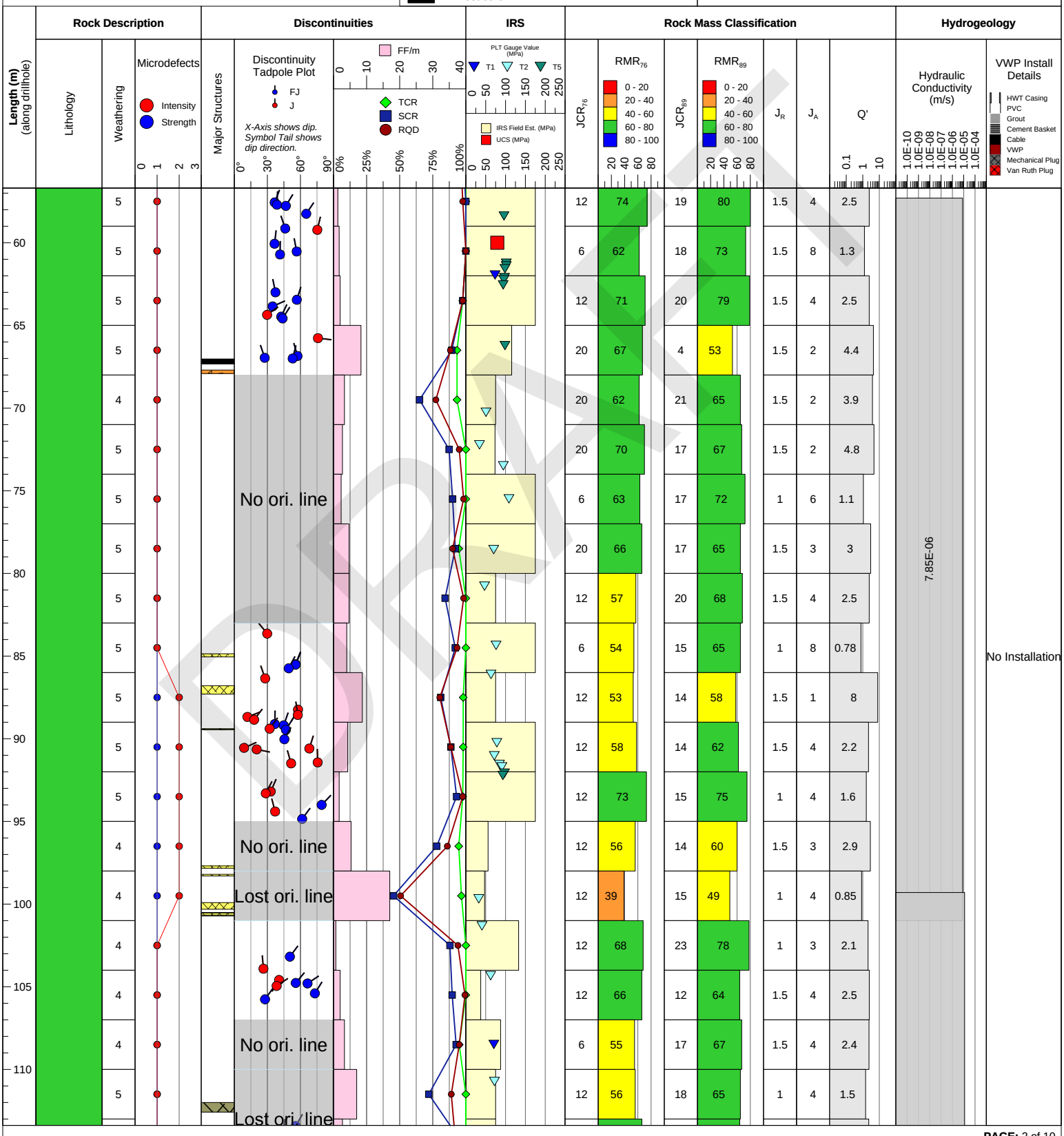

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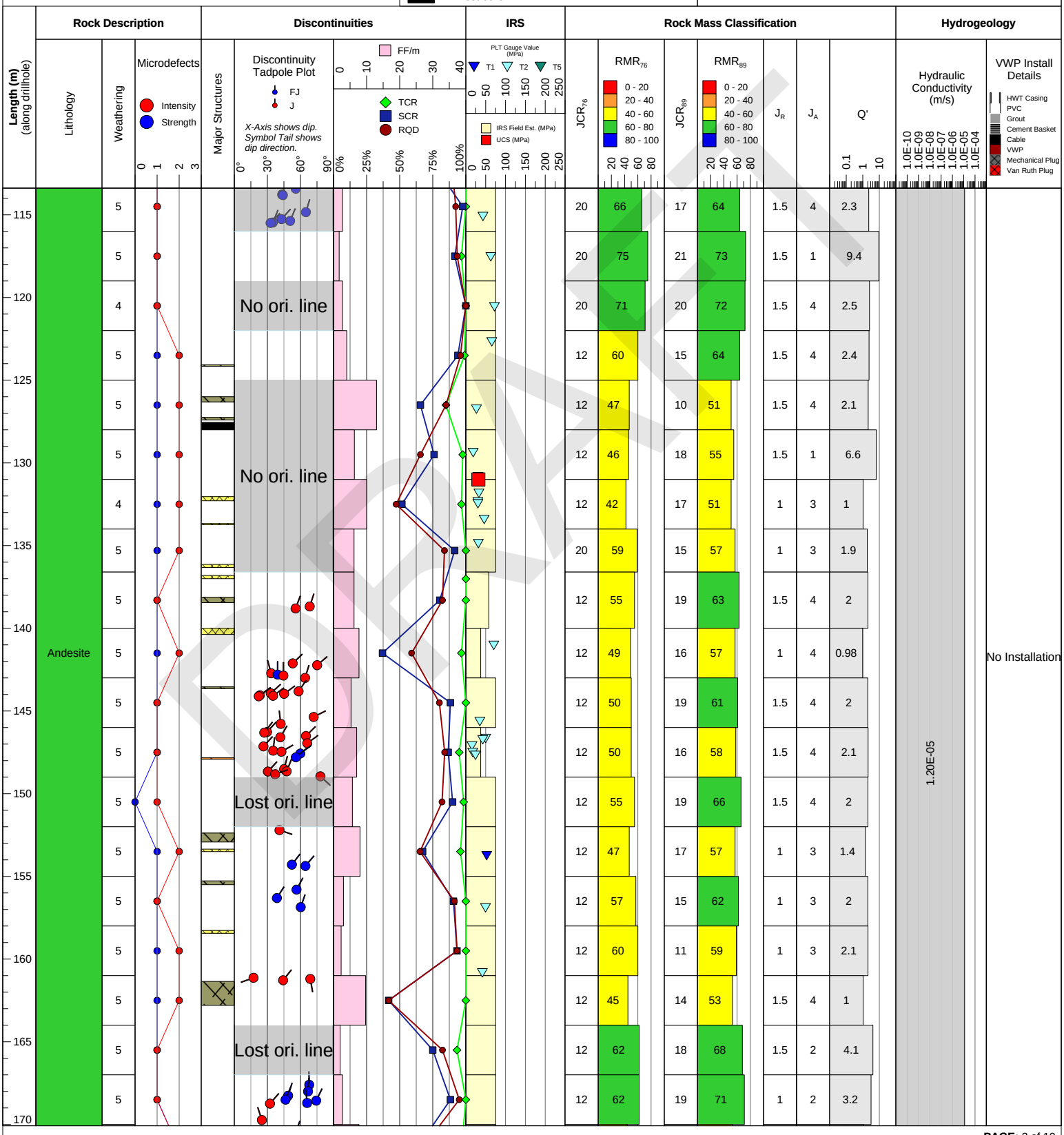

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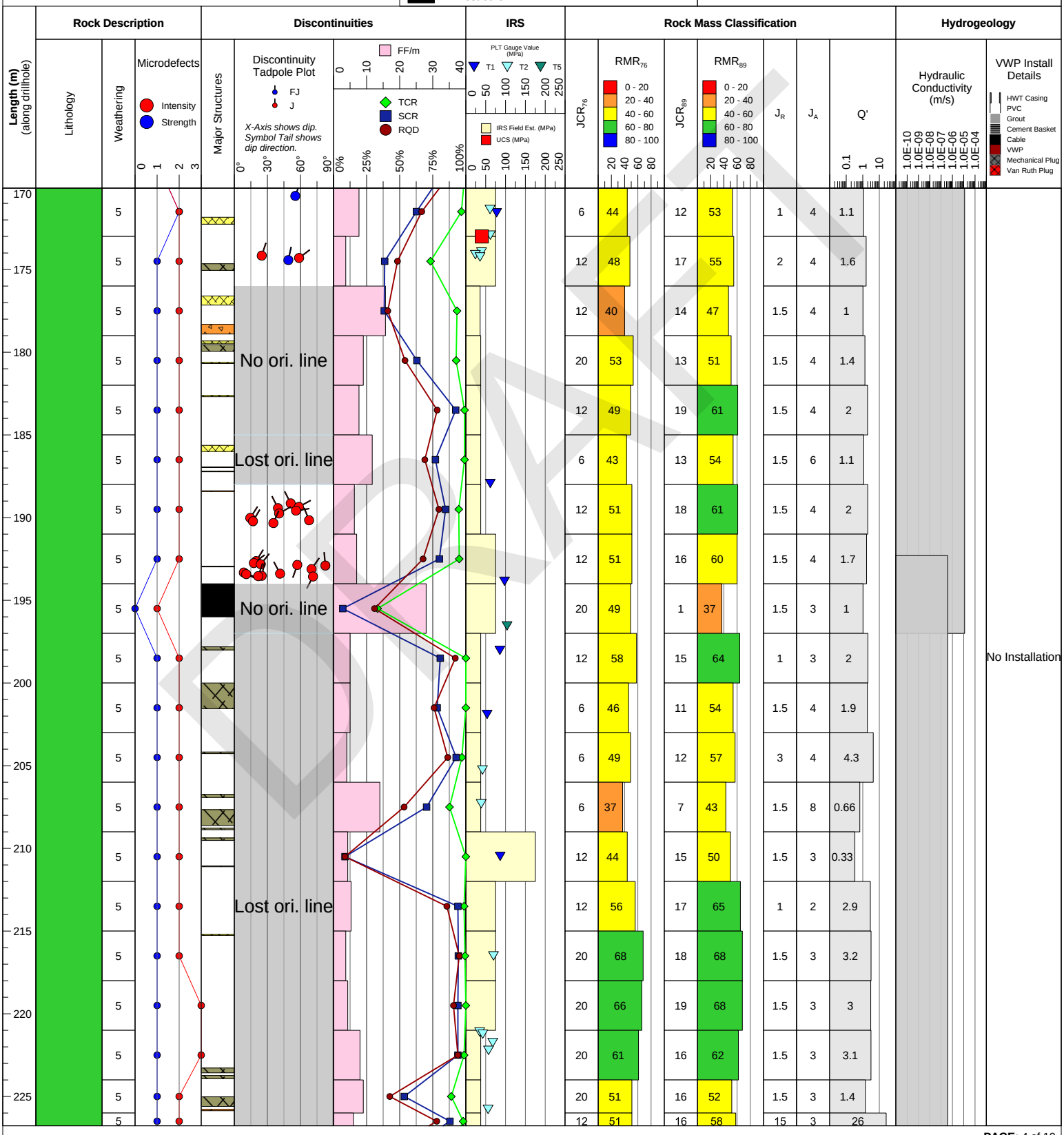

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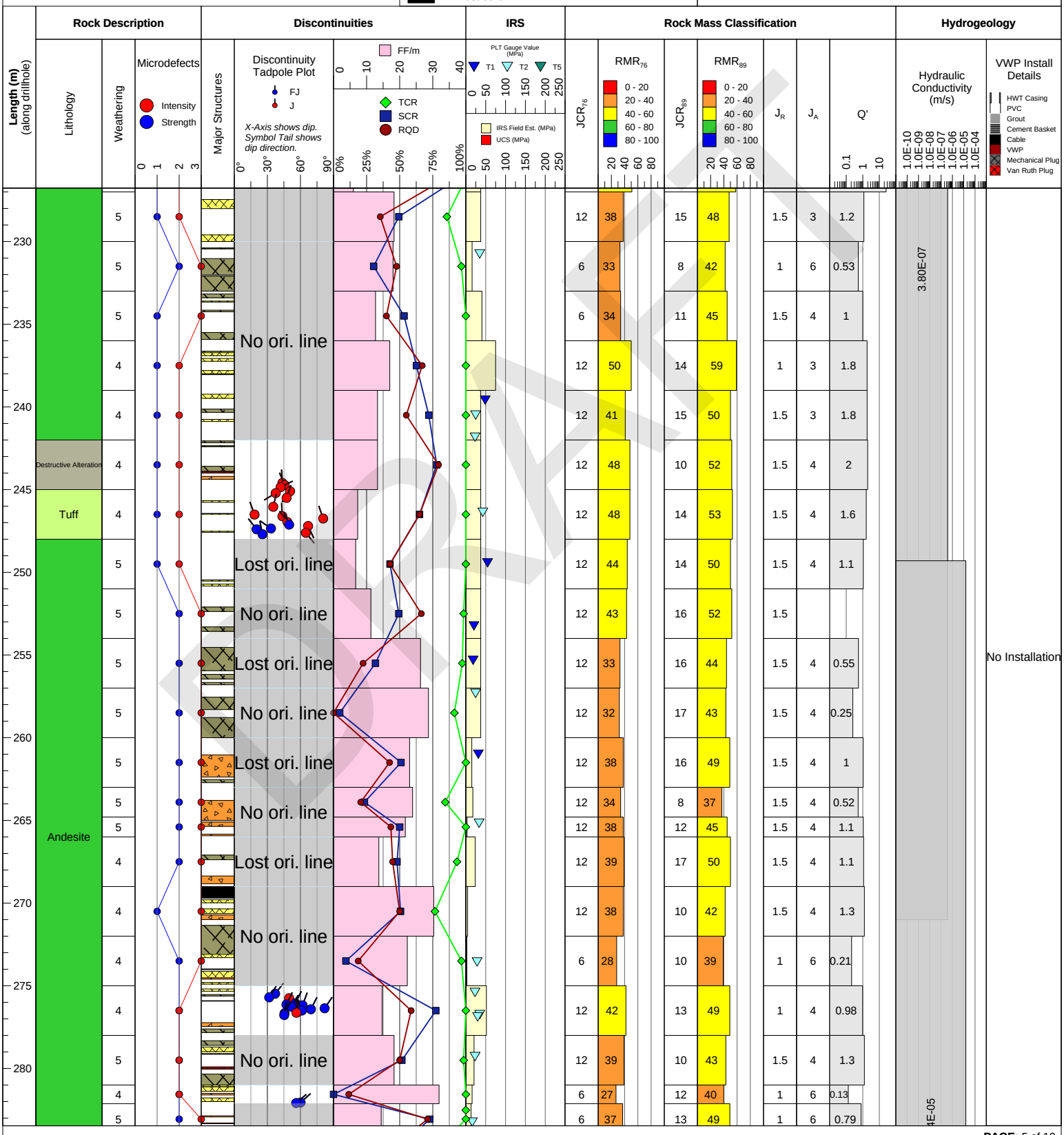

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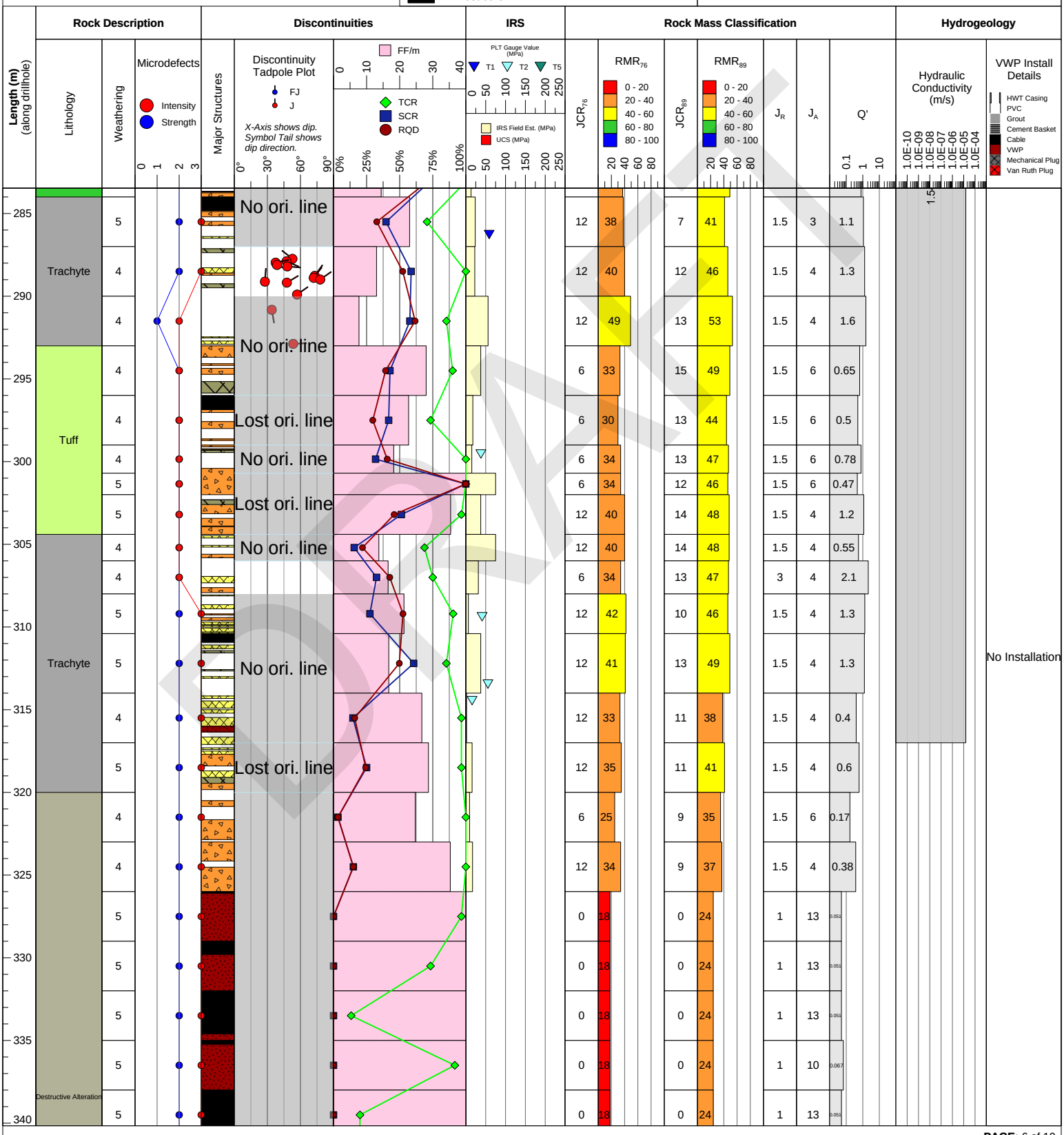

Length (m)	Lithology	Weathering	Major Structures	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
285	Trachyte	5	No ori. line	12	38	7	41	1.5	3	1.1
		4		12	40	12	46	1.5	4	1.3
290		4		12	49	13	53	1.5	4	1.6
		4	No ori. line	6	33	15	49	1.5	6	0.65
295	Tuff	4		6	30	13	44	1.5	6	0.5
		4	Lost ori. line	6	34	13	47	1.5	6	0.78
300		5	No ori. line	6	34	12	46	1.5	6	0.47
		5	Lost ori. line	12	40	14	48	1.5	4	1.2
305	Trachyte	4	No ori. line	12	40	14	48	1.5	4	0.55
		4		6	34	13	47	3	4	2.1
		5		12	42	10	46	1.5	4	1.3
310		5	No ori. line	12	41	13	49	1.5	4	1.3
		4		12	33	11	38	1.5	4	0.4
315		5	Lost ori. line	12	35	11	41	1.5	4	0.6
	Destructive Alteration	4		6	25	9	35	1.5	6	0.17
320		4		12	34	9	37	1.5	4	0.38
		5		0	18	0	24	1	13	0.05
325		5		0	18	0	24	1	13	0.05
		5		0	18	0	24	1	13	0.05
330		5		0	18	0	24	1	10	0.067
335		5		0	18	0	24	1	13	0.05
340										

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DRILLHOLE ID: SG22-021
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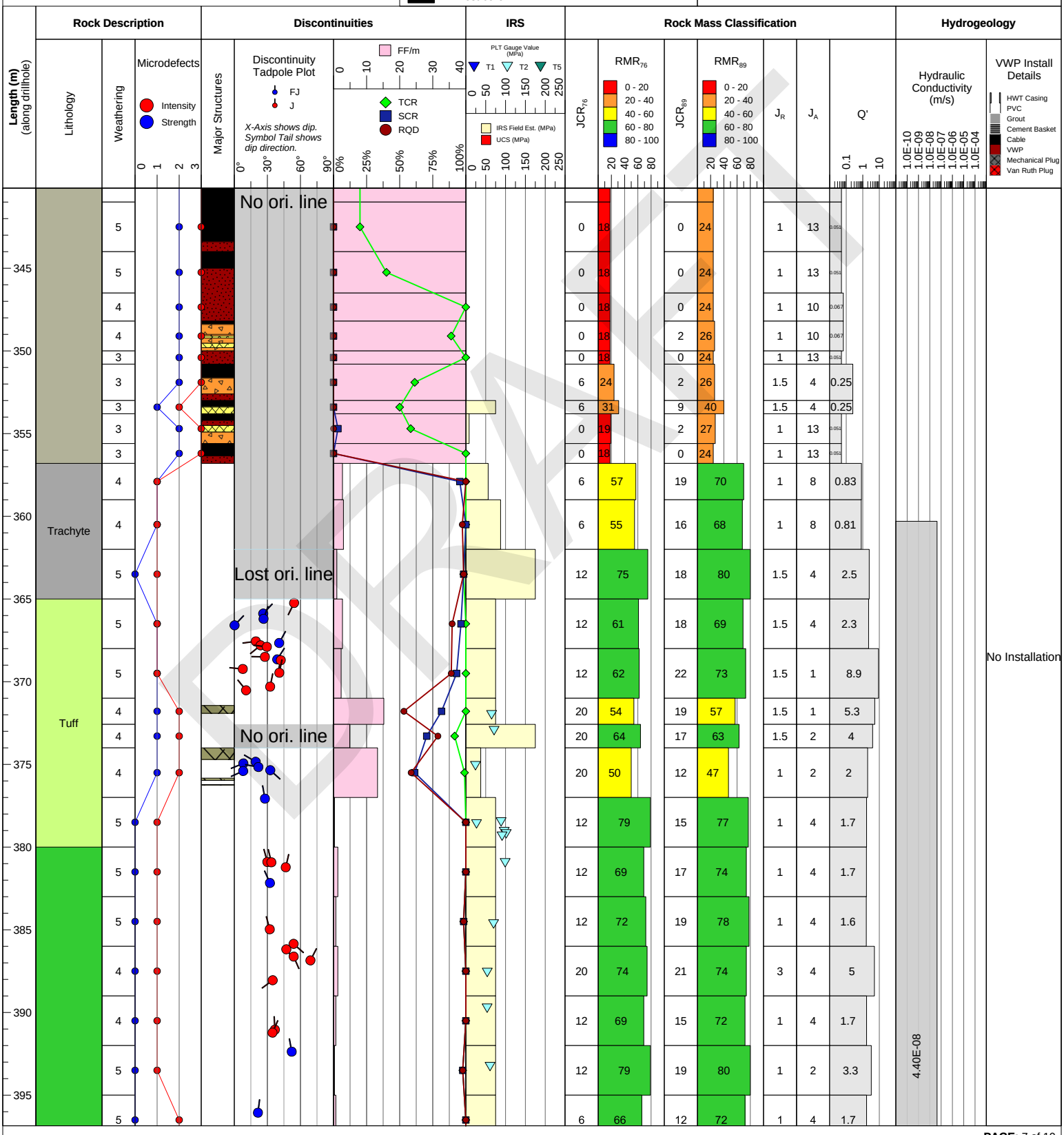

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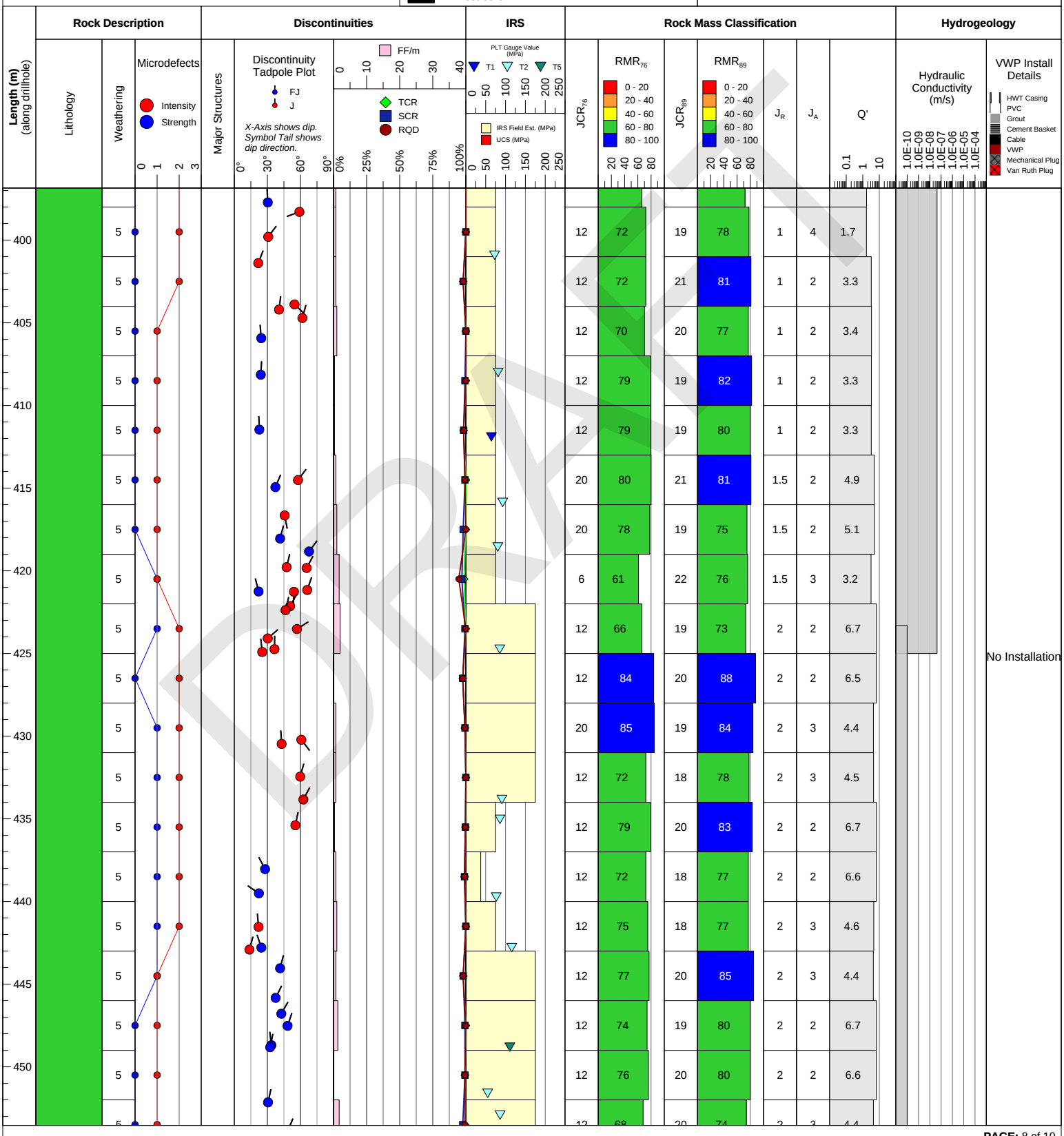

Length (m)	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
400	5	12	72	19	78	1	4	1.7
	5	12	72	21	81	1	2	3.3
405	5	12	70	20	77	1	2	3.4
	5	12	79	19	82	1	2	3.3
410	5	12	79	19	80	1	2	3.3
	5	20	80	21	81	1.5	2	4.9
415	5	20	78	19	75	1.5	2	5.1
	5	6	61	22	76	1.5	3	3.2
420	5	12	66	19	73	2	2	6.7
	5	12	84	20	88	2	2	6.5
425	5	20	85	19	84	2	3	4.4
	5	12	72	18	78	2	3	4.5
430	5	12	79	20	83	2	2	6.7
	5	12	72	18	77	2	2	6.6
435	5	12	75	18	77	2	3	4.6
	5	12	77	20	85	2	3	4.4
440	5	12	74	19	80	2	2	6.7
	5	12	76	20	80	2	2	6.6
445	5	12	68	20	74	2	3	4.4
	5	12	72	19	78	2	2	6.7
450	5	12	72	19	78	2	2	6.7

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-021
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/AS/AY/MB/MT

DRILLING DATE: 3/12/2022 **TO:** 3/25/2022
COORDINATES: 549412 m E 5693301 m N
DATUM: UTM WGS84 15N
Elevation (masl): 370
AZIMUTH: 235° **DIP:** 75°
TOTAL LENGTH (m): 551.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
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MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
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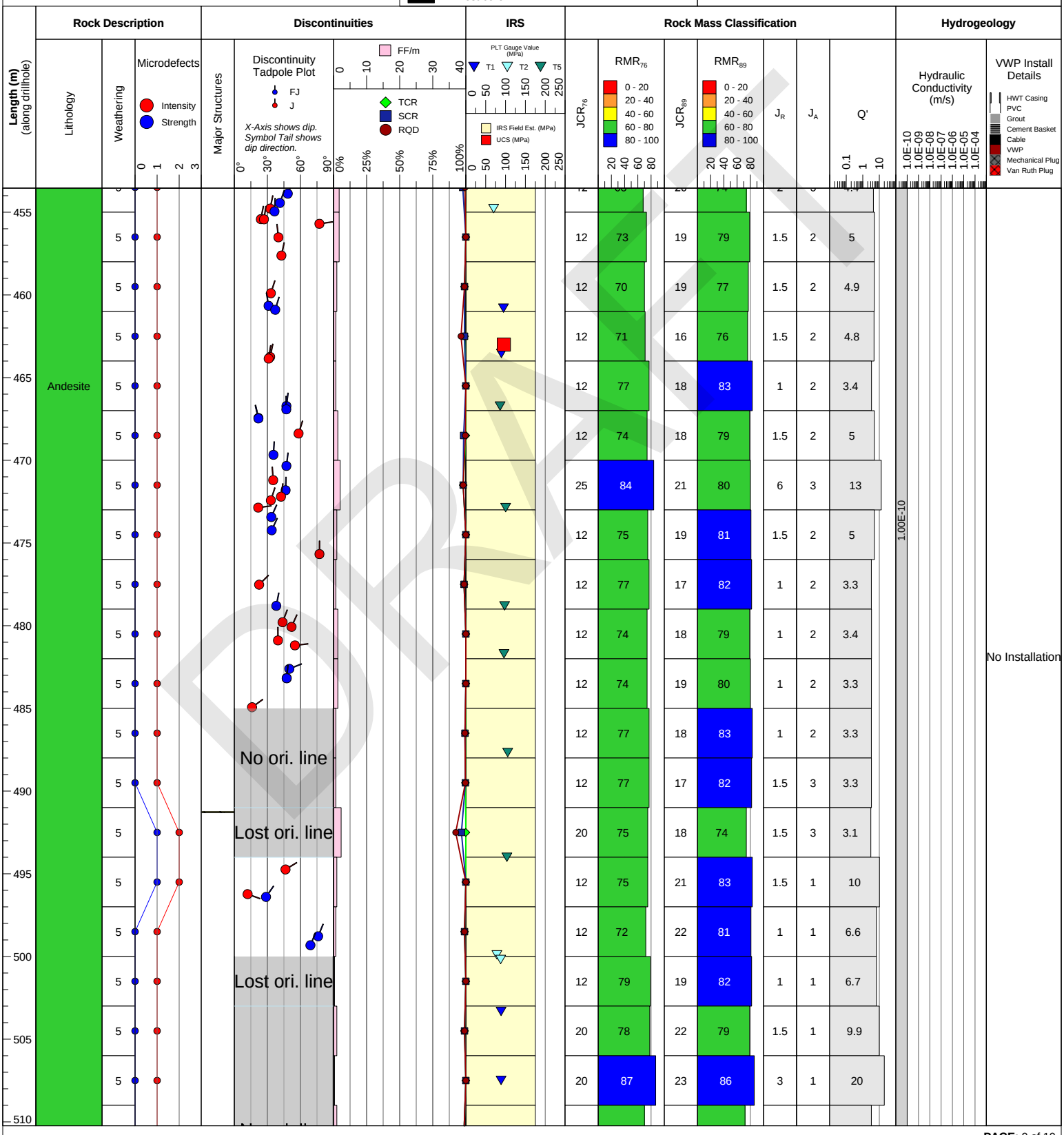
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
L - Lost core.

NOTES:
Lithology is based on loggin my First Mining Gold
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
455	12	73	19	79	1.5	2	5
460	12	70	19	77	1.5	2	4.9
465	12	71	16	76	1.5	2	4.8
470	12	77	18	83	1	2	3.4
475	12	74	18	79	1.5	2	5
480	25	84	21	80	6	3	13
485	12	75	19	81	1.5	2	5
490	12	77	17	82	1	2	3.3
495	12	74	18	79	1	2	3.4
500	12	74	19	80	1	2	3.3
505	12	77	18	83	1	2	3.3
510	12	77	17	82	1.5	3	3.3
	20	75	18	74	1.5	3	3.1
	12	75	21	83	1.5	1	10
	12	72	22	81	1	1	6.6
	12	79	19	82	1	1	6.7
	20	78	22	79	1.5	1	9.9
	20	87	23	86	3	1	20

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-021
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/AS/AY/MB/MT

DRILLING DATE: 3/12/2022 **TO:** 3/25/2022
COORDINATES: 549412 m E 5693301 m N
DATUM: UTM WGS84 15N
Elevation (masl): 370
AZIMUTH: 235° **DIP:** 75°
TOTAL LENGTH (m): 551.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:

TCR: Total Core Recovery
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RQD: Rock Quality Designation
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L - Lost core.

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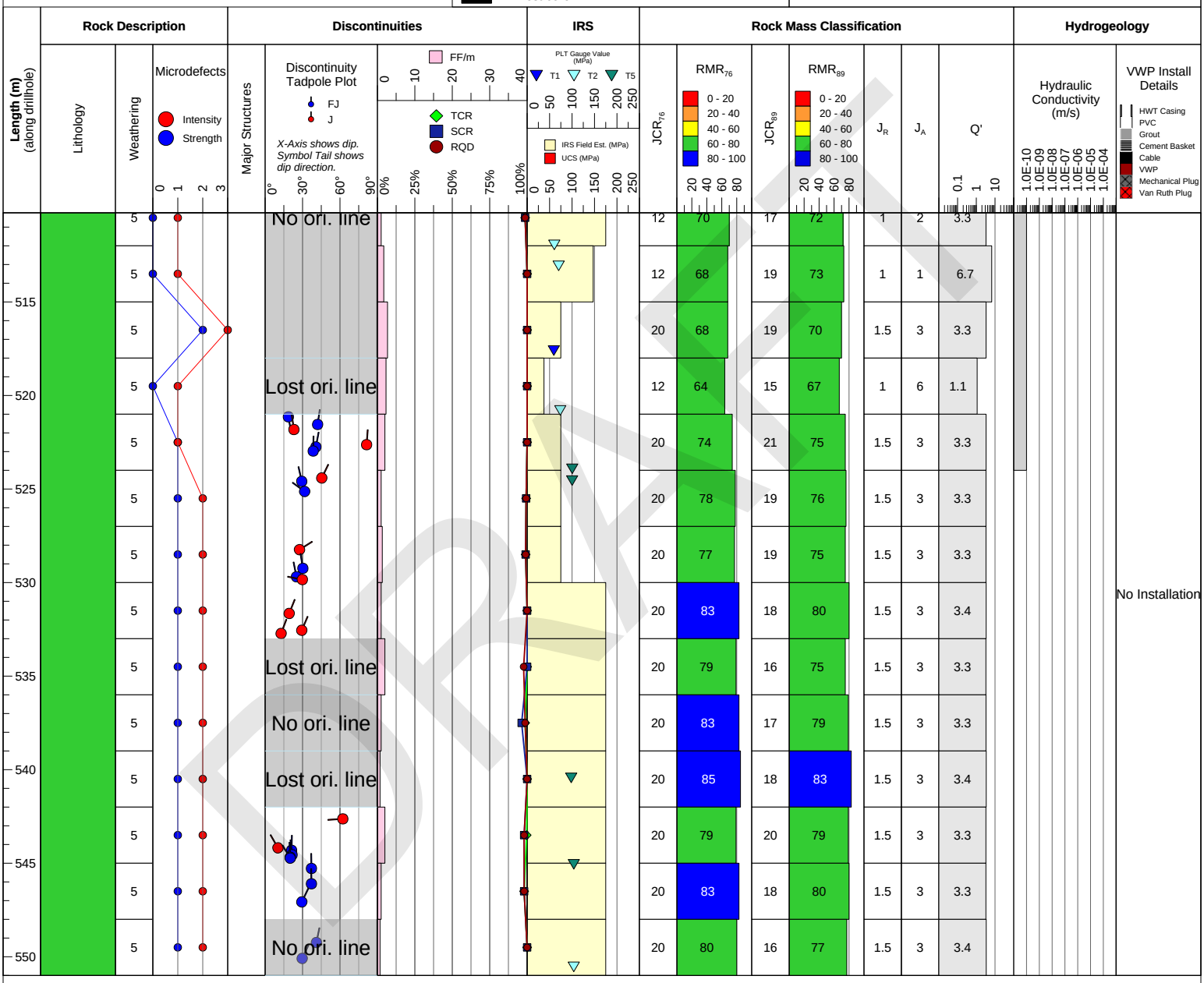

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
515	12	70	17	72	1	2	3.3
	12	68	19	73	1	1	6.7
	20	68	19	70	1.5	3	3.3
520	12	64	15	67	1	6	1.1
	20	74	21	75	1.5	3	3.3
525	20	78	19	76	1.5	3	3.3
	20	77	19	75	1.5	3	3.3
530	20	83	18	80	1.5	3	3.4
535	20	79	16	75	1.5	3	3.3
	20	83	17	79	1.5	3	3.3
540	20	85	18	83	1.5	3	3.4
	20	79	20	79	1.5	3	3.3
545	20	83	18	80	1.5	3	3.3
550	20	80	16	77	1.5	3	3.4

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

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PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/BTS/HM/MB/MT

DRILLING DATE: 3/15/2022 **TO:** 3/28/2022
COORDINATES: 549958 m E 5693381 m N
DATUM: UTM WGS84 15N
Elevation (masl): 388
AZIMUTH: 73° **DIP:** 75°
TOTAL LENGTH (m): 497.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
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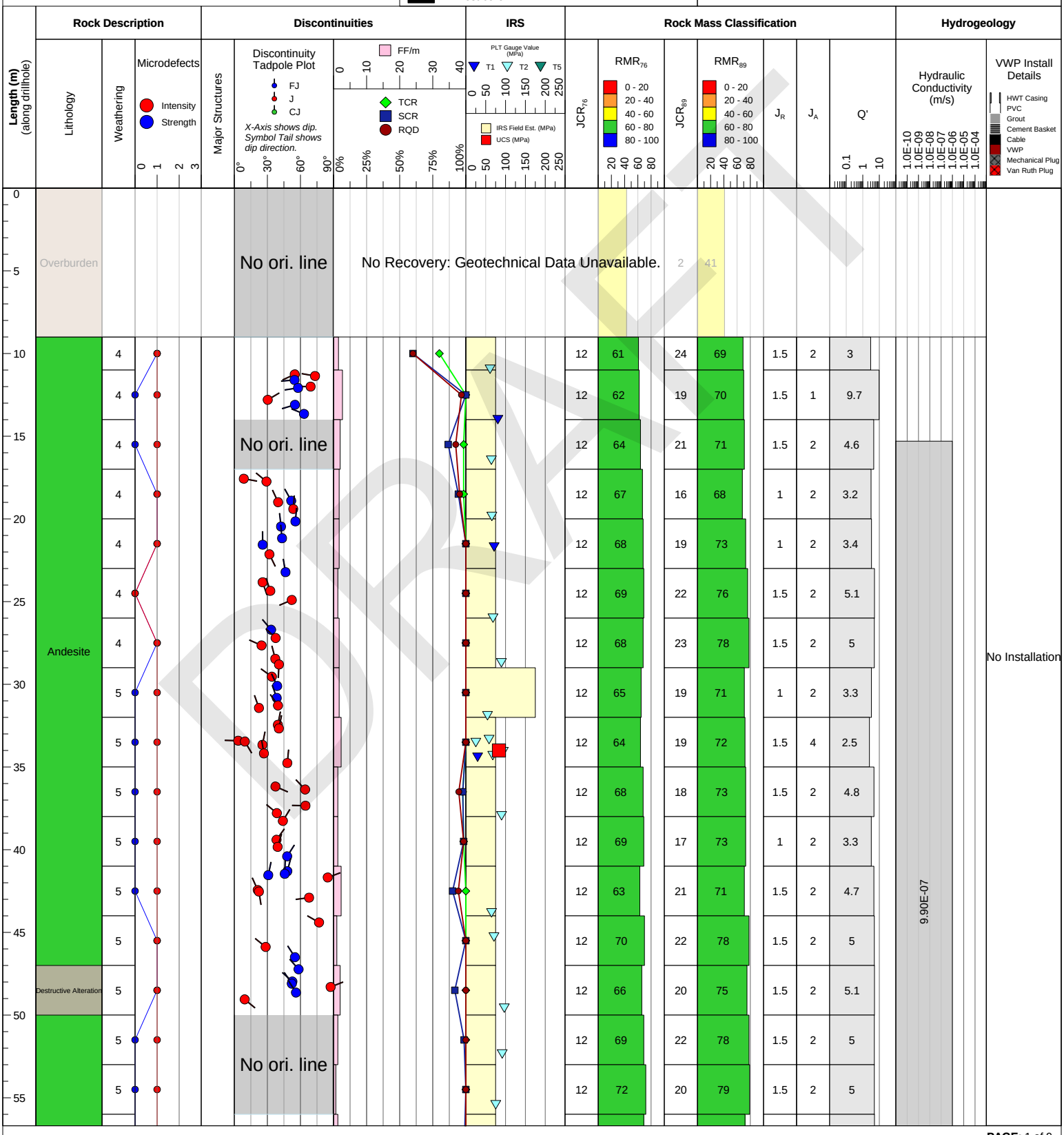

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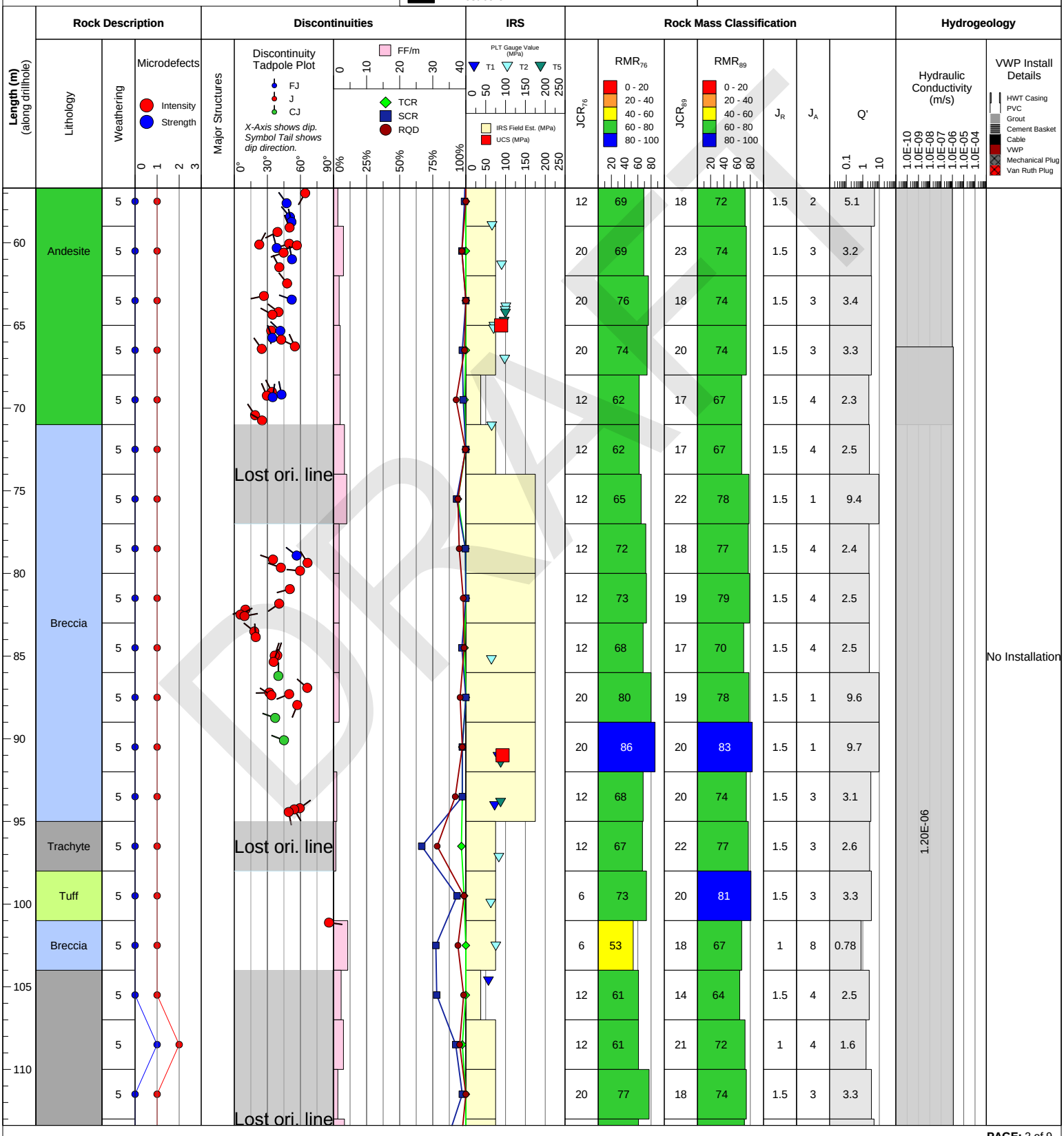

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
60	Andesite	5	12	69	18	72	1.5	2	5.1
		5	20	69	23	74	1.5	3	3.2
65		5	20	76	18	74	1.5	3	3.4
		5	20	74	20	74	1.5	3	3.3
70		5	12	62	17	67	1.5	4	2.3
	Breccia	5	12	62	17	67	1.5	4	2.5
75		5	12	65	22	78	1.5	1	9.4
		5	12	72	18	77	1.5	4	2.4
80		5	12	73	19	79	1.5	4	2.5
		5	12	68	17	70	1.5	4	2.5
85		5	20	80	19	78	1.5	1	9.6
		5	20	86	20	83	1.5	1	9.7
90		5	12	68	20	74	1.5	3	3.1
		5	12	67	22	77	1.5	3	2.6
95	Trachyte	5	6	73	20	81	1.5	3	3.3
	Tuff	5	6	53	18	67	1	8	0.78
100	Breccia	5	12	61	14	64	1.5	4	2.5
		5	12	61	21	72	1	4	1.6
105		5	20	77	18	74	1.5	3	3.3
		5							
110		5							

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/BTS/HM/MB/MT

DRILLING DATE: 3/15/2022 **TO:** 3/28/2022
COORDINATES: 549958 m E 5693381 m N
DATUM: UTM WGS84 15N
Elevation (masl): 388
AZIMUTH: 73° **DIP:** 75°
TOTAL LENGTH (m): 497.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:

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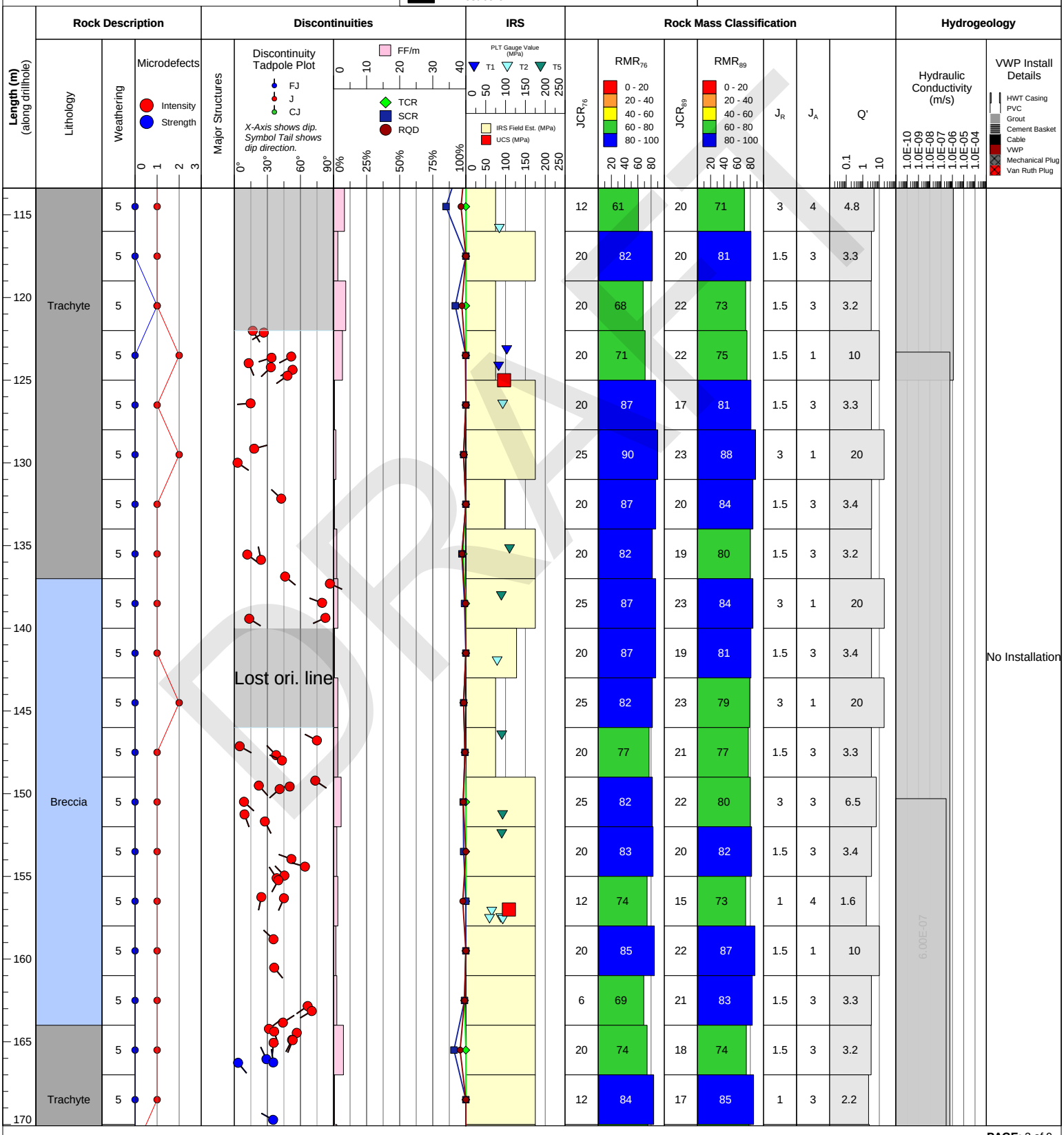

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
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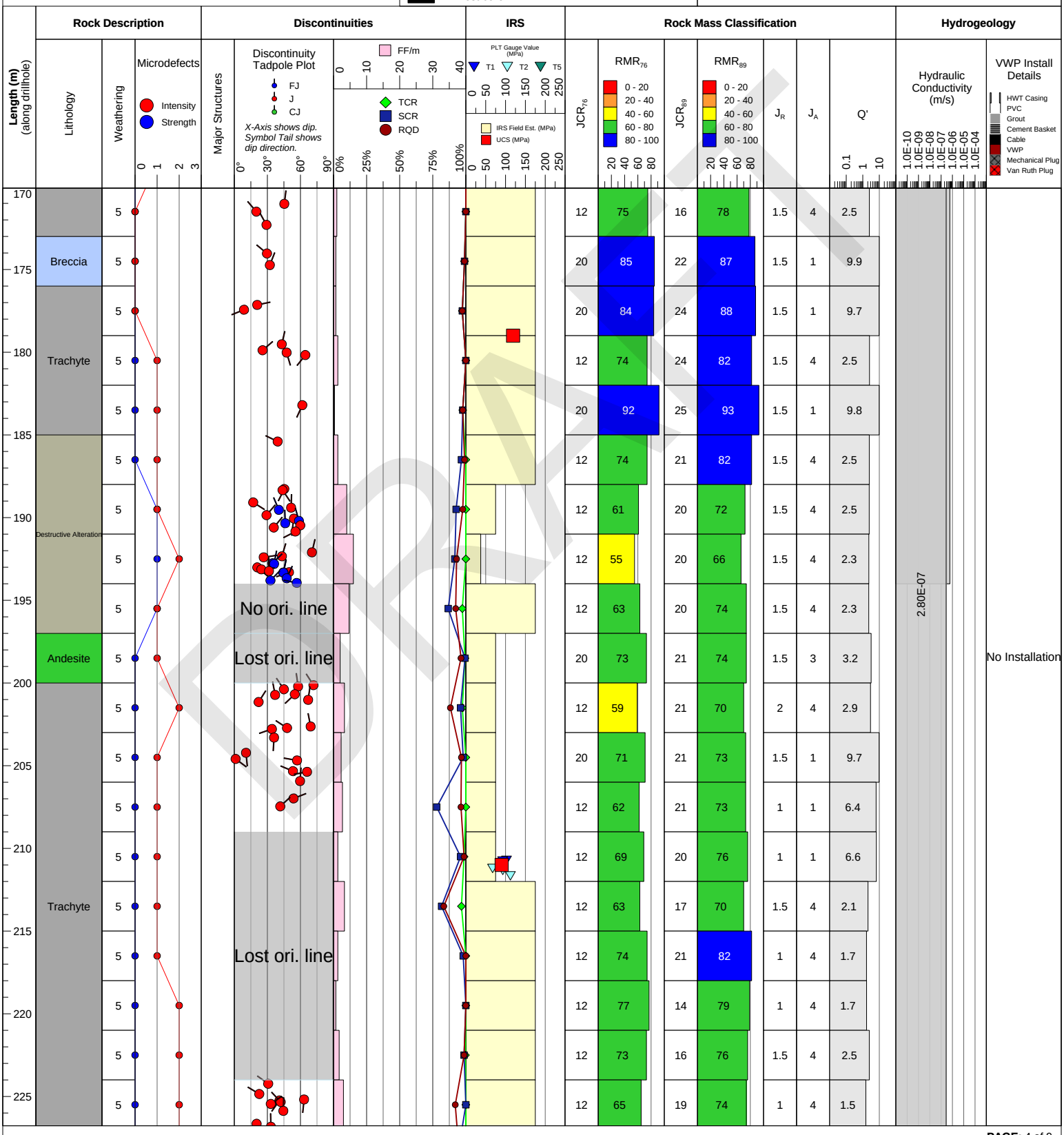

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
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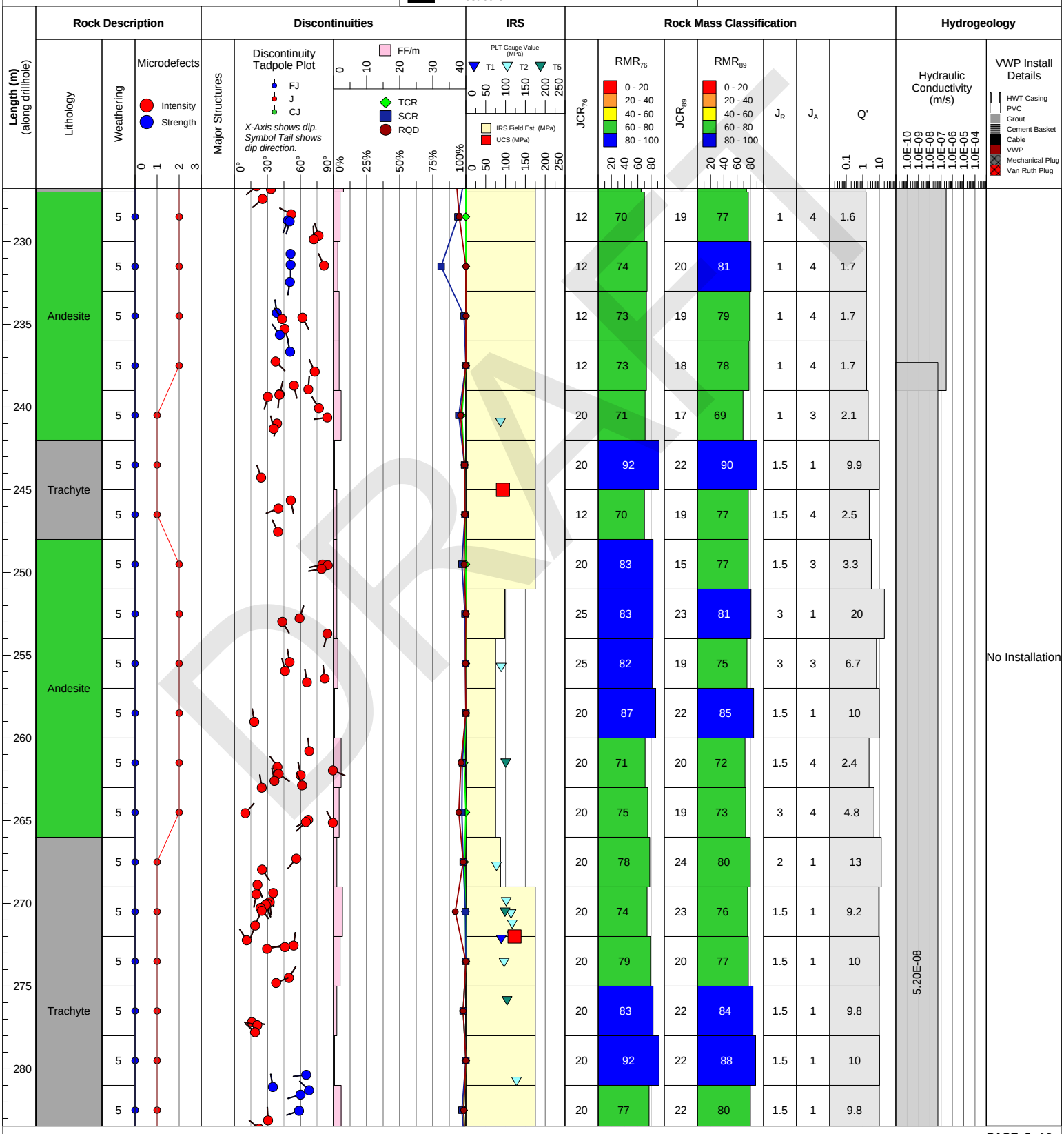

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
230	Andesite	5	12	70	19	77	1	4	1.6
		5	12	74	20	81	1	4	1.7
235		5	12	73	19	79	1	4	1.7
		5	12	73	18	78	1	4	1.7
240		5	20	71	17	69	1	3	2.1
	Trachyte	5	20	92	22	90	1.5	1	9.9
245		5	12	70	19	77	1.5	4	2.5
	Andesite	5	20	83	15	77	1.5	3	3.3
250		5	25	83	23	81	3	1	20
		5	25	82	19	75	3	3	6.7
255		5	20	87	22	85	1.5	1	10
		5	20	71	20	72	1.5	4	2.4
260		5	20	75	19	73	3	4	4.8
	Trachyte	5	20	78	24	80	2	1	13
265		5	20	74	23	76	1.5	1	9.2
		5	20	79	20	77	1.5	1	10
270		5	20	83	22	84	1.5	1	9.8
		5	20	92	22	88	1.5	1	10
275		5	20	77	22	80	1.5	1	9.8
280									

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First Mining Gold

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/BTS/HM/MB/MT

DRILLING DATE: 3/15/2022 **TO:** 3/28/2022
COORDINATES: 549958 m E 5693381 m N
DATUM: UTM WGS84 15N
Elevation (masl): 388
AZIMUTH: 73° **DIP:** 75°
TOTAL LENGTH (m): 497.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
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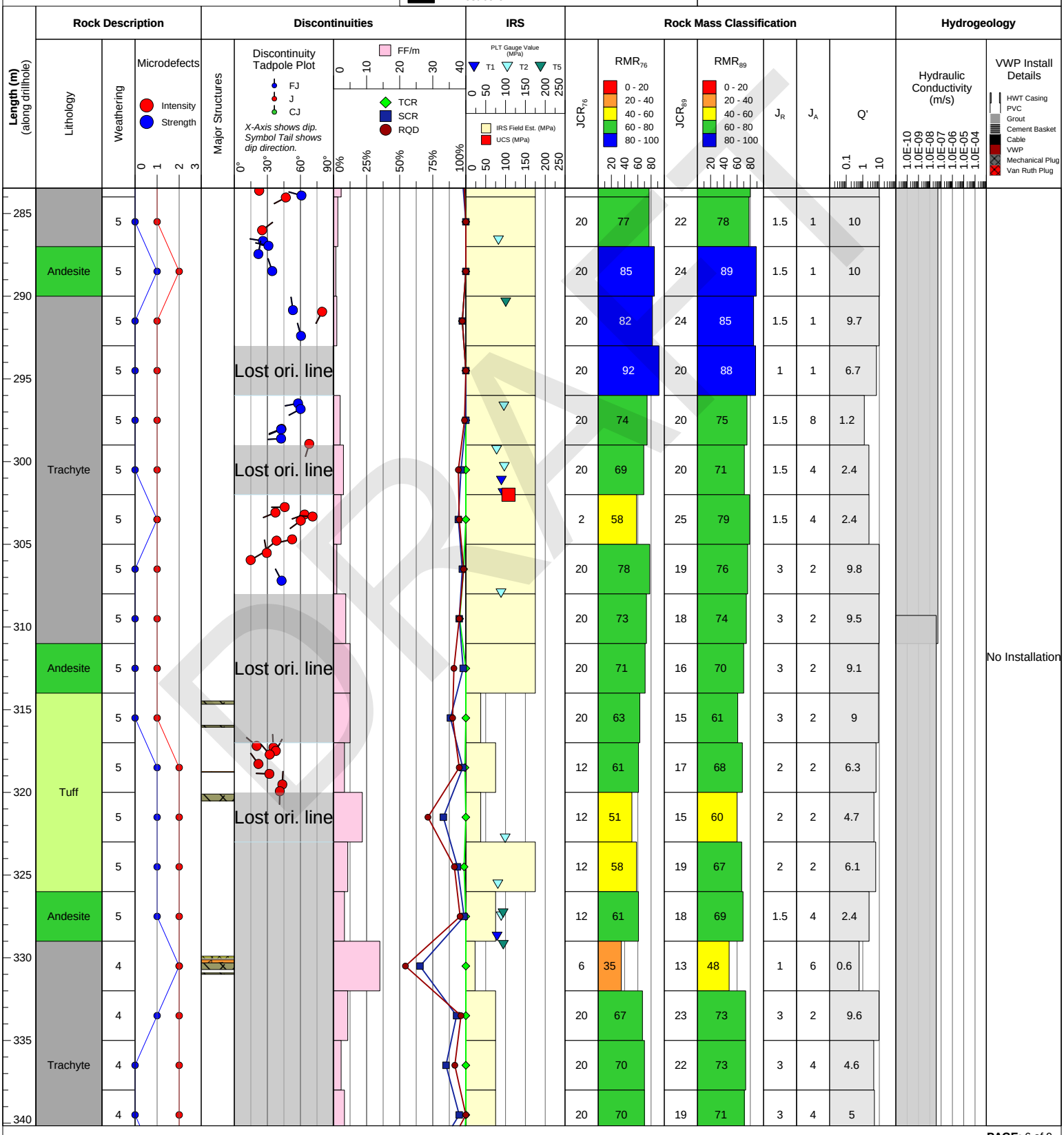

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
285		5	20	77	22	78	1.5	1	10
	Andesite	5	20	85	24	89	1.5	1	10
290		5	20	82	24	85	1.5	1	9.7
		5	20	92	20	88	1	1	6.7
295		5	20	74	20	75	1.5	8	1.2
	Trachyte	5	20	69	20	71	1.5	4	2.4
300		5	2	58	25	79	1.5	4	2.4
		5	20	78	19	76	3	2	9.8
305		5	20	73	18	74	3	2	9.5
	Andesite	5	20	71	16	70	3	2	9.1
310		5	20	63	15	61	3	2	9
	Tuff	5	12	61	17	68	2	2	6.3
315		5	12	51	15	60	2	2	4.7
		5	12	58	19	67	2	2	6.1
320	Andesite	5	12	61	18	69	1.5	4	2.4
		4	6	35	13	48	1	6	0.6
325		4	20	67	23	73	3	2	9.6
	Trachyte	4	20	70	22	73	3	4	4.6
330		4	20	70	19	71	3	4	5
335									
340									

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/BTS/HM/MB/MT

DRILLING DATE: 3/15/2022 **TO:** 3/28/2022
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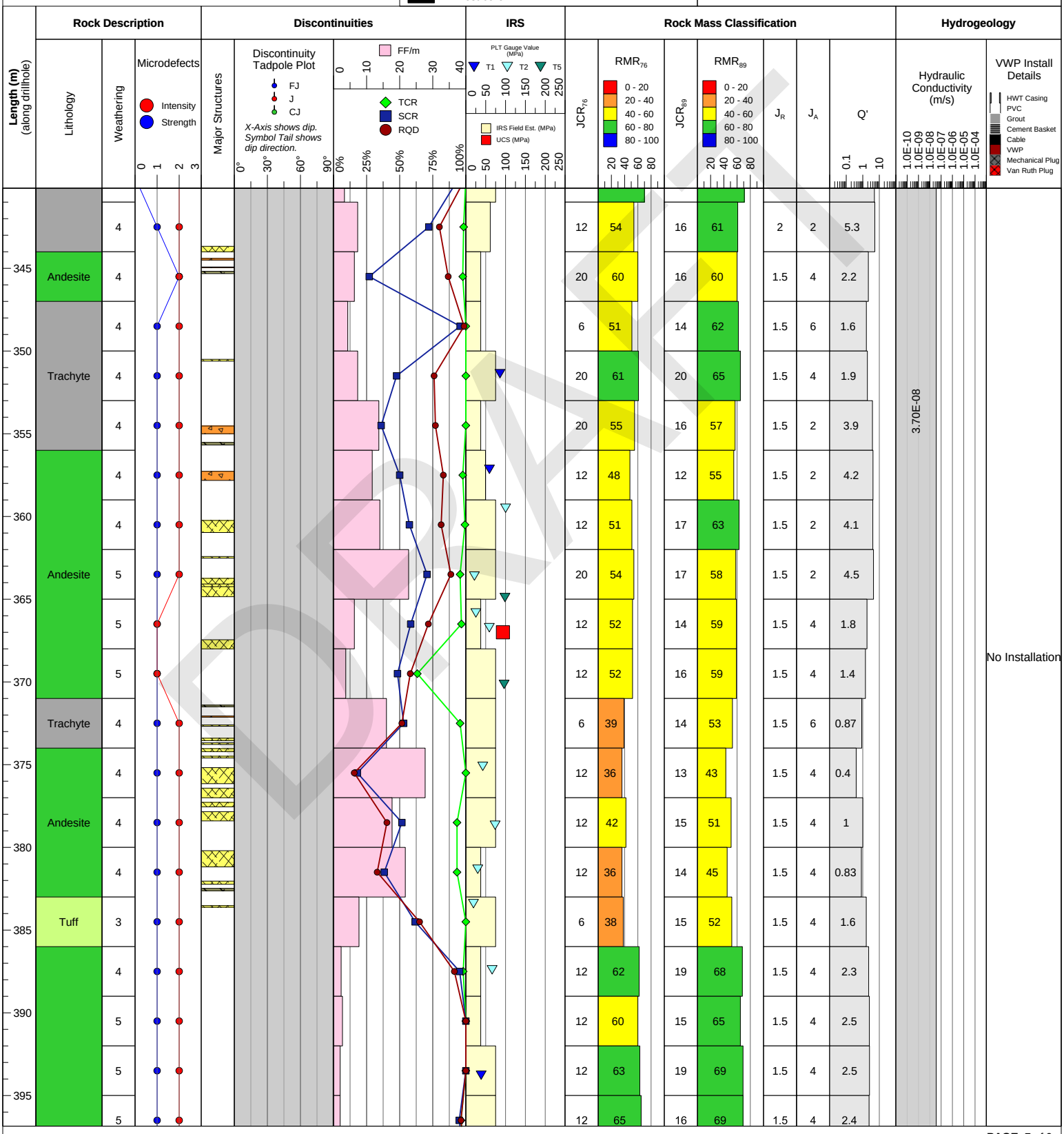

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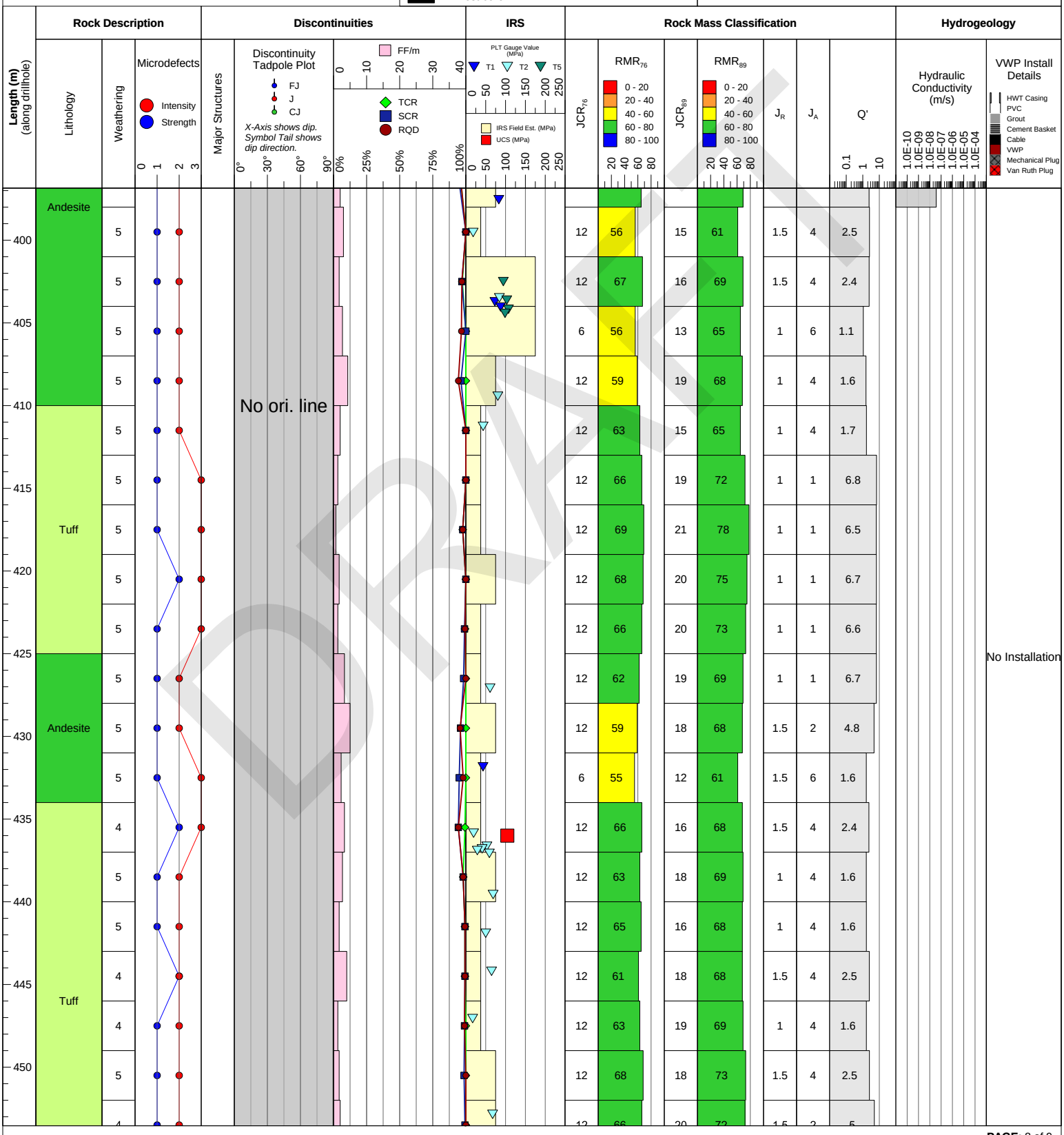
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-023
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/BTS/HM/MB/MT

DRILLING DATE: 3/15/2022 **TO:** 3/28/2022
COORDINATES: 549958 m E 5693381 m N
DATUM: UTM WGS84 15N
Elevation (masl): 388
AZIMUTH: 73° **DIP:** 75°
TOTAL LENGTH (m): 497.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
UCS: Uniaxial Compressive Strength

MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
L - Lost core.

NOTES:
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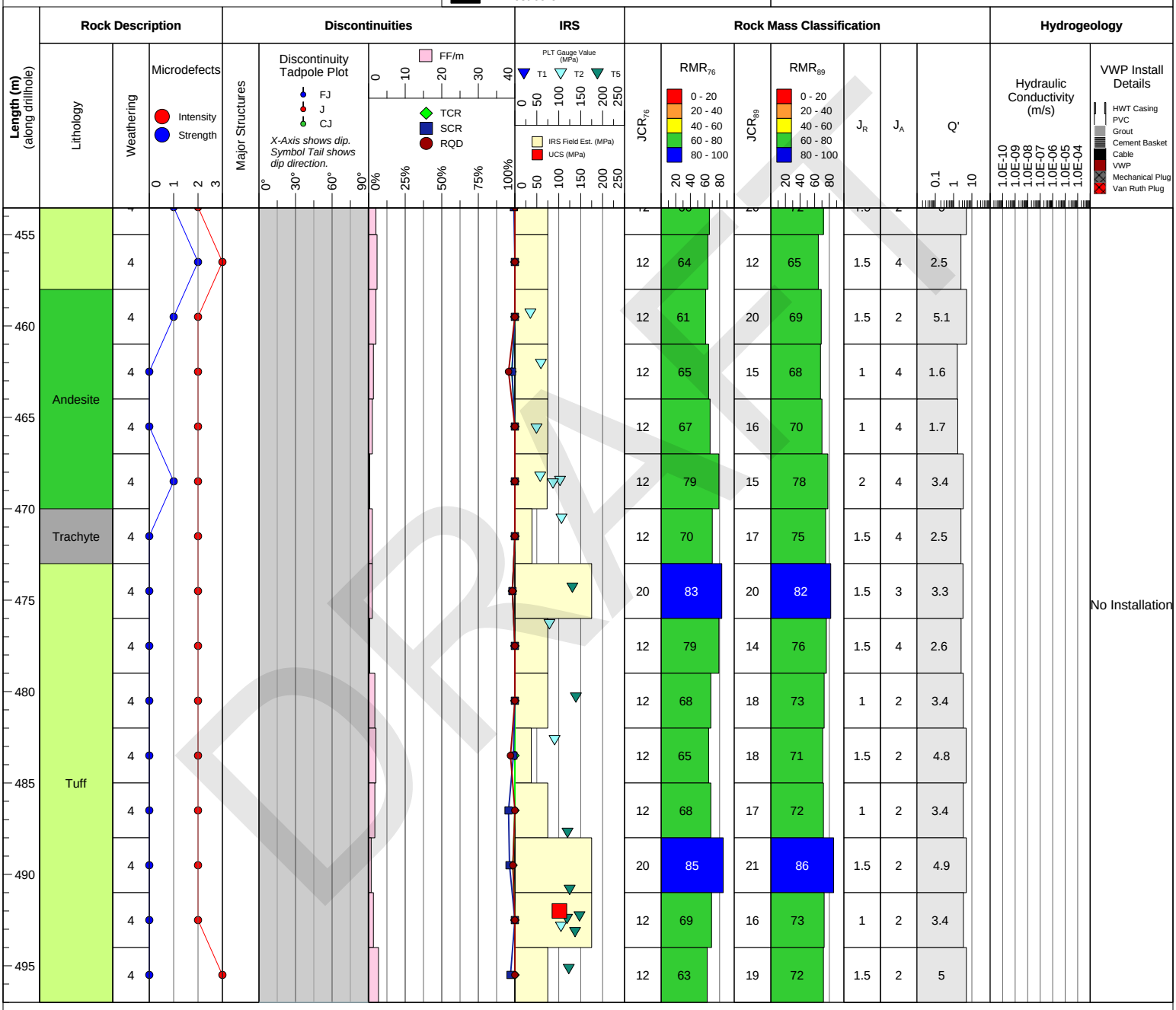

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
455		4	12	64	12	65	1.5	4	2.5
460	Andesite	4	12	61	20	69	1.5	2	5.1
		4	12	65	15	68	1	4	1.6
465		4	12	67	16	70	1	4	1.7
		4	12	79	15	78	2	4	3.4
470	Trachyte	4	12	70	17	75	1.5	4	2.5
	Tuff	4	20	83	20	82	1.5	3	3.3
475		4	12	79	14	76	1.5	4	2.6
		4	12	68	18	73	1	2	3.4
480		4	12	65	18	71	1.5	2	4.8
		4	12	68	17	72	1	2	3.4
485		4	20	85	21	86	1.5	2	4.9
		4	12	69	16	73	1	2	3.4
490		4	12	63	19	72	1.5	2	5
495									

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

PROJECT: Springpole FS Open Pit Slope Design
CLIENT: First Mining Gold Corp

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
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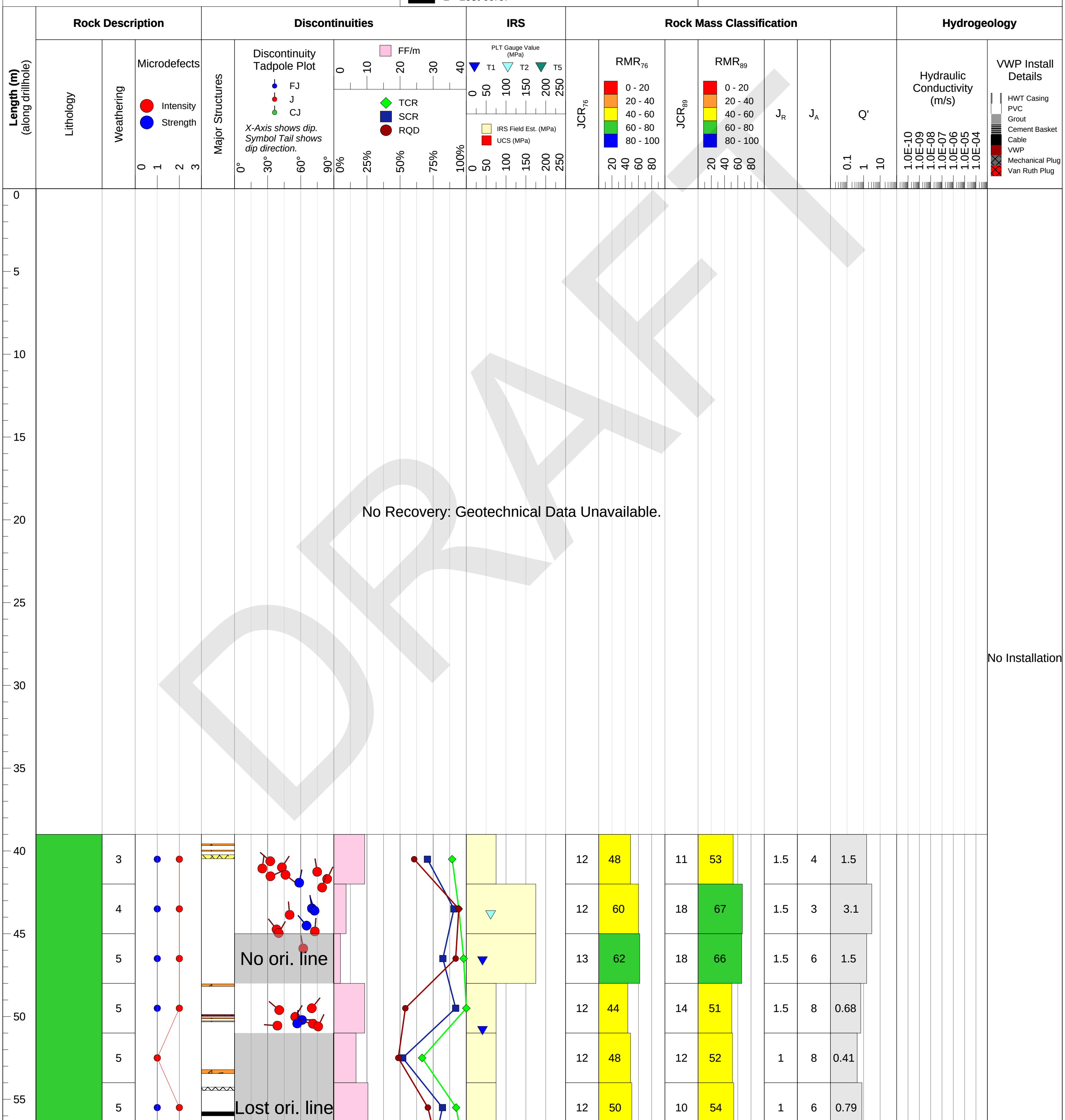

Weathering	JCR_{76}	RMR_{76}	JCR_{89}	RMR_{89}	J_R	J_A	Q'
3	12	48	11	53	1.5	4	1.5
4	12	60	18	67	1.5	3	3.1
5	13	62	18	66	1.5	6	1.5
5	12	44	14	51	1.5	8	0.68
5	12	48	12	52	1	8	0.41
5	12	50	10	54	1	6	0.79

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
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FF/m: Fracture Frequency per metre
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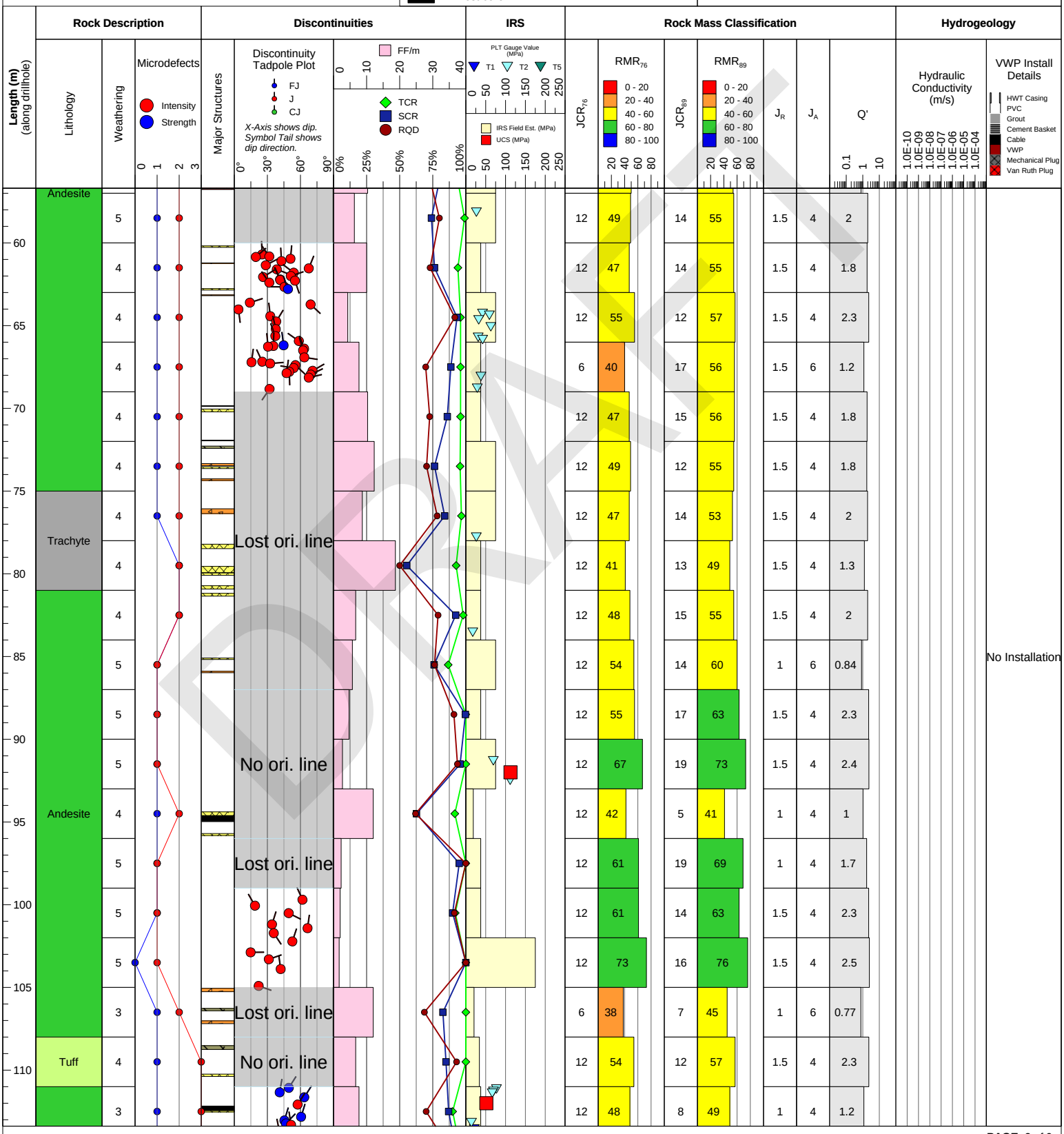

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
60	Andesite	5	12	49	14	55	1.5	4	2
		4	12	47	14	55	1.5	4	1.8
65		4	12	55	12	57	1.5	4	2.3
		4	6	40	17	56	1.5	6	1.2
70		4	12	47	15	56	1.5	4	1.8
		4	12	49	12	55	1.5	4	1.8
75	Trachyte	4	12	47	14	53	1.5	4	2
		4	12	41	13	49	1.5	4	1.3
80	Andesite	4	12	48	15	55	1.5	4	2
85		5	12	54	14	60	1	6	0.84
		5	12	55	17	63	1.5	4	2.3
90		5	12	67	19	73	1.5	4	2.4
		4	12	42	5	41	1	4	1
95		5	12	61	19	69	1	4	1.7
		5	12	61	14	63	1.5	4	2.3
100		5	12	73	16	76	1.5	4	2.5
		3	6	38	7	45	1	6	0.77
105	Tuff	4	12	54	12	57	1.5	4	2.3
		3	12	48	8	49	1	4	1.2
110									

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
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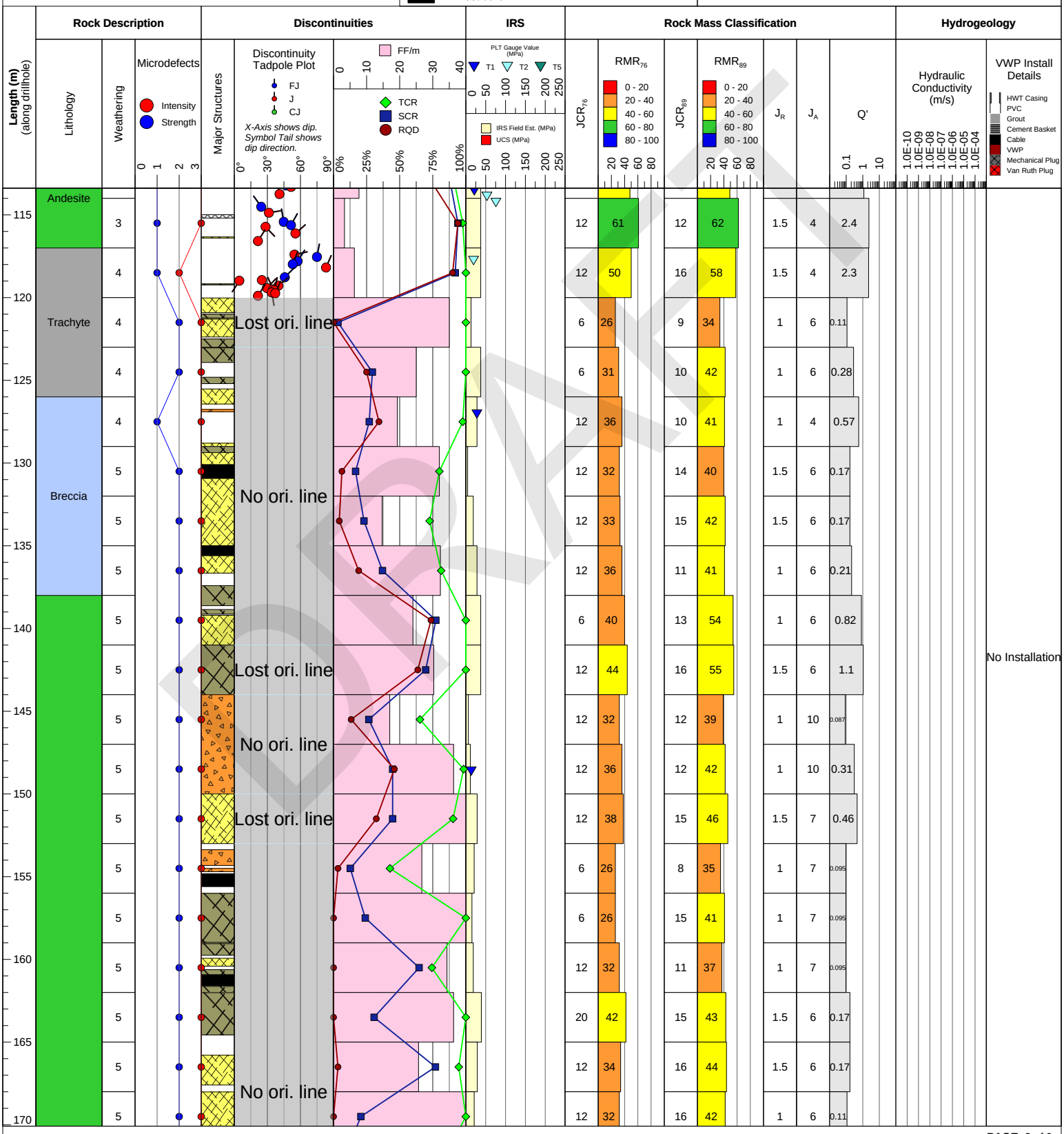

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
115	Andesite	3	12	61	12	62	1.5	4	2.4
		4	12	50	16	58	1.5	4	2.3
120	Trachyte	4	6	26	9	34	1	6	0.11
		4	6	31	10	42	1	6	0.28
125		4	12	36	10	41	1	4	0.57
	Breccia	5	12	32	14	40	1.5	6	0.17
130		5	12	33	15	42	1.5	6	0.17
		5	12	36	11	41	1	6	0.21
135		5	6	40	13	54	1	6	0.82
	Andesite	5	12	44	16	55	1.5	6	1.1
140		5	12	32	12	39	1	10	0.087
		5	12	36	12	42	1	10	0.31
145		5	12	38	15	46	1.5	7	0.46
		5	6	26	8	35	1	7	0.095
150		5	6	26	15	41	1	7	0.095
		5	12	32	11	37	1	7	0.095
155		5	20	42	15	43	1.5	6	0.17
		5	12	34	16	44	1.5	6	0.17
160		5	12	32	16	42	1	6	0.11

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
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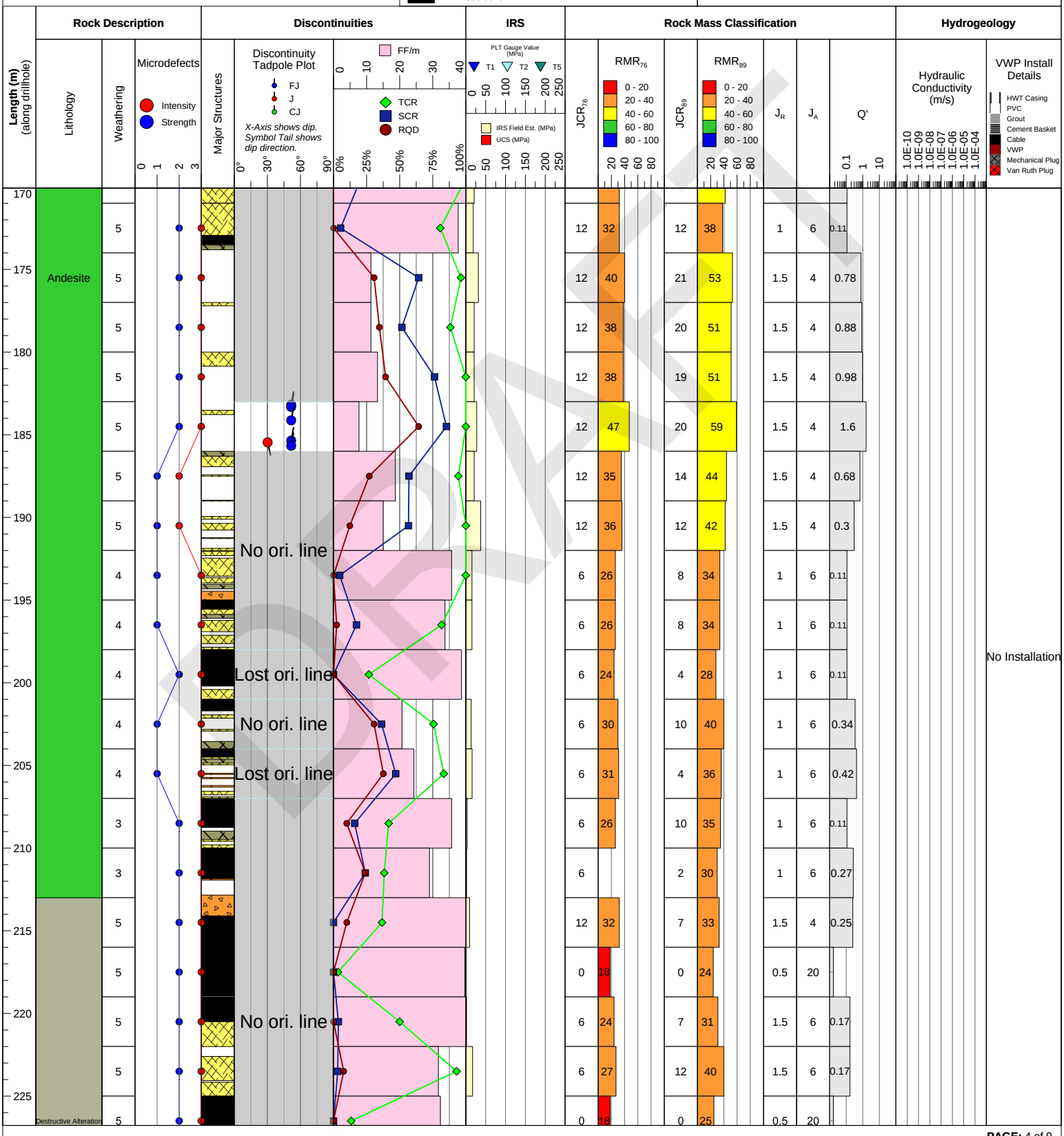

Length (m)	Lithology	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
170	Andesite								
175		5	12	32	12	38	1	6	0.11
		5	12	40	21	53	1.5	4	0.78
180		5	12	38	20	51	1.5	4	0.88
		5	12	38	19	51	1.5	4	0.98
185		5	12	47	20	59	1.5	4	1.6
		5	12	35	14	44	1.5	4	0.68
190		5	12	36	12	42	1.5	4	0.3
		4	6	26	8	34	1	6	0.11
195		4	6	26	8	34	1	6	0.11
		4	6	24	4	28	1	6	0.11
200		4	6	30	10	40	1	6	0.34
		4	6	31	4	36	1	6	0.42
205		3	6	26	10	35	1	6	0.11
		3	6		2	30	1	6	0.27
210		5	12	32	7	33	1.5	4	0.25
		5	0	18	0	24	0.5	20	
215		5	6	24	7	31	1.5	6	0.17
		5	6	27	12	40	1.5	6	0.17
220		5	0	18	0	25	0.5	20	
225									

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

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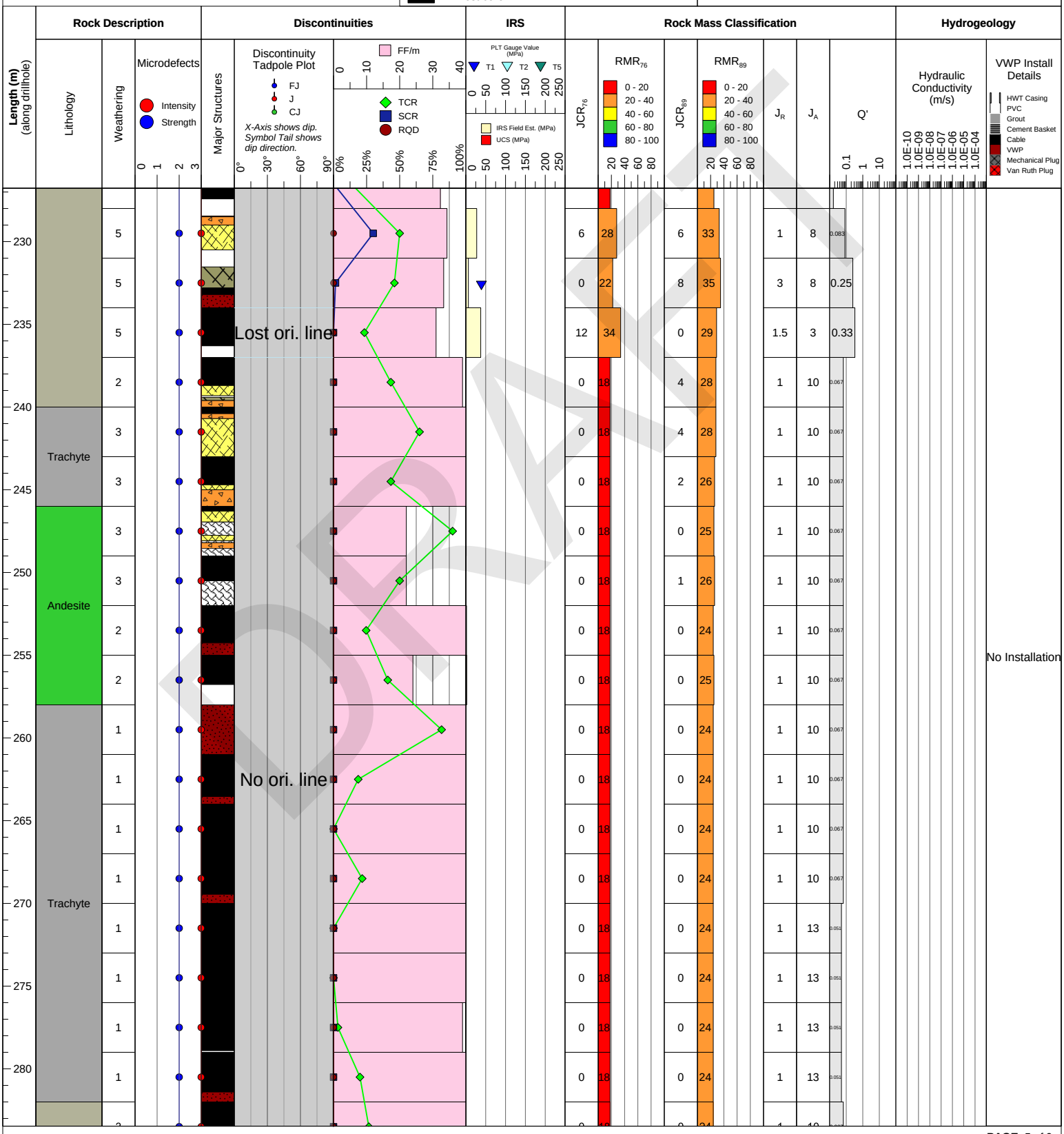

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

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DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
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CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

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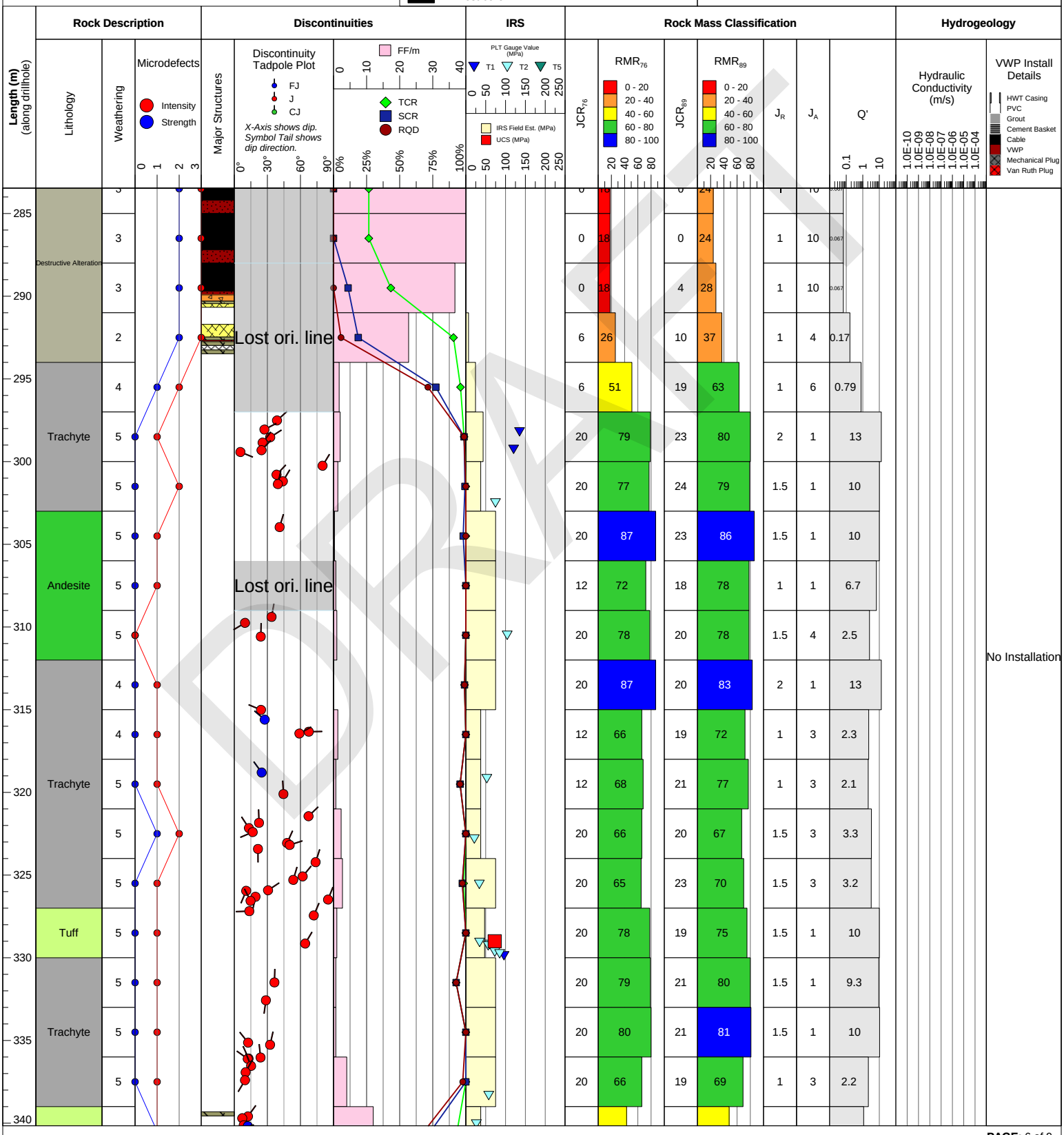

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
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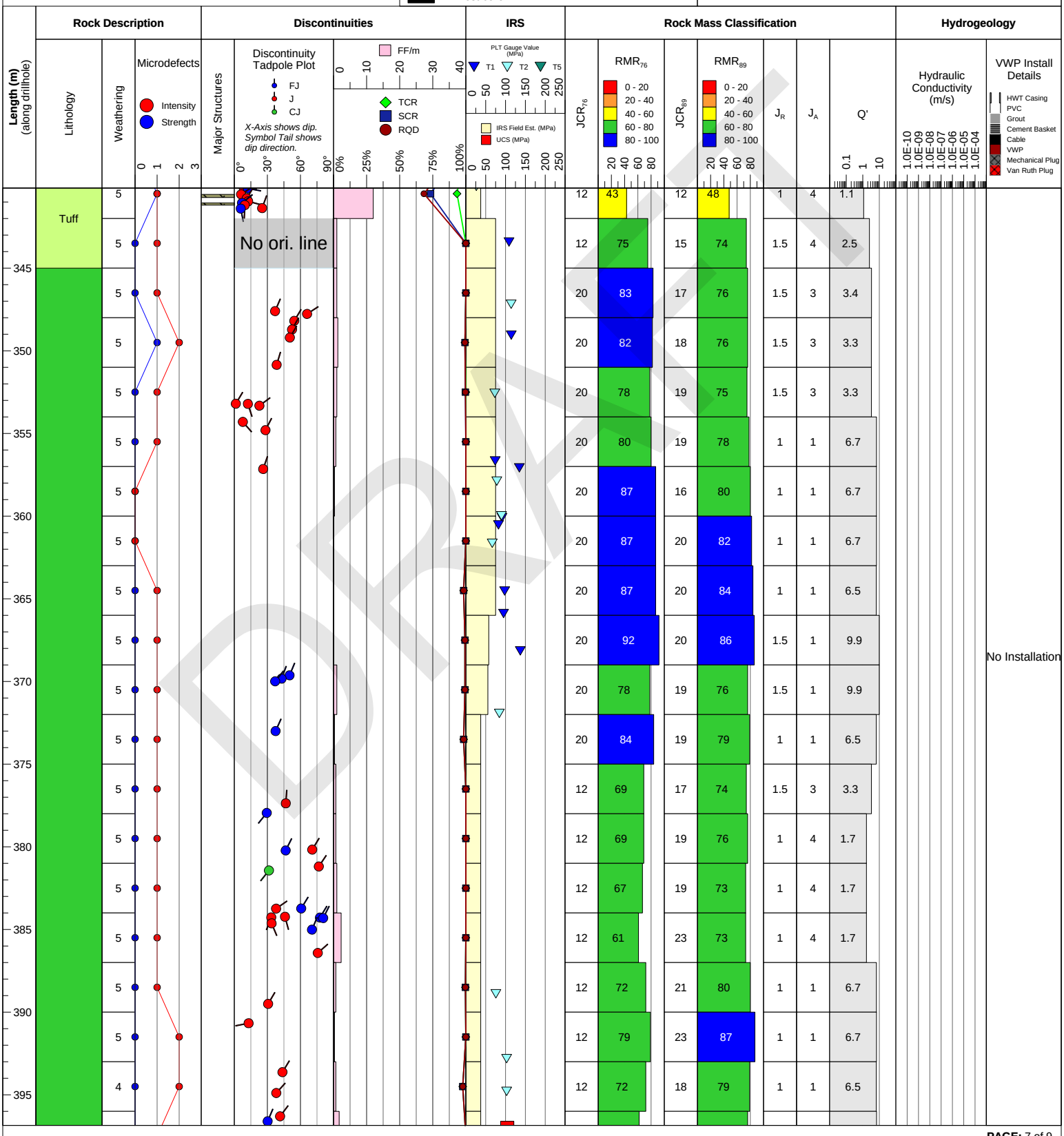

Length (m)	Lithology	Weathering	Microdefects	Major Structures	Discontinuity Tadpole Plot	FF/m	TCR	SCR	RQD	PLT Gauge Value (MPa)	IRS Field Est. (MPa)	UCS (MPa)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'	Hydraulic Conductivity (m/s)	VWP Install Details
345	Tuff	5	0 1 2 3		No ori. line	0 10 20 30 40			0% 25% 50% 75% 100%	T1 T2 T5 0 50 100 150 200 250	0 50 100 150 200 250		12	43	12	48	1	4	1.1	1.0E-10 1.0E-09 1.0E-08 1.0E-07 1.0E-06 1.0E-05 1.0E-04	
		5											12	75	15	74	1.5	4	2.5		
		5											20	83	17	76	1.5	3	3.4		
350		5											20	82	18	76	1.5	3	3.3		
		5											20	78	19	75	1.5	3	3.3		
355		5											20	80	19	78	1	1	6.7		
		5											20	87	16	80	1	1	6.7		
360		5											20	87	20	82	1	1	6.7		
		5											20	87	20	84	1	1	6.5		
365		5											20	92	20	86	1.5	1	9.9		
		5											20	78	19	76	1.5	1	9.9		
370		5											20	84	19	79	1	1	6.5		
		5											12	69	17	74	1.5	3	3.3		
375		5											12	69	19	76	1	4	1.7		
		5											12	67	19	73	1	4	1.7		
380		5											12	61	23	73	1	4	1.7		
		5											12	72	21	80	1	1	6.7		
385		5											12	79	23	87	1	1	6.7		
		4											12	72	18	79	1	1	6.5		
390																					
395																					

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
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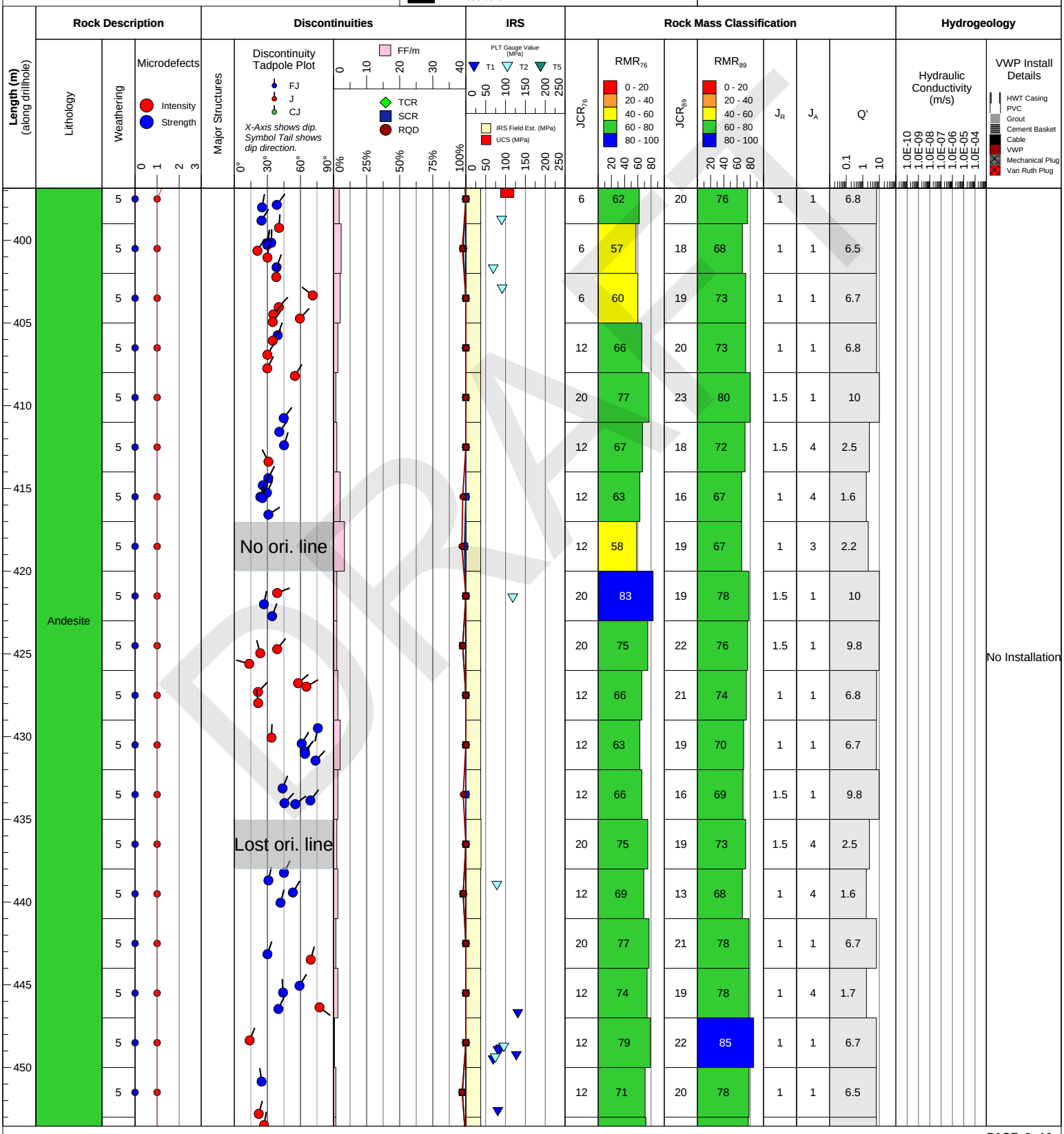

Length (m)	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
400	6	62	20	76	1	1	6.8
	6	57	18	68	1	1	6.5
405	6	60	19	73	1	1	6.7
	12	66	20	73	1	1	6.8
410	20	77	23	80	1.5	1	10
	12	67	18	72	1.5	4	2.5
415	12	63	16	67	1	4	1.6
	12	58	19	67	1	3	2.2
420	20	83	19	78	1.5	1	10
	20	75	22	76	1.5	1	9.8
425	12	66	21	74	1	1	6.8
	12	63	19	70	1	1	6.7
430	12	66	16	69	1.5	1	9.8
	20	75	19	73	1.5	4	2.5
435	12	69	13	68	1	4	1.6
	20	77	21	78	1	1	6.7
440	12	74	19	78	1	4	1.7
	12	79	22	85	1	1	6.7
445	12	71	20	78	1	1	6.5
450							

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

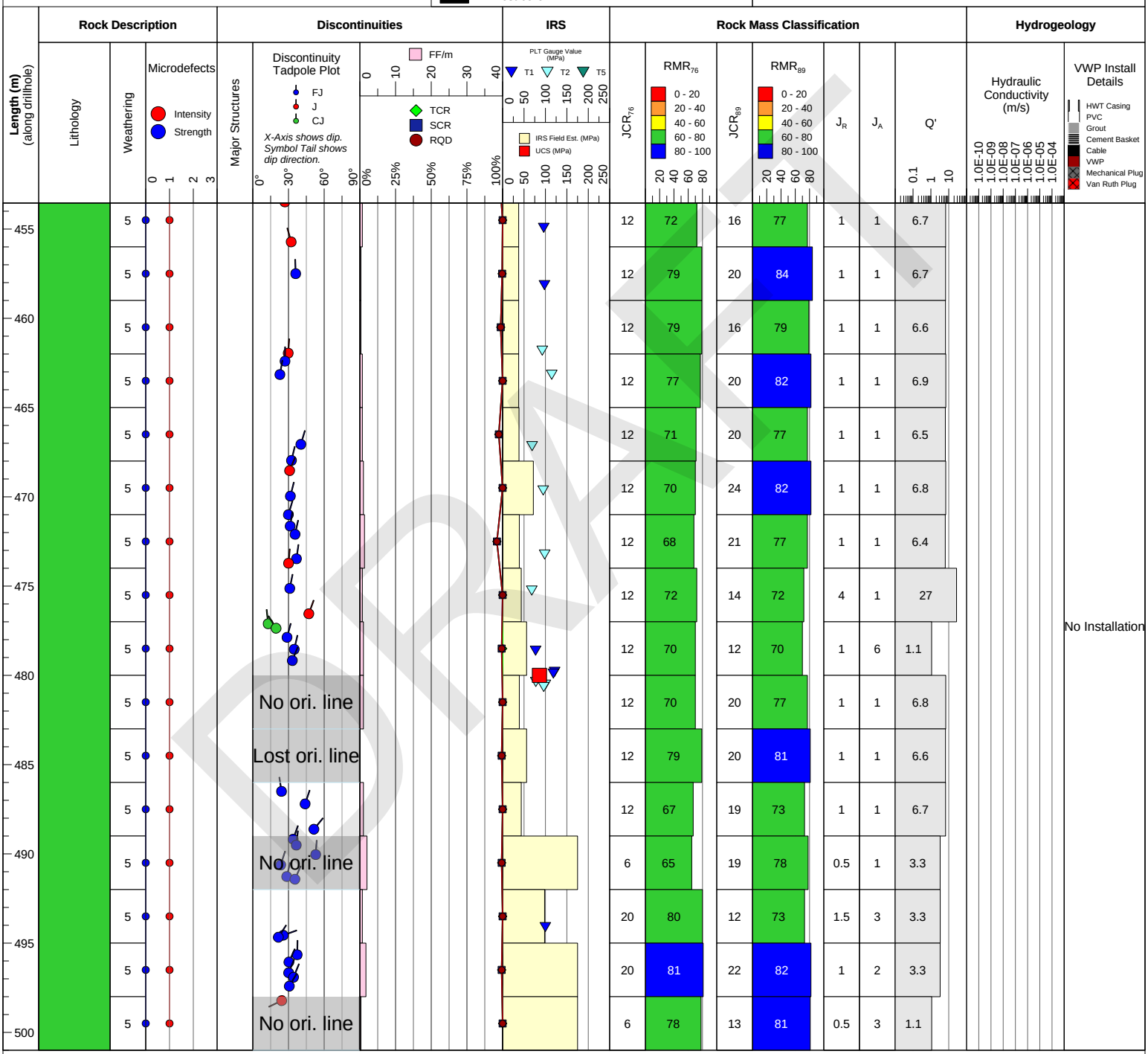
DRILLHOLE ID: SG22-027
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: NQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: AS/AY/MB/HM/OS

DRILLING DATE: 3/24/2022 **TO:** 4/2/2022
COORDINATES: 549513 m E 5693173 m N
DATUM: UTM WGS84 15N
Elevation (masl): 364
AZIMUTH: 210° **DIP:** 70°
TOTAL LENGTH (m): 501.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
UCS: Uniaxial Compressive Strength

MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
L - Lost core.

NOTES:
Lithology is based on loggin my First Mining Gold
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
455	5	12	72	16	77	1	1	6.7
	5	12	79	20	84	1	1	6.7
460	5	12	79	16	79	1	1	6.6
	5	12	77	20	82	1	1	6.9
465	5	12	71	20	77	1	1	6.5
	5	12	70	24	82	1	1	6.8
470	5	12	68	21	77	1	1	6.4
	5	12	72	14	72	4	1	27
475	5	12	70	12	70	1	6	1.1
	5	12	70	20	77	1	1	6.8
480	5	12	79	20	81	1	1	6.6
	5	12	67	19	73	1	1	6.7
485	5	6	65	19	78	0.5	1	3.3
	5	20	80	12	73	1.5	3	3.3
490	5	20	81	22	82	1	2	3.3
	5	6	78	13	81	0.5	3	1.1
495								
500								

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/MB/OS

DRILLING DATE: 3/26/2022 **TO:** 4/3/2022
COORDINATES: 549756 m E 5693136 m N
DATUM: UTM WGS84 15N
Elevation (masl): 359
AZIMUTH: 179° **DIP:** 75°
TOTAL LENGTH (m): 299.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
RMR: Rock Mass Rating
IRS: Intact Rock Strength
PLT: Point Load Test
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MAJOR STRUCTURES LEGEND:
A - Solid or healed structure.
B - Fragmented core, fractures can be counted.
C - Fragmented core, irregular pieces, no fines.
D - Contains a mix of clay/fines with core pieces.
E - Contains mostly clay/fines or finely ground rock.
L - Lost core.

NOTES:
Lithology is based on loggin my First Mining Gold
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"

Rock Description | **Discontinuities** | **IRS** | **Rock Mass Classification** | **Hydrogeology**

Length (m) (along drillhole)
Lithology
Weathering
Microdefects — Intensity, Strength
Major Structures
Discontinuity Tadpole Plot — FJ, J — *X-Axis shows dip. Symbol Tail shows dip direction.*
FF/m
TCR, SCR, RQD
PLT Gauge Value (MPa) — T1, T2, T5
IRS Field Est. (MPa)
UCS (MPa)
JCR_{76}
RMR_{76} — 0 - 20, 20 - 40, 40 - 60, 60 - 80, 80 - 100
JCR_{89}
RMR_{89} — 0 - 20, 20 - 40, 40 - 60, 60 - 80, 80 - 100
J_R
J_A
Q'
Hydraulic Conductivity (m/s)
VWP Install Details — HWT Casing, PVC, Grout, Cement Basket, Cable, VWP, Mechanical Plug, Van Ruth Plug

Overburden

No Recovery: Geotechnical Data Unavailable. 2

No ori. line

No Installation

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First Mining Gold

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/MB/OS

DRILLING DATE: 3/26/2022 **TO:** 4/3/2022
COORDINATES: 549756 m E 5693136 m N
DATUM: UTM WGS84 15N
Elevation (masl): 359
AZIMUTH: 179° **DIP:** 75°
TOTAL LENGTH (m): 299.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
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L - Lost core.

NOTES:
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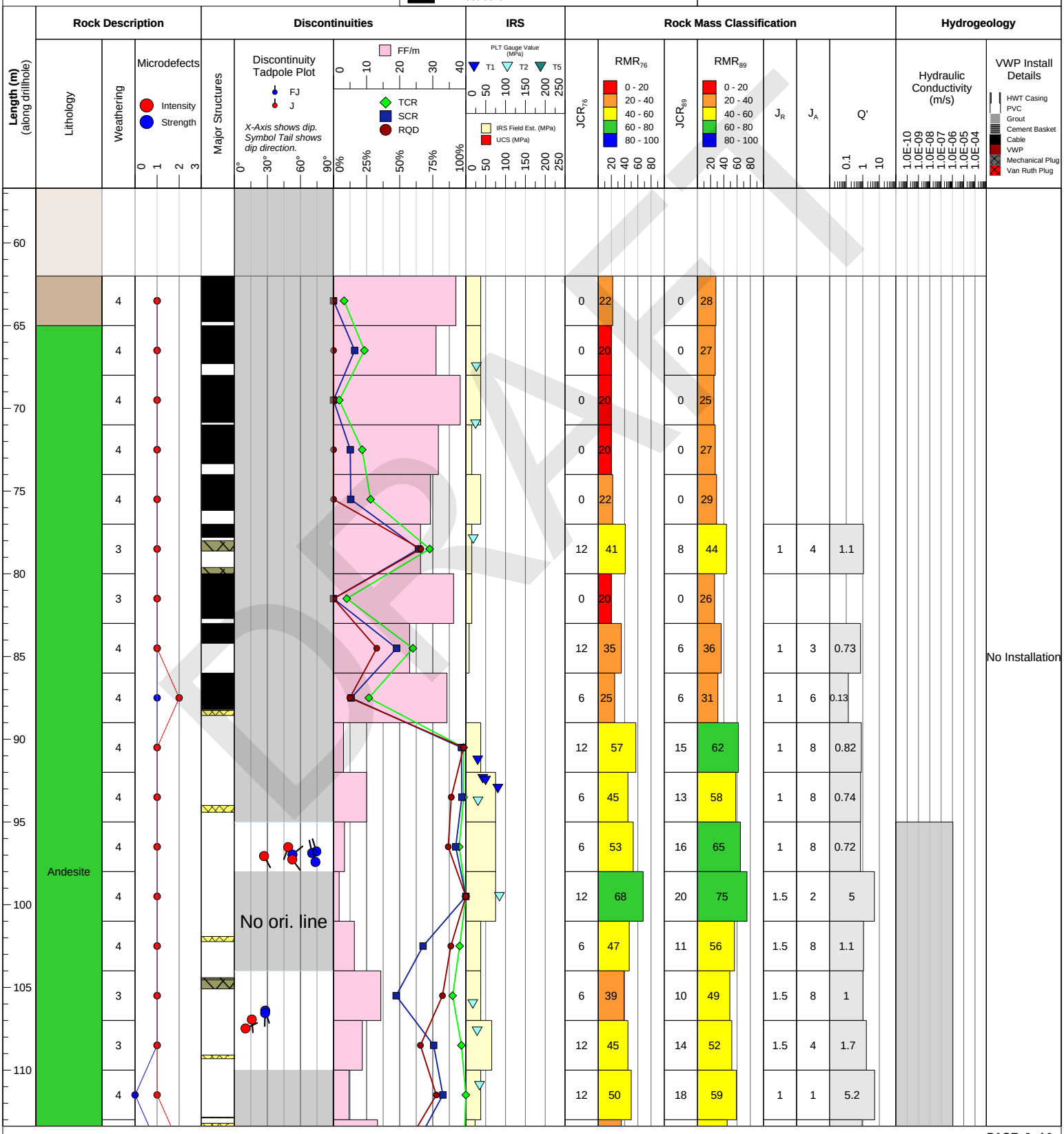
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/MB/OS

DRILLING DATE: 3/26/2022 **TO:** 4/3/2022
COORDINATES: 549756 m E 5693136 m N
DATUM: UTM WGS84 15N
Elevation (masl): 359
AZIMUTH: 179° **DIP:** 75°
TOTAL LENGTH (m): 299.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:

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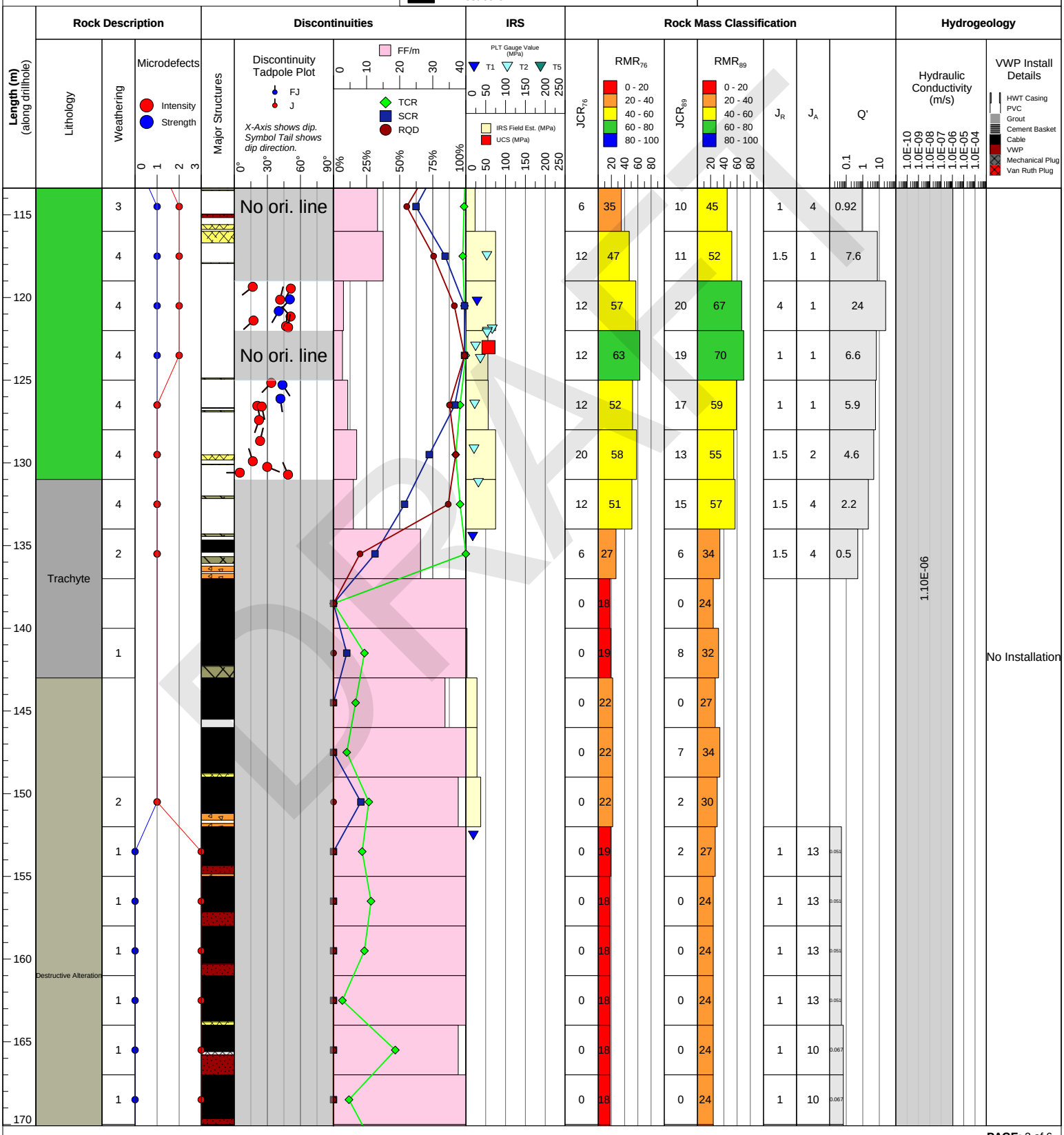

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/MB/OS

DRILLING DATE: 3/26/2022 **TO:** 4/3/2022
COORDINATES: 549756 m E 5693136 m N
DATUM: UTM WGS84 15N
Elevation (masl): 359
AZIMUTH: 179° **DIP:** 75°
TOTAL LENGTH (m): 299.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
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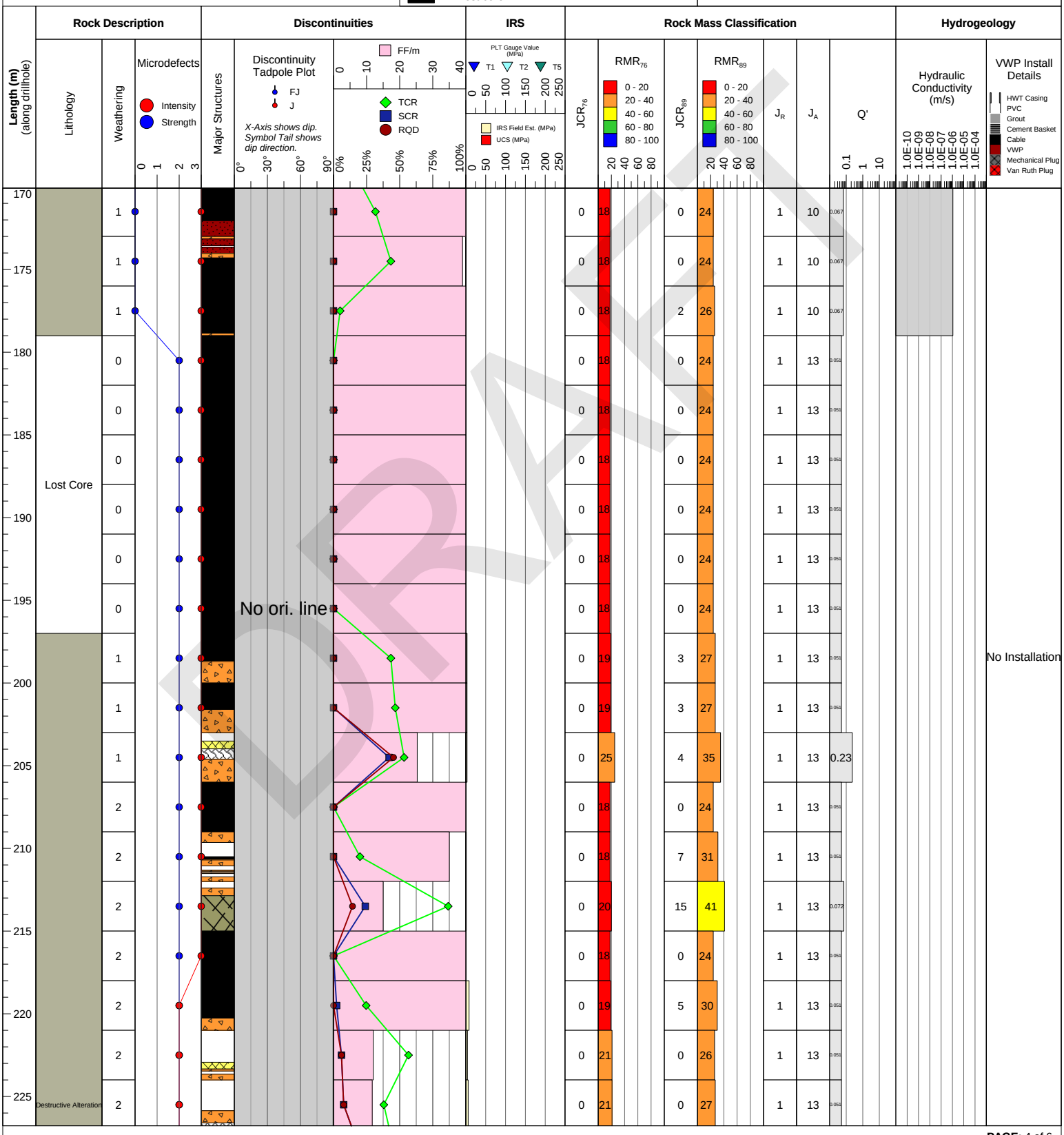

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
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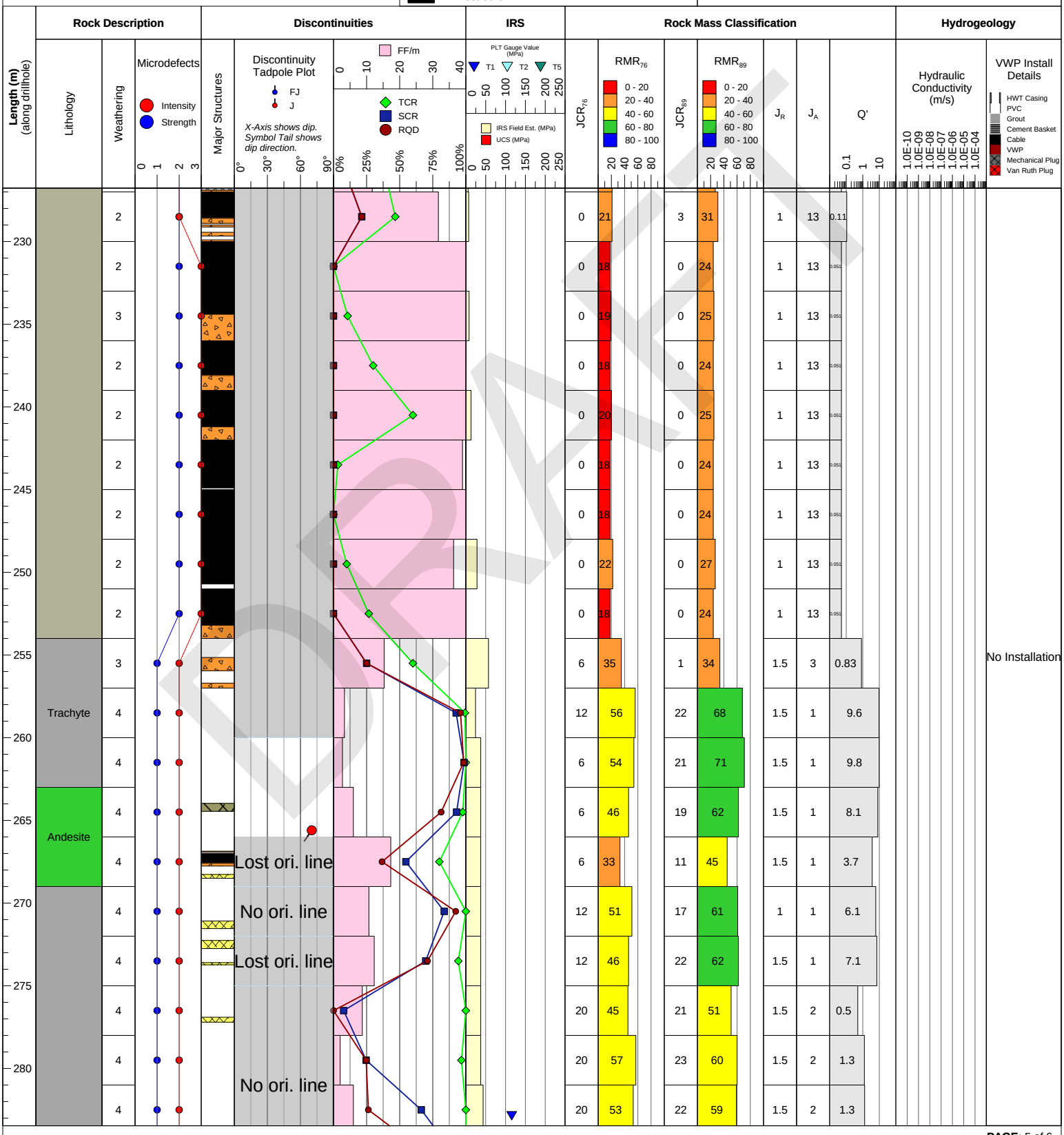
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	Weathering	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
230	2	0	21	3	31	1	13	0.11
	2	0	18	0	24	1	13	0.05
235	3	0	19	0	25	1	13	0.05
	2	0	18	0	24	1	13	0.05
240	2	0	20	0	25	1	13	0.05
	2	0	18	0	24	1	13	0.05
245	2	0	18	0	24	1	13	0.05
	2	0	22	0	27	1	13	0.05
250	2	0	18	0	24	1	13	0.05
	3	6	35	1	34	1.5	3	0.83
255	4	12	56	22	68	1.5	1	9.6
	4	6	54	21	71	1.5	1	9.8
260	4	6	46	19	62	1.5	1	8.1
	4	6	33	11	45	1.5	1	3.7
265	4	12	51	17	61	1	1	6.1
	4	12	46	22	62	1.5	1	7.1
270	4	20	45	21	51	1.5	2	0.5
	4	20	57	23	60	1.5	2	1.3
275	4	20	53	22	59	1.5	2	1.3
280								

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FIRST MINING GOLD

PROJECT: Springpole FS Open Pit Slope Design

CLIENT: First Mining Gold Corp

DRILLHOLE ID: SG22-029
LOCATION: Springpole Lake, Ontario
PROJECT NO: 2CF019.004
DRILL TYPE: Diamond
CORE DIA: HQ3
CONTRACTOR: Rodren Drilling
LOGGED BY: BTS/HM/MB/OS

DRILLING DATE: 3/26/2022 **TO:** 4/3/2022
COORDINATES: 549756 m E 5693136 m N
DATUM: UTM WGS84 15N
Elevation (masl): 359
AZIMUTH: 179° **DIP:** 75°
TOTAL LENGTH (m): 299.0
WATER LEVEL EL (masl): N/A

DEFINITIONS:
TCR: Total Core Recovery
SCR: Solid Core Recovery
RQD: Rock Quality Designation
FF/m: Fracture Frequency per metre
JCR: Joint Condition Rating
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L - Lost core.

NOTES:
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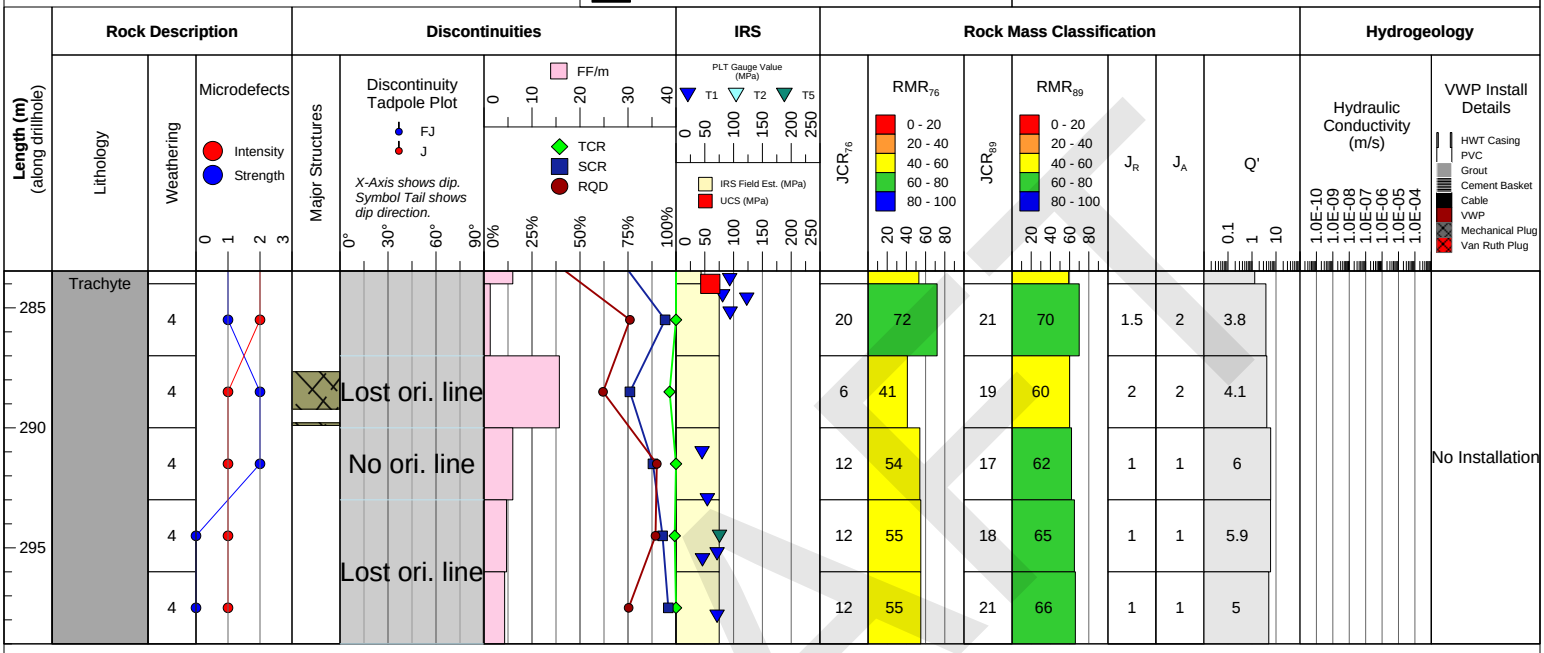
For Q', Jn = 15, Equivalent to four or more joint sets, heavily jointed, "sugar-cubed"



Length (m)	Lithology	Weathering	Major Structures	JCR76	RMR76	JCR89	RMR89	JR	JA	Q'
285	Trachyte	4		20	72	21	70	1.5	2	3.8
		4	Lost ori. line	6	41	19	60	2	2	4.1
290		4	No ori. line	12	54	17	62	1	1	6
		4		12	55	18	65	1	1	5.9
295		4	Lost ori. line	12	55	21	66	1	1	5

Borehole No: **BH18-01**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 549852 E; 5692492 N; Z 15

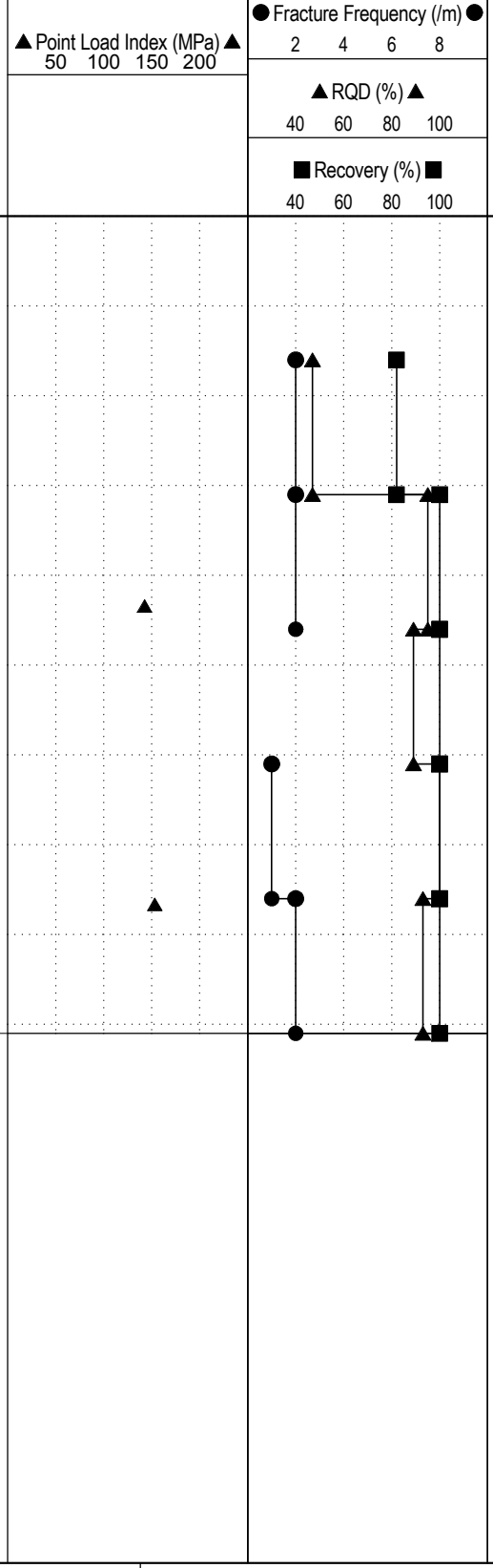
Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit 20 40 60 80 Moisture Content Liquid Limit	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
0			ICE						0
1			WATER - Springpole Lake						2
2									4
3	Diamond drill		CLAY - silty, gravelly, trace sand, trace organics, rootlets, woody chunks to 2 mm diameter, light grey		R1 S1	23.4			6
			- dark grey		R2 S2	40.6			8
4			- at 3.81 m, trace sand		R3	21.4			10
			- at 3.96 m, fractured bedrock		S3				12
5			ANDESITE (BEDROCK) - fresh (W1), very strong (R5), weak schistosity, slight pyrite mineralization, dark green, quartz veins to 10 mm thick, medium grained, JSN: 2		R4 R5				14
			- at 4.52 m, joint, slightly weathered, 30°, undulating, smooth						16
6			- from 4.63 to 5.02 m, rubble zone, calcite on faces		R6				18
			- from 5.22 to 5.73 m, 30 to 70 mm wide sections separated by stepped, planar joints						20
			- at 5.44 m, inclined joint, slightly weathered, 30°, undulating, smooth						20
			- at 5.63 m, subvertical joint, 40°, undulating, smooth, slight infill		R7				22
7			- from 5.72 to 6.02 m, fault gouge of soft clay		1R				24
			- at 6.78, 6.82 and 6.91 m, inclined joint, ~50°, smooth, slight clay (gauge) infill, JSN: 4						24
			- at 7.37, 8.03 and 8.34 m, subvertical joints, 40, 30 and 10°, undulating, rough, slight calcite infill						26
8					R8				26
									28
			- at 8.68 m, subvertical joint, 80°, stepped, rough, slight oxidization weathering						28
9			- at 8.73 m, JSN: 3						30
			- at 9.28, 9.37, 9.70 and 9.92 m, subhorizontal joints, slightly weathered, ~70° undulating, rough, calcite infill		R9				30
			- at 9.28 m, 10 mm wide horizontal quartz vein						32
10			- at 10.18 m, subvertical joint, ~30°, undulating, smooth, calcite infill		2R				32
									34
			- at 10.75, 10.88 and 11.60 m, subvertical joints, ~60°, undulating, smooth, calcite infill						34
11					R10				36
			- from 11.36 to 11.50 m, ~140 mm long vertical joint, undulating, smooth, calcite infill						36
			- at 11.88, 12.85 and 13.05 m, subhorizontal joints, undulating, smooth, calcite infill						38
12									38
									40
					R11				40
13									42
			END OF BOREHOLE (13.23 metres)						42
14									44
									46
15									48

TETRA TECH	Contractor: Rodren Drilling Ltd.	Completion Depth: 13.23 m
	Drilling Rig Type: Skid mounted	Start Date: 2018 February 9
	Logged By: EP	Completion Date: 2018 February 10
	Reviewed By: KJ	Page 1 of 1

Borehole No: **BH18-02**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 549871 E; 5692478 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number
0			ICE		
1			WATER - Springpole Lake		
			SILT - lake bottom		
2	Diamond drill		ANDESITE (BEDROCK) - slight schistosity, foliated, very strong (R5), dark grey to green, pyrite alterations, quartz veins and inclusions, medium grained, JSN: 1		R1
			- from 2.24 to 2.47 m, fragmented zone		
			- at 2.60, 2.73 and 2.82 m, subhorizontal joints, undulating, rough, slight calcite infill		
3			- at 3.10 m, JSN: 2		
					R2
4					
			- at 4.40 and 4.48 m, inclined joints, undulating, rough, very slight calcite infill		2R
			- at 4.60 m, JSN: 1		
5			- from 5.06 to 5.22 m, fragmented zone, rock gouge infill, slight calcite infill		R3
6			- at 6.25 m, subhorizontal joint, undulating to stepped, rough		
					R3
7			- from 7.25 to 7.50 m, inclined ~7 mm wide quartz vein		
			- at 7.60 m, JSN: 2		3R
8			- at 7.72, 8.40 and 8.43 m, subhorizontal joints, undulating, smooth		
			- from 8.20 to 8.24 m, subvertical joint, undulating, rough, clean		R5
9			END OF BOREHOLE (9.10 metres)		
10					
11					
12					
13					
14					
15					



Depth (ft)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Contractor: Rodren Drilling Ltd.	Completion Depth: 9.1 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 22
Logged By: EP	Completion Date: 2018 February 22
Reviewed By: KJ	Page 1 of 1

Borehole No: **BH18-03**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550020 E; 5692471 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number
0			ICE		
1			WATER - Springpole Lake		
2					
3	Diamond drill		BOULDERS, COBBLES AND GRAVEL - weathered andesite, lost fines		1R
			- angular		R1
			ANDESITE (BEDROCK) - fresh (W1), slightly schistosic, foliated, medium strong (R3), pyrite mineralization, quartz veins and inclusions, medium grained		
4			- at 3.60 m, JSN: 4		
			- at 3.99 and 4.24 m, subhorizontal joints, undulating, smooth, calcite infill		R2
5			- at 4.80 to 4.95 m, inclined joints, undulating, smooth, calcite infill		
			- at 5.10 m, JSN:2		
			- at 5.50, 5.71, 5.84, 5.99 and 6.16 m, inclined joints, weathering on joints, undulating, smooth, calcite and sericite infill		R3
6			- at 5.98 m, strong (R4)		2R
			- from 6.24 to 6.31 m, joint/fracture filled with rock gouge-rock flour, moderately weathered (W3)		
7			- at 6.45 to 6.51 m, broken joint with some sericite alteration and rock flour		
			- at 6.60 m, fresh (W1), JSN: 1		
			- at 6.88 m, inclined joint, undulating, smooth, slight sericite alteration		R4
8			- at 8.10 m, JSN: 3		
			- at 8.60 and 8.92 m, inclined joints, undulating, rough, slight calcite and sericite weathering		R5
9			- from 8.61 to 8.82 m, subvertical joint, undulating, smooth, some slight rock infill		
			- from 9.30 to 9.44 m, fragmented zone, sericite alteration on joints		
10					R6
			- from 10.40 to 11.00 m, rubble, rock gouge infill		
11					R7
			- from 11.33 to 11.58 m, vertical fracture		3R
12			- from 12.00 to 12.10 m, rubble		R8
			- from 12.35 to 12.40 m, rubble, rock gouge infill		
13			END OF BOREHOLE (12.60 metres)		
14					
15					

▲ Point Load Index (MPa) ▲ 50 100 150 200

● Fracture Frequency (/m) ● 2 4 6 8

▲ RQD (%) ▲ 40 60 80 100

■ Recovery (%) ■ 40 60 80 100

Depth (ft) 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Contractor: Rodren Drilling Ltd.	Completion Depth: 12.6 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 21
Logged By: EP	Completion Date: 2018 February 21
Reviewed By: KJ	Page 1 of 1

Borehole No: **BH18-04**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550078 E; 5692424 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	▲ Point Load Index (MPa) ▲ 50 100 150 200	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
0	Diamond drill		ICE					0
1			WATER - Springpole Lake					2
2								4
3								6
4								8
5								10
6								12
7								14
8								16
9								18
10								20
11								22
12			CLAY - trace silt, dark grey		G.U.S.			24
			ANDESITE (BEDROCK) - few gravel pieces (granite and andesite), weakly schistosic, fresh (W1), very strong (R5), dark green, subvertical quartz veins to 10 mm thick, slight biotite mineralization and slight pyrite mineralization concentrated in joints - at 12.40 m, ~10 mm thick white quartz vein, ~70° joint, slightly weathered (W2)		R3			26
13			- at 13.25 m, JSN:2 - at 13.62 and 13.98 m, subhorizontal joints, 60°, undulating, rough					28
14			- at 13.74 m, very weak (R1)		1R R4	▲		30
15			- at 14.75 m, joints are mechanical breaks along foliations inclined at 30°					32
								34
								36
								38
								40
								42
								44
								46
								48

Contractor: Rodren Drilling Ltd.	Completion Depth: 48.75 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 11
Logged By: EP	Completion Date: 2018 February 11
Reviewed By: KJ	Page 1 of 4

Borehole No: **BH18-04**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550078 E; 5692424 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	▲ Point Load Index (MPa) ▲ 50 100 150 200	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
15	Diamond drill		- from 15.20 to 15.30 m, rubble zone, green sericite alteration of faces		R5			50
16								52
17			- from 17.15 to 17.75 m, joints, slightly weathered, greenish to yellowish oxidation		R6			54
18			- at 17.98 m, subhorizontal joint, very strong (R5), slight rock gouge infill		2R R7	▲		56 58 60
19			- at 18.50 m, increased pyrite mineralization, JSN:2 - at 18.72, 18.81 and 19.08 m, subvertical joints, planar, smooth, slight calcite infill and rock gouge, slight green weathering - at 19.25 m, JSN:1 - inclined joint, undulating, smooth, rock gouge infill		R8			62
20			- at 19.95 m, JSN:2 - from 20.00 to 20.15 m, rubble - at 20.28 and 20.48 m, joint, undulating, smooth, slight calcite infill		R9			64 66
21			- at 20.75 m, JSN:3 - at 21.15 m, inclined joints, 30°, undulating, smooth, quartz		R10			68
22			- at 21.34 and 21.42 m, inclined joints, 60°, undulating, smooth		R11			70 72
23			- at 22.25 m, JSN:2 - at 22.25, 22.62, 22.82, 23.38 and 23.58 m, inclined joints, fresh (W1), 50-60°, undulating, smooth, calcite infill, silica, carbonate and chloride alterations		R12			74 76
24			- at 24.21, 24.32 and 24.38 m, joints, 60°, undulating, smooth, calcite infill		R13			78 80
25			- from 24.55 to 24.60 m, fragmented zone					82
26			- at 25.71, 25.91, 26.49 and 26.58 m, subhorizontal joints, 75°, undulating, smooth, rock gouge and calcite infill - at 25.74 m, strong (R4)		3R R14	▲		84 86
27			- at 26.75 m, some vuggy porosity (1% void space)		R15			88 90
28			- from 27.20 to 27.29 m, fragmented zone - at 27.66 m, subvertical joint, undulating, smooth, green alteration and calcite infill					92
29			- at 28.25 m, fresh (W1) - at 28.70, 28.87, 29.24 and 29.46 m, subvertical joints, undulating, rough, calcite infill and pyrite mineralization		R16		131	94 96
30			- at 29.75 m, JSN:4					98

Contractor: Rodren Drilling Ltd.	Completion Depth: 48.75 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 11
Logged By: EP	Completion Date: 2018 February 11
Reviewed By: KJ	Page 2 of 4

Borehole No: **BH18-04**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550078 E; 5692424 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Point Load Index (MPa) 50 100 150 200	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
30								
31	Diamond drill		- at 30.00, 30.09, 30.25 and 30.74 m, subvertical joint, undulating, smooth, calcite infill - at 30.30, 30.43, 30.45 and 30.48 m, subhorizontal joint, undulating, smooth, calcite infill - JSN:3		R17			100 102
32			- at 31.66, 31.95 and 32.44 m, subhorizontal joints, planar, rough, vuggy porosity (2-5% void space), calcite infill - at 32.29 m, subvertical joints, undulating, smooth, sericite weathering/alteration, calcite present - at 32.75 m, JSN:2		R18 4R	▲		104 106
33			- at 33.16, 33.31, 34.05 and 34.12 m, subhorizontal joints, rough from calcite and vugginess (1% void space with isolated larger voids)		R19			108 110
34			- at 34.30, 34.34, 34.53, 34.77, 35.20, 35.56 m, subhorizontal joints, undulating, rough, 34.34 nd 35.56 m - vuggy (2% void space) and calcite, 34.27 m - quartz vein to 10 mm thick, rest - slight calcite		R20			112 114
35			- at 35.75 m, JSN:3 - at 35.90 m, medium strong (R3)		5R R21	▲		116 118
36			- at 37.25 m, some lithic fragments, pyrite alterations, JSN:2 - from 37.42 to 37.46 m, fragmented zone - foliated flat, disk-like breaks - at 37.58 and 38.58 m, subhorizontal joints, undulating, smooth, calcite infill - at 37.75 m, subvertical joint		R22			120 122 124
37			- at 38.75 m, vugs (~1-5% void space), JSN:3 - at 38.98, 39.03, 39.33, 39.50 and 40.04 m, subhorizontal joints, undulating, smooth		R23			126 128
38			- at 39.78 m, subvertical joint, undulating, rough, some calcite infill - at 40.25 m, vugs (1% void space), 10-15% visible pyrite, JSN:2 - at 40.50, 41.07 and 41.29 m, subhorizontal joints, vuggy		R24			130 132 134
39			- at 41.75 m, vugs (1-5% void space) - at 42.16, 42.45, 42.57, 42.70 and 43.07 m, subhorizontal joints, undulating, smooth, calcite infill - from 42.74 to 42.84 m, vugs (~10% void space)		R25			136 138 140
40			- at 43.25 m, vugs (1-5% void space), JSN:4 - at 43.30, 43.42, 43.80, 43.99, 44.08, 44.17 and 44.46 m, subhorizontal joints, undulating, smooth, slight calcite - from 43.60 to 43.80 and 44.36 to 44.46 m, subvertical joints, undulating, smooth, slight calcite		R26			142 144
41			- at 44.75 m, increasing quartz inclusions					146
42								
43								
44								
45								

Contractor: Rodren Drilling Ltd.	Completion Depth: 48.75 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 11
Logged By: EP	Completion Date: 2018 February 11
Reviewed By: KJ	Page 3 of 4

Borehole No: **BH18-04**

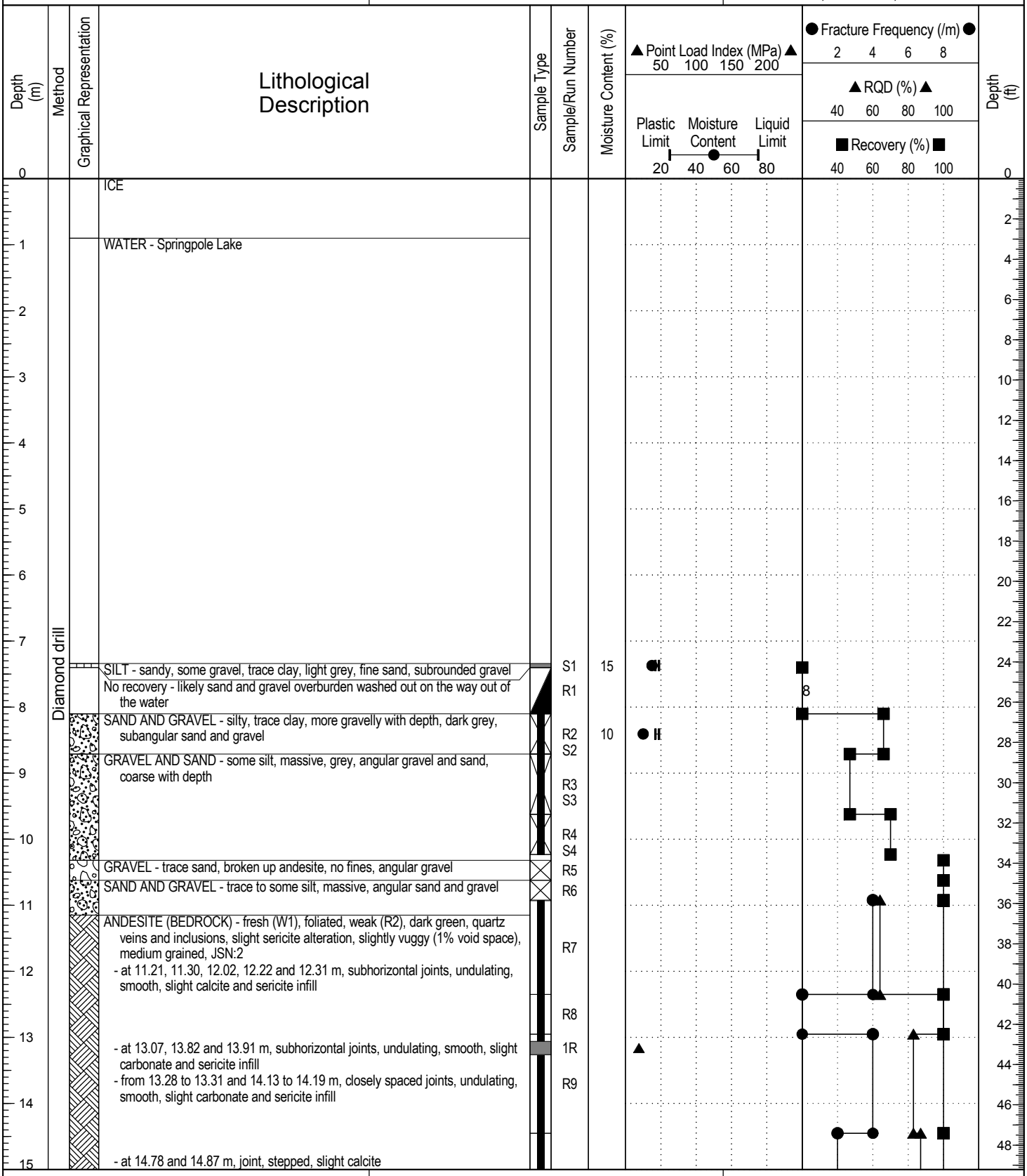
Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550078 E; 5692424 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	▲ Point Load Index (MPa) ▲ 50 100 150 200	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
45								
46	Diamond drill		- at 44.82, 44.89, 45.11, 45.31, 45.71 and 45.78 m, subhorizontal joints, planar, rough, breaks at pyrite concentrations - at 45.45 m, inclined joint, planar, smooth, sericite alteration and infill - at 46.00 m, 10-15% visible pyrite - at 46.25 m, increased foliation (~1% void space) - at 46.46 m, 46.82, 46.88, 46.98, 47.11, 47.48, 47.53, 47.61 and 47.66 m, subhorizontal joints, undulating, smooth, slight calcite infill		6R R27 R28			148 150 152 154
47								
48			- from 47.75 to 48.04 m, (~1% void space) - from 47.98 to 48.04 m, fragments zone - rock gouge - at 48.30 m, subhorizontal joint, planar, rough, sericite alteration - at 48.38 and 48.51 m, inclined joints, undulating, rough, calcite infill		R29			156 158
49			END OF BOREHOLE (48.75 metres)					160
50								162 164
51								166 168
52								170 172
53								174 176
54								178 180
55								182 184
56								186 188
57								190 192
58								194 196
59								
60								

Contractor: Rodren Drilling Ltd.	Completion Depth: 48.75 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 11
Logged By: EP	Completion Date: 2018 February 11
Reviewed By: KJ	Page 4 of 4

Borehole No: **BH18-05**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550138 E; 5692380 N; Z 15



Contractor: Rodren Drilling Ltd.	Completion Depth: 30.95 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 15
Logged By: EP	Completion Date: 2018 February 15
Reviewed By: KJ	Page 1 of 3

Borehole No: **BH18-05**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550138 E; 5692380 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
15									
16	Diamond drill		- from 16.10 to 16.12 m, joints, undulating, smooth, high muscovite content, slippery and shiny - at 16.52 m, more vuggy (5% void space), visible porous holes		R10 2R				50 52
17			- from 17.17 to 17.45 m, fragmented zone - vuggy		R11				54 56
18			- at 17.59 and 17.66 m, uneven joints, broken with calcite infill - from 17.68 to 18.04 m, less vuggy (1% void space) - at 17.70 m, medium strong (R3) - at 18.16, 18.28, 18.35, 18.57 and 18.62 m, subhorizontal joints, broken rough and undulating smooth, slight calcite infill		3R R12				58 60
19			- at 18.90 m, (5-10% void space) - from 18.95 to 19.64 m, very weak vugs (5% void space)						62 64
20			- from 19.64 to 20.00 m, weak vugs (10-15% void space) - from 19.65 to 19.75 m, rubble - at 20.00 m, strong (R4) - at 20.45 m, weak to moderate vugs (10-20% void space) - from 20.45 to 21.29 m, highly fractured		R13 4R				66 68
21			- at 21.54 m, gouge rock infill		R14				70
22			- from 21.95 to 22.00, 22.24 to 22.30, 22.50 to 22.55 and 22.68 to 23.00 m, gouge rock infill						72 74
23					R15				76
24			- from 23.45 to 23.70 m, rubble, high calcite infill - from 23.70 to 24.95 m, weak vug (5-10% void space)		R16				78 80
25			- from 24.78 to 24.82 m, high calcite infill in joint face - at 24.95 m, very weak vugs (~1% void space)		5R				82
26			- from 25.47 to 25.92 m, highly fractured - from 25.70 to 26.00 m, moderately weathered		R17				84 86
27			- at 26.45 m, weak vugs (5% void space) - from 26.69 to 26.73 m, fractured at joint face		R18				88
28			- at 27.95 m, highly fractured, weak to moderate vugs (10-15% void space)		6R				90 92
29					R19			16	94
30			- at 29.45 m, weak vugs (5-10% void space) - from 29.80 to 29.92 m, vertical fracture face						96 98

Contractor: Rodren Drilling Ltd.	Completion Depth: 30.95 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 15
Logged By: EP	Completion Date: 2018 February 15
Reviewed By: KJ	Page 2 of 3

Borehole No: **BH18-05**

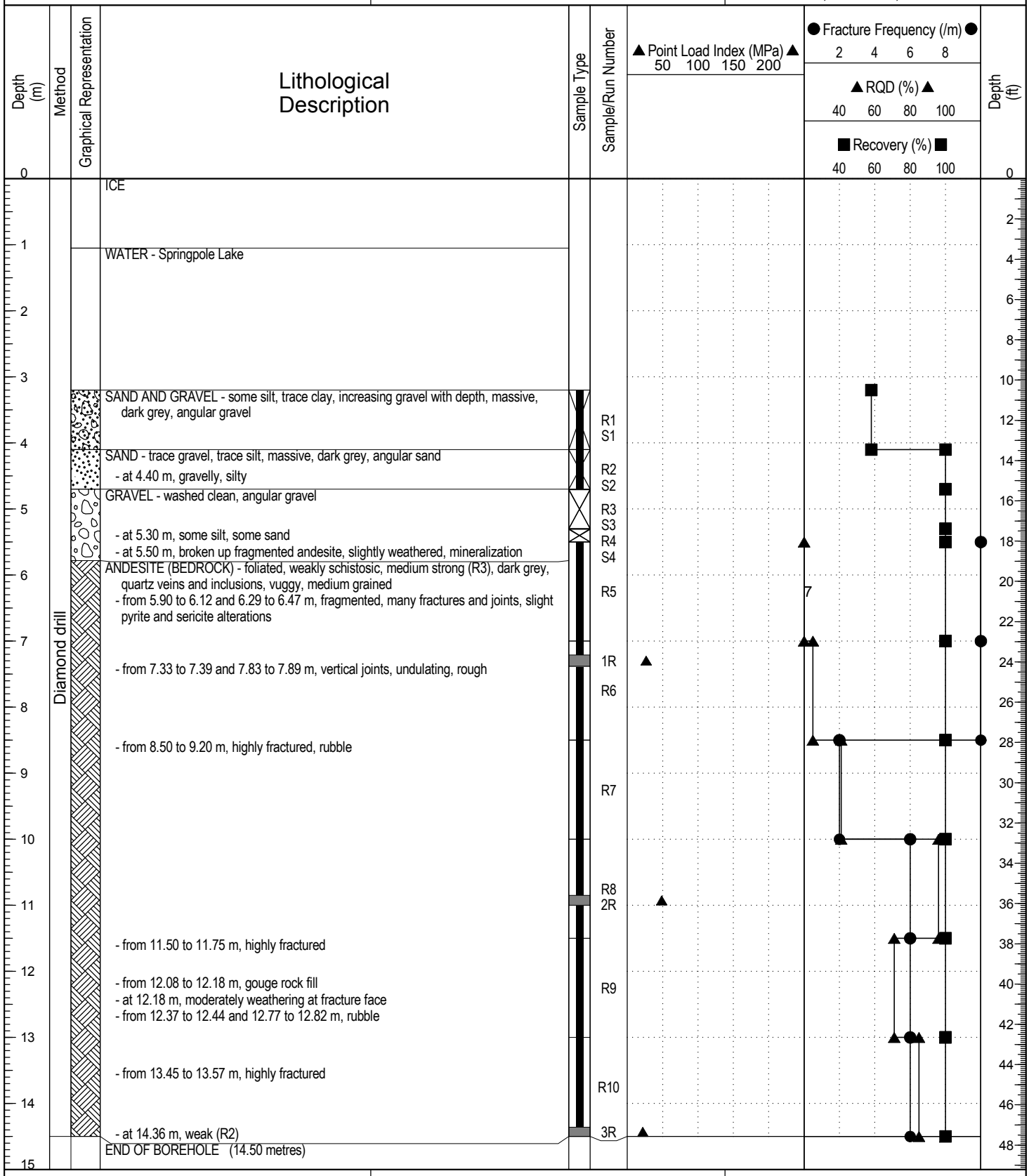
Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550138 E; 5692380 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	▲ Point Load Index (MPa) ▲ 50 100 150 200 / Plastic Limit – Moisture Content – Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 / ▲ RQD (%) ▲ 40 60 80 100 / ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
30									
			- at 30.02 m, medium strong (R3) - from 30.30 to 30.50 m, rubble		7R R20				100
31			END OF BOREHOLE (30.95 metres)						102
32									104
33									106
34									108
35									110
36									112
37									114
38									116
39									118
40									120
41									122
42									124
43									126
44									128
45									130
									132
									134
									136
									138
									140
									142
									144
									146

Contractor: Rodren Drilling Ltd.	Completion Depth: 30.95 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 15
Logged By: EP	Completion Date: 2018 February 15
Reviewed By: KJ	Page 3 of 3

Borehole No: **BH18-06**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550200 E; 5692373 N; Z 15



Contractor: Rodren Drilling Ltd.	Completion Depth: 14.5 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 18
Logged By: EP	Completion Date: 2018 February 18
Reviewed By: KJ	Page 1 of 1

Borehole No: **BH18-07**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550274 E; 5692392 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit 20 40 60 80 Moisture Content Liquid Limit	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
0			ICE						0
1			WATER - Springpole Lake						2
2									4
3									6
4									8
5									10
6									12
7	Diamond drill								14
			GRAVEL - sandy, some silt, massive, dark grey, angular sand and gravel - at 7.45 m, fragmented bedrock		R1 S1	9.3	●		16
8			BOULDERS, COBBLES AND GRAVEL - andesite, fragmented bedrock, slightly weathered (W2), sericite weathering, calcite infill, quartz veins		R2				18
					R3				20
9									22
			RUBBLE						24
10			BOULDER AND COBBLE		R4				26
					1R		▲		28
11			ANDESITE (BEDROCK) - strong (R4) - from 10.90 to 11.15 and 11.90 to 12.10 m, rubble zones						30
					R5				32
12									34
13			- from 12.95 to 13.17 and 13.37 to 13.61 m, rubble zones		R6				36
					2R		▲		38
14			- from 14.30 to 14.50 m, weak vugs (5% void space) - from 14.35 to 14.43 m, rubble zone		R7				40
15									42
									44
									46
									48

Contractor: Rodren Drilling Ltd.	Completion Depth: 30.1 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 19
Logged By: EP/IM	Completion Date: 2018 February 19
Reviewed By: KJ	Page 1 of 3

Borehole No: **BH18-07**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550274 E; 5692392 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
15									
			- from 15.40 to 16.4 m, rubble zone						50
16			- from 15.90 to 16.15 m, moderate vugs (~20% void space), calcite insets - from 16.18 to 16.38 m, vertical fracture face		R8				52
									54
17									56
			- at 17.44 m, weak (R2)		R9 3R				58
18									60
			- from 18.55 to 18.60 m, rubble zone - at 18.60 m, medium strong (R3)		4R R10				62
19									
									64
20									66
			- at 20.37 m, strong (R4)		R11 5R				68
			FELDSPAR PORPHYRY (BEDROCK) - white red, hematite alteration, gouge						
21			- from 20.58 to 20.88 m, rubble zone						70
			- from 21.44 to 21.60 m, rubble zone						
22	Diamond drill				R12				72
									74
23			- from 22.90 to 23.84 m, rubble zone, highly weathered, vertical fracture						76
					R13				
			- at 23.54 m, medium strong (R3)		6R				78
24									
			ANDESITE (BEDROCK) - straight schistosity, medium strong (R3), grey, pyrite alterations, quartz veins and inclusions, medium grained						80
25			- from 24.30 to 24.60 m, 45° to vertical fracture face		R14				82
									84
26			- from 25.94 to 26.09 m rubble zone, hematite alteration on joint faces						86
			- from 26.38 to 26.44 m, rubble zone, trace white red bedrock inclusions		R15				
27									88
									90
28			- from 28.07 to 28.14 m, rubble zone		R16				92
									94
29									96
					R17				
30									98

Contractor: Rodren Drilling Ltd.	Completion Depth: 30.1 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 19
Logged By: EP/IM	Completion Date: 2018 February 19
Reviewed By: KJ	Page 2 of 3

Borehole No: **BH18-07**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550274 E; 5692392 N; Z 15

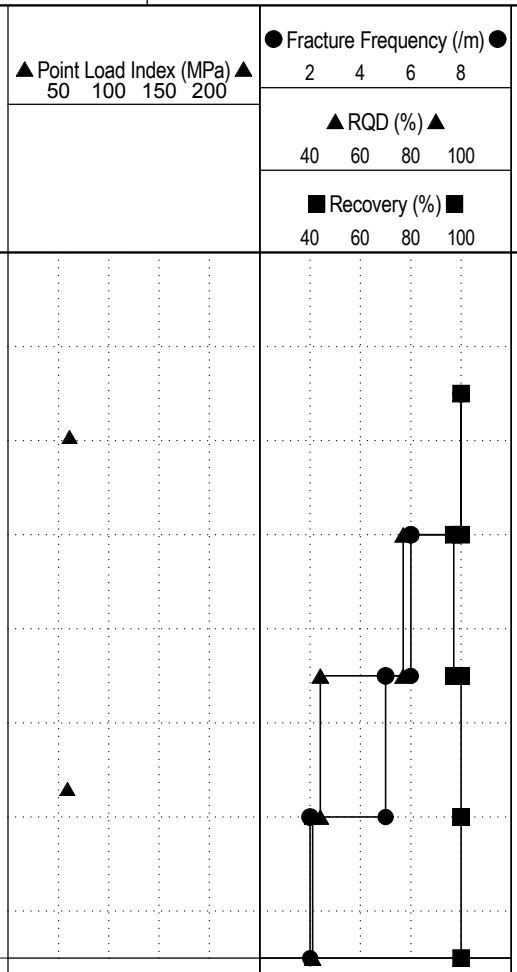
Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	▲ Point Load Index (MPa) ▲ 50 100 150 200 Plastic Limit / Moisture Content / Liquid Limit 20 40 60 80	● Fracture Frequency (/m) ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
30			END OF BOREHOLE (30.10 metres)	■					100
31									102
32									104
33									106
34									108
35									110
36									112
37									114
38									116
39									118
40									120
41									122
42									124
43									126
44									128
45									130
									132
									134
									136
									138
									140
									142
									144
									146

	Contractor: Rodren Drilling Ltd.	Completion Depth: 30.1 m
	Drilling Rig Type: Skid mounted	Start Date: 2018 February 19
	Logged By: EP/IM	Completion Date: 2018 February 19
	Reviewed By: KJ	Page 3 of 3

Borehole No: **BH18-08**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550327 E; 5692409 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number
0			ICE		
1			WATER - Springpole Lake		
2	Diamond drill		ANDESITE (BEDROCK) - slightly weathered (W2), strong (R4), light grey, one joint set, quartz veins, very weak vugs (1% void space), medium grained		1R
					R1
3			- from 2.70 to 3.00 m, highly fractured, subhorizontal joints, smooth, slight calcite infill		
4					R2
5			- from 4.50 to 4.83 m, highly weathered, high calcite content - from 4.73 to 4.83 m, rubble, gouge - from 5.20 to 5.30 m, rubble, gouge, highly weathered		R3
6					2R
7			- from 6.40 to 7.00 m, highly fractured - from 6.90 to 7.00, 7.14 to 7.20, 7.25 to 7.30 and 7.48 to 7.50 m, highly weathered, rubble/gouge		R4
8			END OF BOREHOLE (7.50 metres)		



Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Contractor: Rodren Drilling Ltd.	Completion Depth: 7.5 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 20
Logged By: IM	Completion Date: 2018 February 21
Reviewed By: KJ	Page 1 of 1

Borehole No: **BH18-09**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550857.3 E; 5693246 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)
0			ICE			
1			WATER - Springpole Lake			
3			SAND - washed out		R1	
4			- silty, gravelly, trace clay, massive, grey, angular sand and gravel		R2	9.9
					S1	
			RUBBLE, COBBLES AND GRAVEL - mixed lithology, fines washed out, rounded		R3	
5			ANDESITE BOULDER			
			RUBBLE, COBBLES AND GRAVEL - mixed lithology, granite, quartz, weathered			
6			ANDESITE COBBLE OR BOULDER		R4	
			RUBBLE, COBBLES AND GRAVEL - mixed lithology			
	Diamond drill		ANDESITE (BEDROCK) - fresh (W1), slightly schistosic, foliated, very strong (R5), dark grey, dark green, quartz veins and inclusions, medium grained, JSN:1		1R	
7			- at 6.90 m, JSN:2		R5	
			- at 7.10, 7.25 and 8.10 m, subhorizontal joints, very slightly weathered, stepped, rough			
8						
			- at 8.49 and 8.69 m, subhorizontal joints, planar, rough			
9			- at 8.83 and 8.94 m, inclined joints, undulating, smooth, slight calcite infill		R6	
			- from 9.10 to 9.30 and 9.61 to 9.82 m, fractured zone			
10			- at 9.90 m, JSN:1			
			- from 9.90 to 10.12 m, fractured zone		R7	
11			- at 11.03 m, inclined joints, planar, smooth, slight calcite infill			
			- from 11.40 to 12.90 m, parallel mechanically inclined joints, planar, smooth, slight calcite infill			
12			- at 11.86 m, strong pyrite alteration		R8	
13						
			- from 13.60 to 13.86 m, fractured zone, weathered, orangish yellow oxidation		R9	
14						
15						

▲ Point Load Index (MPa) ▲ — 50 100 150 200

Plastic Limit — Moisture Content — Liquid Limit — 20 40 60 80

● Fracture Frequency (/m) ● — 2 4 6 8

▲ RQD (%) ▲ — 40 60 80 100

■ Recovery (%) ■ — 40 60 80 100

Depth (ft): 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Contractor: Rodren Drilling Ltd.	Completion Depth: 18.9 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 24
Logged By: EP	Completion Date: 2018 February 24
Reviewed By: KJ	Page 1 of 2

Borehole No: **BH18-09**

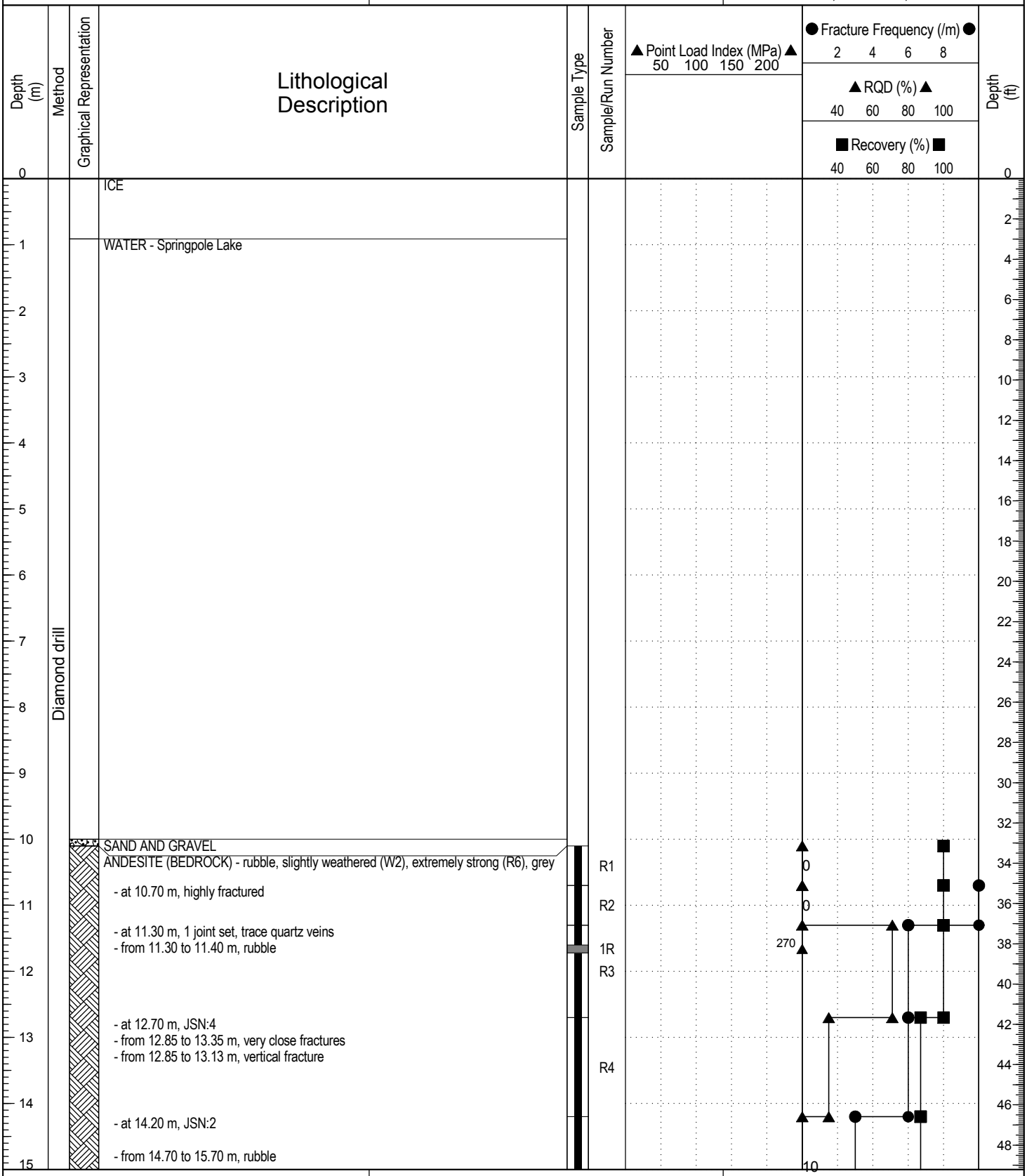
Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550857.3 E; 5693246 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
15									50
16	Diamond drill				R10				52
17					R11				54
18			- at 17.93 m, extremely strong (R6)		2R R12		417		56 58 60
19			END OF BOREHOLE (18.90 metres)						62
20									64 66
21									68 70
22									72 74
23									76 78
24									80 82
25									84 86
26									88 90
27									92 94
28									96 98
29									
30									

Contractor: Rodren Drilling Ltd.	Completion Depth: 18.9 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 24
Logged By: EP	Completion Date: 2018 February 24
Reviewed By: KJ	Page 2 of 2

Borehole No: **BH18-10**

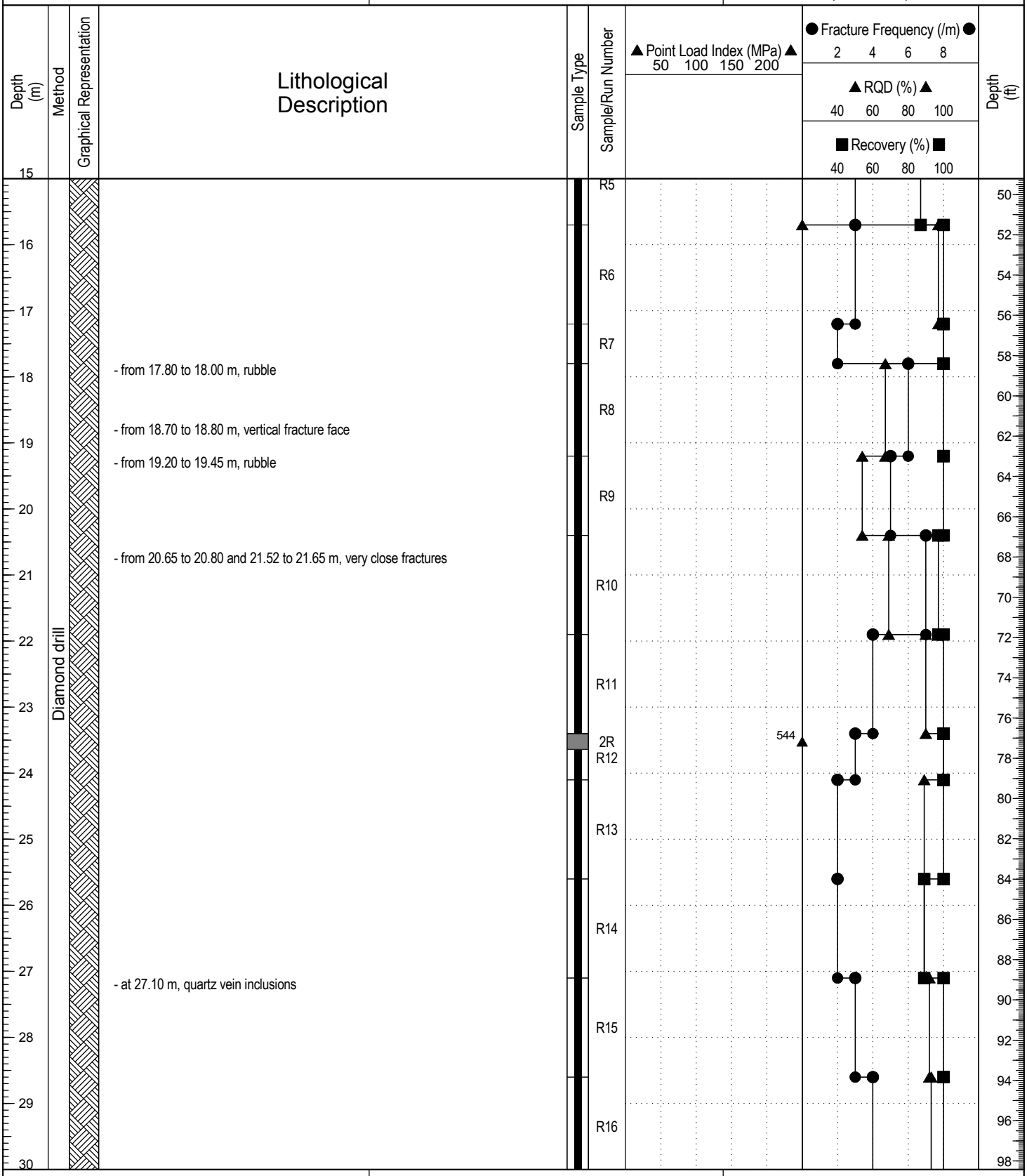
Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550872.2 E; 5693300 N; Z 15



Contractor: Rodren Drilling Ltd.	Completion Depth: 40.1 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 24
Logged By: IM	Completion Date: 2018 February 24
Reviewed By: KJ	Page 1 of 3

Borehole No: **BH18-10**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550872.2 E; 5693300 N; Z 15



Contractor: Rodren Drilling Ltd.	Completion Depth: 40.1 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 24
Logged By: IM	Completion Date: 2018 February 24
Reviewed By: KJ	Page 2 of 3

Borehole No: **BH18-10**

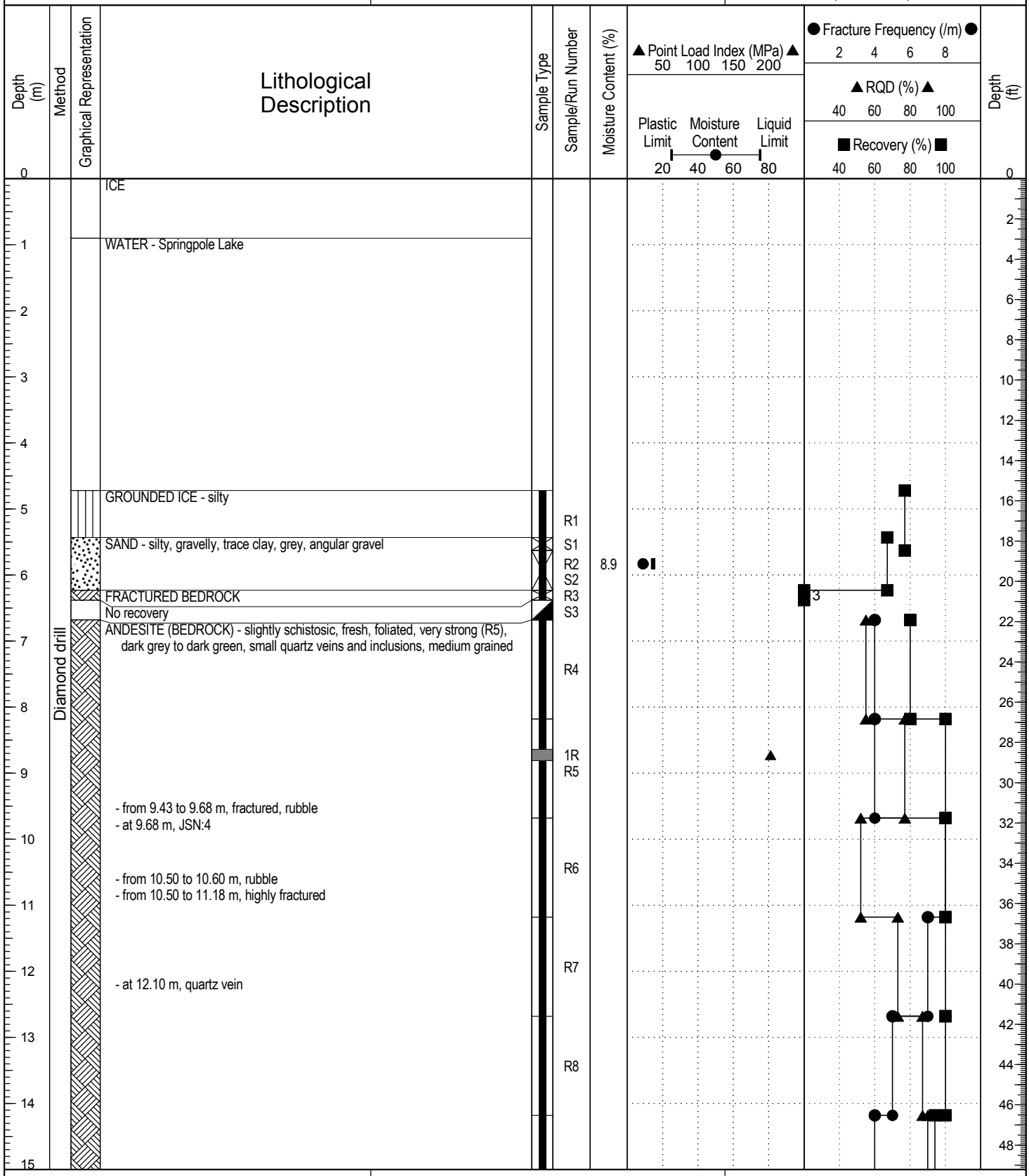
Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550872.2 E; 5693300 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	▲ Point Load Index (MPa) ▲ 50 100 150 200	● Fracture Frequency (/m) ● 2 4 6 8 ▲ RQD (%) ▲ 40 60 80 100 ■ Recovery (%) ■ 40 60 80 100	Depth (ft)
30								
31	Diamond drill		- at 30.10 m, quartz veins inclusions		R17			100
32			- from 31.85 to 32.15 m, very close fractures		R18			102 104 106
33								108
34					R19			110 112
35								114
36			- at 36.05 and 36.90 m, subhorizontal joints, fresh (W1), undulating, smooth		R20			116 118
37								120
38					R21			122 124
39					R22			126 128
40			END OF BOREHOLE (40.10 metres)					130 132
41								134
42								136 138
43								140
44								142 144
45								146

TETRA TECH	Contractor: Rodren Drilling Ltd.	Completion Depth: 40.1 m
	Drilling Rig Type: Skid mounted	Start Date: 2018 February 24
	Logged By: IM	Completion Date: 2018 February 24
	Reviewed By: KJ	Page 3 of 3

Borehole No: **BH18-11**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550886.4 E; 5693353 N; Z 15



Contractor: Rodren Drilling Ltd.	Completion Depth: 19.58 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 23
Logged By: IM	Completion Date:
Reviewed By: KJ	Page 1 of 2

Borehole No: **BH18-11**

Project: Springpole Winter 2018 Geotechnical Investigation	Project No: ENG.EARC03100-01
Location: Springpole Project	
Ontario	UTM: 550886.4 E; 5693353 N; Z 15

Depth (m)	Method	Graphical Representation	Lithological Description	Sample Type	Sample/Run Number	Moisture Content (%)	Point Load Index (MPa) 50 100 150 200 / Plastic Limit Moisture Content Liquid Limit 20 40 60 80	Fracture Frequency (/m) 2 4 6 8 / RQD (%) 40 60 80 100 / Recovery (%) 40 60 80 100	Depth (ft)
15									
16	Diamond drill		- from 17.18 to 17.35 m, highly fractured		R9				50
17			- at 17.78 m, extremely strong (R6)		R10				52
18			- from 18.18 to 18.20 m, rubble		2R R11		413		54
19			- from 18.68 to 18.72 m, fractured						56
			- from 19.23 to 19.38 m, vertical fracture		R12				58
			END OF BOREHOLE (19.58 metres)						60
20									62
21									64
22									66
23									68
24									70
25									72
26									74
27									76
28									78
29									80
30									82
									84
									86
									88
									90
									92
									94
									96
									98

Contractor: Rodren Drilling Ltd.	Completion Depth: 19.58 m
Drilling Rig Type: Skid mounted	Start Date: 2018 February 23
Logged By: IM	Completion Date:
Reviewed By: KJ	Page 2 of 2

RECORD OF BOREHOLE No. SG22-038 / DH22-BA

Project Number:	OMGM 2215	Drilling Location:	CDF E:547337 N:5693631	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 24, 2022 Date Completed: Sep 25, 2022	Revision No.:	0, 12/1/22

Geodetic GROUND Surface Elevation: 407.0 m

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	COMMENTS & GRAIN SIZE DISTRIBUTION (%)
	brown ORGANICS saturated to wet, fibrous	SS	1	7	1			
		SS	2	7	1	1	406	
		SS	3	5	1	2	405	
		SS	4	8	1			
		SS	5	2	0	3	404	
	402.4					4	403	
	COBBLES AND BOULDERS 4.6	SS	6	13	50 / 80mm			Inferred from SPT refusal
	401.9					5	402	
	dark grey BEDROCK andesite fresh 5.1	CR	1	99	87	6	401	Hydraulic conductivity test carried out between 6 m and 9.9 m; no flow observed.
		CR	2	100	95	7	400	
		CR	3	100	98	8	399	
	397.1					9	398	
	End of borehole 9.9							

Notes:
1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test.
2. The hole was left open for the installation of a monitoring well in 2023.

FIELD TESTING: Penetration Testing (○ SPT/RQD □ PPT ● DCPT); MTO Vane* (△ Intact ▲ Remould); Nilcon Vane* (◇ Intact ◆ Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

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▽ Groundwater depth during drilling on 9/25/2022 at a depth of: 0.1 m.

RECORD OF BOREHOLE No. SG22-039 / DH22-AY

Project Number:	OMGM 2215	Drilling Location:	CDF E:547004 N:5693798	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 26, 2022 Date Completed: Sep 26, 2022	Revision No.:	0, 12/1/22

Geodetic GROUND Surface Elevation: 412.0 m

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	brown ORGANICS saturated, fibrous - Saturated brown sand was encountered between 0.55 m and 0.61 m	SS	1	11	5	0	412
	411.4						
	BOULDERS AND COBBLES hard to core through						
	0.6						
	410.4					1	411
	dark grey BEDROCK andesite fresh	CR	1	123	0		
	1.6					2	410
		CR	2	100	88		
						3	409
		CR	3	100	97	4	408
						5	407
		CR	4	100	98		
						6	406
	405.4						
	End of borehole 6.6 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test. 2. The hole backfilled with grout.						

FIELD TESTING: Penetration Testing — SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading — COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L; Plastic Liquid 20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR SA SI CL

Hydraulic conductivity test carried out between 3 m and 8.6 m; Lugeon value <0.1 (see report for details).

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▽ Groundwater depth during drilling on 9/26/2022 at a depth of: 0.0 m.

RECORD OF BOREHOLE No. SG22-040 / DH22-AZ

Project Number:	OMGM 2215	Drilling Location:	CDF E:547047 N:5693186	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 27, 2022 Date Completed: Sep 27, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 404.0 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	brown SAND small gravel and cobbles 403.6										
	dark grey BEDROCK andesite fresh 0.4	CR	1	100	87						
		CR	2	100	98	1	403				
		CR	3	97	90	2	402				Hydraulic conductivity test carried out between 3 m and 14.5 m; Lugeon value <0.1 (see report for details).
		CR	4	100	95	3	401				
		CR	5	97	92	4	400				
		CR	6	100	98	5	399				
		CR	7	88	83	6	398				
		CR	8	100	100	7	397				
						8	396				
						9	395				
						10	394				
						11	393				

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▽ Groundwater depth during drilling on 9/27/2022 at a depth of: 0.0 m.

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RECORD OF BOREHOLE No. SG22-040 / DH22-AZ

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	dark grey BEDROCK andesite fresh										
		CR	9	100	100	12	392				Hydraulic conductivity test carried out between 11.5 m and 14.5 m; Lugeon value <0.1 (see report for details).
		CR	10	100	100	13	391				
	389.5					14	390				
	End of Borehole 14.5 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test. 2. The hole was left open for the installation of a monitoring well in 2023.										

Scale: 1 : 58

RECORD OF BOREHOLE No. SG22-041 / DH22-AV

Project Number:	OMGM 2215	Drilling Location:	CDF E:546792 N:5694467	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 28, 2022 Date Completed: Sep 28, 2022	Revision No.:	0, 12/1/22

Geodetic GROUND Surface Elevation: 403.0 m

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	brown ORGANICS damp, fibrous 402.4	SS	1	8	2		
	brown SAND damp some gravel 401.8 (0.6)	SS	2	13	7	1	402
	dark grey BEDROCK andesite fresh (1.3)	CR	1	100	85		
		CR	2	100	98	2	401
		CR	3	93	79	3	400
		CR	4	90	83	4	399
		CR	5	100	100	5	398
						6	397
						7	396
	395.7						
	End of borehole (7.3) 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test. 2. The hole was backfilled with grout.						

FIELD TESTING: Penetration Testing — SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading — COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L; Plastic Liquid 20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR SA SI CL

Hydraulic conductivity test carried out between 3 m and 7.3 m; Lugeon value of 15 (see report for details).

Unconfined compressive strength test at 3.34 m, UCS = 96.2 MPa

Hydraulic conductivity test carried out between 4.5 m and 7.3 m; Lugeon value of 0.1 (see report for details).

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Groundwater depth during drilling on 9/28/2022 at a depth of: 0.0 m.

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RECORD OF BOREHOLE No. SG22-042 / DH22-AW

Project Number:	OMGM 2215	Drilling Location:	CDF E:546581 N:5694466	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 29, 2022	Date Completed: Sep 29, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 402.0 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: SPT/RQD, PPT, DCPT; MTO Vane* Intact/Remould; Nilcon Vane* Intact/Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	brown ORGANICS damp, fibrous 401.5	SS	1	7	3						
	dark grey BEDROCK andesite fresh 0.5	CR	1	66	32	1	401				
		CR	2	86	70	2	400				Hydraulic conductivity test carried out between 2 m and 5.3 m; Lugeon value of about 0.1 (see report for details).
		CR	3	100	100	3	399				
		CR	4	95	92	4	398				Unconfined compressive strength test at 4.15 m, UCS = 56.6 MPa
	396.7					5	397				
	End of borehole 5.3 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test. 2. The hole was left open for the installation of a monitoring well in 2023.										

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Groundwater depth during drilling on 9/29/2022 at a depth of: 0.0 m.

RECORD OF BOREHOLE No. SG22-043 / DH22-AT

Project Number:	OMGM 2215	Drilling Location:	CDF E:547397 N:5694549	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Sep 30, 2022 Date Completed: Sep 30, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE			SOIL SAMPLING						FIELD TESTING	LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 401.0 m		Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	PenetrationTesting ○ SPT/RQD □ PPT ● DCPT MTO Vane* △ Intact ▲ Remould Nilcon Vane* ◇ Intact ◆ Remould * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8 △ COV (ppm) □ TOV (ppm) 100 200 300 400 W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	brown ORGANICS damp, fibrous	400.4	SS	1	8	2						
	brown SILTY SAND damp	0.6 399.8	SS	2	8	7	1	400				
	dark grey BEDROCK fresh	1.2	CR	1	95	93	2	399				Hydraulic conductivity test carried out between 2.5 m and 5.7 m; Lugeon value <0.5 (see report for details).
			CR	2	92	89	3	398				
			CR	3	100	100	4	397				
							5	396				
		395.3										
	End of borehole Notes 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test. 2. The hole was backfilled with grout.	5.7										

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▽ Groundwater depth during drilling on 9/30/2022 at a depth of: 0.0 m.

RECORD OF BOREHOLE No. SGH22-MW-006(A) / DH22-AU

Project Number:	OMGM 2215	Drilling Location:	CDF E:547532 N:5694692	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Oct 1, 2022 Date Completed: Oct 2, 2022	Revision No.:	0, 12/1/22

Geodetic GROUND Surface Elevation: 398.0 m

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	COBBLES AND BOULDERS (inferred) hard to drill through					1	397
	396.5						
	dark grey BEDROCK fresh 1.6	CR	1	100	91	2	396
		CR	2	100	98	3	395
		CR	3	99	99	4	394
		CR	4	100	100	5	393
		CR	5	100	98	6	392
		CR	6	98	98	7	391
		CR	7	100	100	8	390
						9	389
						10	388
						11	387

FIELD TESTING: Penetration Testing — SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading — COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR SA SI CL

Hydraulic conductivity test carried out between 2.7 m and 4.9 m; Lugeon value <0.1 (see report for details).

Hydraulic conductivity test carried out between 2.6 m and 12.6 m;Lugeon value <0.1 (see report for details).

Unconfined compressive strength test at 4.71 m, UCS = 193.9 MPa

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Groundwater depth during drilling on 10/2/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-12-2022 at a depth of: - 0.3 m.

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Continued on Next Page

RECORD OF BOREHOLE No. SGH22-MW-006(A) / DH22-AU

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR	SA	SI	CL
	dark grey BEDROCK fresh	CR	8	98	93	12	386	○							
	385.4														
	End of Borehole 12.6 1. The hole was terminated considering the low hydraulic conductivity measured from the in-situ packer test.														

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

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RECORD OF MONITORING WELL No. SGH22-MW-006(B) / DH22-AU

Project Number:	OMGM 2215	Drilling Location:	CDF E:547532 N:5694692	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Oct 1, 2022 Date Completed: Oct 2, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 398.0 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: SPT/RQD, PPT, DCPT; MTO Vane* Intact/Remould; Nilcon Vane* Intact/Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P Plastic, W, W_L Liquid; 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	Refer to borehole log SGH22-MW-006(A) / DH22-AU Borehole terminated as suitable bedrock was encountered					1 2 3 4	397 396 395 394				
	393.4 4.6										

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Groundwater depth during drilling on 4/5/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-12-2022 at a depth of: - 0.3 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-001(A) / HG22-MW-03(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:548477 N:5694283	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 5, 2022 Date Completed: Apr 5, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Lithology Plot | **DESCRIPTION** | Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%) | DEPTH (m) | ELEVATION (m)

Geodetic GROUND Surface Elevation: 411.0 m

Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80

Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400

W_P W W_L Plastic Liquid 20 40 60 80

GR SA SI CL

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

DEPTH (m)	ELEVATION (m)
1	410
2	409
3	408
4	407
5	406
6	405
7	404
8	403
9	402
10	401
11	400

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Groundwater depth during drilling on 4/5/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-06-2022 at a depth of: 2.4 m.

Scale: 1 : 58

Continued on Next Page

RECORD OF MONITORING WELL No. SH22-MW-001(A) / HG22-MW-03(A)

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					12 13 14 15	399 398 397 396				
	395.3 15.7										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-001(B) / HG22-MW-03(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:548477 N:5694283	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 5, 2022 Date Completed: Apr 5, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE

Lithology Plot

DESCRIPTION

Geodetic GROUND Surface Elevation: 411.0 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

405.0
6.0

SOIL SAMPLING

Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%)

DEPTH (m) | **ELEVATION (m)**

1 410
2 409
3 408
4 407
5 406
6 405

FIELD TESTING

Penetration Testing
○ SPT/RQD □ PPT ● DCPT

MTO Vane* △ Intact ▲ Remould
Nilcon Vane* ◇ Intact ◆ Remould

* Undrained Shear Strength (kPa)
20 40 60 80

LAB TESTING

Soil Vapour Reading
▲ COV (LEL) ■ TOV (LEL)
2 4 6 8
△ COV (ppm) □ TOV (ppm)
100 200 300 400

W_P W W_L
Plastic Liquid
20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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▽ Groundwater depth during drilling on 4/7/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-06-2022 at a depth of: 3.6 m.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-002(A) / HG22-MW-01(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:546868 N:5694900	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 7, 2022	Date Completed: Apr 7, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE

Lithology Plot

DESCRIPTION

Geodetic GROUND Surface Elevation: 411.0 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

SOIL SAMPLING

Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%)

DEPTH (m) | **ELEVATION (m)**

DEPTH (m)	ELEVATION (m)
1	410
2	409
3	408
4	407
5	406
6	405
7	404
8	403
9	402
10	401
11	400

FIELD TESTING

Penetration Testing
○ SPT/RQD □ PPT ● DCPT

MTO Vane* △ Intact ▲ Remould
Nilcon Vane* ◇ Intact ◆ Remould

* Undrained Shear Strength (kPa)
20 40 60 80

LAB TESTING

Soil Vapour Reading
▲ COV (LEL) ■ TOV (LEL)
2 4 6 8
△ COV (ppm) □ TOV (ppm)
100 200 300 400

W_P W W_L
Plastic Liquid
20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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Groundwater depth during drilling on 4/7/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-17-2022 at a depth of: 7.3 m.

Scale: 1 : 58

Continued on Next Page

RECORD OF MONITORING WELL No. SH22-MW-002(A) / HG22-MW-01(A)

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					12 13 14 15	399 398 397 396				
	395.4 15.6										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-002(B) / HG22-MW-01(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:546868 N:5694900	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 7, 2022	Date Completed: Apr 7, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE

Lithology Plot

DESCRIPTION

Geodetic GROUND Surface Elevation: 411.0 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

405.1

5.9

SOIL SAMPLING

Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%)

DEPTH (m) | **ELEVATION (m)**

1 410
2 409
3 408
4 407
5 406

FIELD TESTING

Penetration Testing
○ SPT/RQD □ PPT ● DCPT

MTO Vane* Nilcon Vane*
△ Intact ◇ Intact
▲ Remould ◆ Remould

* Undrained Shear Strength (kPa)
20 40 60 80

LAB TESTING

Soil Vapour Reading
▲ COV (LEL) ■ TOV (LEL)
2 4 6 8
△ COV (ppm) □ TOV (ppm)
100 200 300 400

W_P W W_L
Plastic Liquid
20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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▽ Groundwater depth during drilling on 4/8/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-17-2022 at a depth of: 5.2 m.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-003(A) / HG22-MW-07(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:548425 N:5692153	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 8, 2022 Date Completed: Apr 8, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	Geodetic GROUND Surface Elevation: 399.8 m						
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					0	399
						1	398
						2	397
						3	396
						4	395
						5	394
						6	393
						7	392
						8	391
						9	390
						10	389
						11	

FIELD TESTING: Penetration Testing — ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading — ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

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▽ Groundwater depth during drilling on 4/8/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-06-2022 at a depth of: 4.2 m.

Scale: 1 : 58

Continued on Next Page

RECORD OF MONITORING WELL No. SH22-MW-003(A) / HG22-MW-07(A)

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					0	388				
						12					
							387				
						13					
							386				
						14					
							385				
						15					
	383.9						384				
	15.9										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-003(B) / HG22-MW-07(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:548425 N:5692153	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 8, 2022 Date Completed: Apr 8, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE

Lithology Plot

DESCRIPTION

Geodetic GROUND Surface Elevation: 399.8 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

393.5
6.3

SOIL SAMPLING

Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%)

DEPTH (m) | ELEVATION (m)

FIELD TESTING

Penetration Testing
○ SPT/RQD □ PPT ● DCPT

MTO Vane* △ Intact ▲ Remould
Nilcon Vane* ◇ Intact ◆ Remould

* Undrained Shear Strength (kPa)
20 40 60 80

LAB TESTING

Soil Vapour Reading
▲ COV (LEL) ■ TOV (LEL)
2 4 6 8
△ COV (ppm) □ TOV (ppm)
100 200 300 400

W_P W W_L
Plastic Liquid
20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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Groundwater depth during drilling on 4/9/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-06-2022 at a depth of: 4.2 m.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-004(A) / HG22-MW-09(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:549885 N:5694792	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 9, 2022	Date Completed: Apr 9, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Geodetic GROUND Surface Elevation: 404.2 m

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					0	404
						1	403
						2	402
						3	401
						4	400
						5	399
						6	398
						7	397
						8	396
						9	395
						10	394
						11	

FIELD TESTING: Penetration Testing — SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80

LAB TESTING: Soil Vapour Reading — COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

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Groundwater depth during drilling on 4/9/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-08-2022 at a depth of: 1.6 m.

Scale: 1 : 58

Continued on Next Page

RECORD OF MONITORING WELL No. SH22-MW-004(A) / HG22-MW-09(A)

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: SPT/RQD, PPT, DCPT; MTO Vane* Intact/Remould; Nilcon Vane* Intact/Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					0	393				
						12	392				
						13	391				
						14	390				
						15	389				
	388.5 15.7										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-004(C) / HG22-MW-09(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:549885 N:5694792	Logged by:	MA
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 9, 2022	Date Completed: Apr 9, 2022	Revision No.: 0, 12/1/22

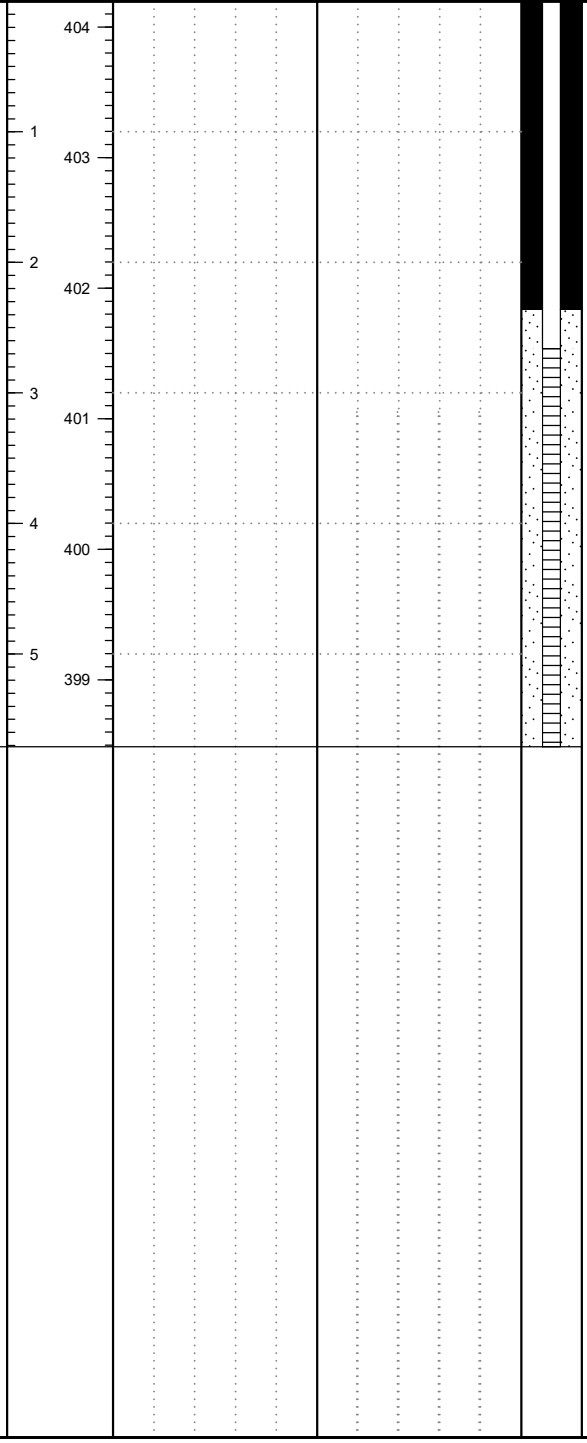
LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Lithology Plot | DESCRIPTION | Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%) | DEPTH (m) | ELEVATION (m) | Penetration Testing: SPT/RQD, PPT, DCPT | MTO Vane* Intact/Remould | Nilcon Vane* Intact/Remould | * Undrained Shear Strength (kPa) 20 40 60 80 | Soil Vapour Reading: COV (LEL), TOV (LEL) 2 4 6 8 | COV (ppm), TOV (ppm) 100 200 300 400 | W_P Plastic, W, W_L Liquid 20 40 60 80 | GR SA SI CL

Geodetic GROUND Surface Elevation: 404.2 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

398.5
5.7



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Groundwater depth during drilling on 10/3/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-08-2022 at a depth of: 1.7 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-007 / HG22-MW-10

Project Number:	OMGM 2215	Drilling Location:	CDF E:550823 N:5695082	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Oct 3, 2022 Date Completed: Oct 3, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 403.0 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					1 2 3 4	402 401 400 399				
	398.4 4.6										

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Canada
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Groundwater depth during drilling on 4/10/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-08-2022 at a depth of: 0.6 m.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-008(A) / HG22-MW-11(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:551001 N:5694632	Logged by:	GC
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 10, 2022	Date Completed: Apr 10, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION Geodetic GROUND Surface Elevation: 399.0 m	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					1 2 3 4 5 6 7 8 9	398 397 396 395 394 393 392 391 390				
	389.4 9.6										

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Canada
Tel. No.: (905) 415-2632
wsp.com

▽ Groundwater depth during drilling on 4/10/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-07-2022 at a depth of: 0.2 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-008(B) / HG22-MW-11(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:551001 N:5694632	Logged by:	GC
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Apr 10, 2022	Date Completed: Apr 10, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)
	Geodetic GROUND Surface Elevation: 399.0 m						
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					1	398
						2	397
						3	396
						4	395
	394.2						
	4.8						

Field Testing: Penetration Testing — SPT/RQD, PPT, DCPT; MTO Vane* (Intact, Remould); Nilcon Vane* (Intact, Remould); * Undrained Shear Strength (kPa) 20 40 60 80

Lab Testing: Soil Vapour Reading — COV (LEL), TOV (LEL) 2 4 6 8; COV (ppm), TOV (ppm) 100 200 300 400; W_P W W_L; Plastic Liquid; 20 40 60 80

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

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Groundwater depth during drilling on 10/6/2022 at a depth of: 0.0 m.

Groundwater depth observed on 10-07-2022 at a depth of: 0.2 m.

RECORD OF MONITORING WELL No. SH22-MW-009(A) / HG22-MW-12(A)

Project Number:	OMGM 2215	Drilling Location:	CDF E:551192 N:5694354	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Oct 6, 2022 Date Completed: Oct 6, 2022	Revision No.:	0, 12/1/22

LITHOLOGY PROFILE | **SOIL SAMPLING** | **FIELD TESTING** | **LAB TESTING** | **INSTRUMENTATION INSTALLATION** | **COMMENTS & GRAIN SIZE DISTRIBUTION (%)**

Lithology Plot | **DESCRIPTION** | Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%) | DEPTH (m) | ELEVATION (m)

Geodetic GROUND Surface Elevation: 403.0 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

Penetration Testing: ○ SPT/RQD □ PPT ● DCPT

MTO Vane*: △ Intact ▲ Remould

Nilcon Vane*: ◇ Intact ◆ Remould

* Undrained Shear Strength (kPa): 20 40 60 80

Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8

△ COV (ppm) □ TOV (ppm) 100 200 300 400

W_P W W_L

Plastic Liquid

20 40 60 80

GR SA SI CL

DEPTH (m)	ELEVATION (m)
1	402
2	401
3	400
4	399
5	398
6	397
7	396
8	395
9	394
10	393
11	392

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▽ Groundwater depth during drilling on 10/6/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-09-2022 at a depth of: 0.4 m.

Scale: 1 : 58

Continued on Next Page

RECORD OF MONITORING WELL No. SH22-MW-009(A) / HG22-MW-12(A)

Project Number: **OMGM 2215** Project Name: **Springpole 2022 WSP Investigation Program**

Project Location: **Springpole Site**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' / RQD (%)	DEPTH (m)	ELEVATION (m)	Penetration Testing: ○ SPT/RQD □ PPT ● DCPT; MTO Vane* △ Intact ▲ Remould; Nilcon Vane* ◇ Intact ◆ Remould; * Undrained Shear Strength (kPa) 20 40 60 80	Soil Vapour Reading: ▲ COV (LEL) ■ TOV (LEL) 2 4 6 8; △ COV (ppm) □ TOV (ppm) 100 200 300 400; W_P W W_L Plastic Liquid 20 40 60 80	INSTRUMENTATION INSTALLATION	GR SA SI CL
	No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.					12	391				
						13	390				
	389.0					14	389				
	14.0										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer or Professional Geoscientist. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying'Explanation of Borehole Log'.

Scale: 1 : 58

RECORD OF MONITORING WELL No. SH22-MW-009(B) / HG22-MW-12(B)

Project Number:	OMGM 2215	Drilling Location:	CDF E:551192 N:5694354	Logged by:	SR
Project Client:	First Mining Gold	Drilling Method:	Wash boring / HQ Coring	Compiled by:	NP
Project Name:	Springpole 2022 WSP Investigation Program	Drilling Machine:	Skidder Mounted Drill	Reviewed by:	GQ
Project Location:	Springpole Site	Date Started:	Oct 6, 2022	Date Completed: Oct 6, 2022	Revision No.: 0, 12/1/22

LITHOLOGY PROFILE

Lithology Plot

DESCRIPTION

Geodetic GROUND Surface Elevation: 403.0 m

No geotechnical sample was taken from overburden. Recovered bedrock cores were stored in FMG's site facility.

396.7
6.3

SOIL SAMPLING

Sample Type | Sample Number | Recovery (%) | SPT 'N' / RQD (%)

DEPTH (m) | **ELEVATION (m)**

1 402
2 401
3 400
4 399
5 398
6 397

FIELD TESTING

PenetrationTesting
○ SPT/RQD □ PPT ● DCPT

MTO Vane* △ Intact ▲ Remould
Nilcon Vane* ◇ Intact ◆ Remould

* Undrained Shear Strength (kPa)
20 40 60 80

LAB TESTING

Soil Vapour Reading
▲ COV (LEL) ■ TOV (LEL)
2 4 6 8
△ COV (ppm) □ TOV (ppm)
100 200 300 400

W_P W W_L
Plastic Liquid
20 40 60 80

INSTRUMENTATION INSTALLATION

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

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▽ Groundwater depth during drilling on 10/6/2022 at a depth of: 0.0 m.

▼ Groundwater depth observed on 10-09-2022 at a depth of: - 0.2 m.

Scale: 1 : 58

Attachment B
Bedrock Hydraulic Conductivity Data

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
BH-TMF-04D	548122	5693471	411.8	10.0	14.2	3.9E-07	82	Host Rock	CDF
BH-TMF-04S	548122	5693471	411.8	3.1	4.9	2.4E-06	66	Host Rock	CDF
BH-TMF-05	547428	5694198	413.3	6.6	9.6	2.7E-06	74	Host Rock	CDF
BH-TMF-35	548125	5694343	407.5	11.0	41.0	1.6E-09	98	Host Rock	CDF
BH-TMF-35	548125	5694343	407.5	38.0	41.0	3.8E-09	97	Host Rock	CDF
BH-TMF-36	548764	5693368	403.8	11.0	41.0	1.1E-08	98	Host Rock	CDF
BH-TMF-36	548764	5693368	403.8	20.0	41.0	4.8E-09	98	Host Rock	CDF
BH-TMF-37	546937	5693579	414.6	14.0	41.0	1.1E-08	94	Host Rock	CDF
BH-TMF-37	546937	5693579	414.6	32.0	41.0	9.0E-09	95	Host Rock	CDF
BH-TMF-38	547046	5694790	410.4	4.7	11.0	1.4E-08	96	Host Rock	CDF
BH-WSF2-06	548012	5694089	419.9	4.1	8.1	1.4E-08	76	Host Rock	CDF
BH-WSF2-13D	547290	5694515	401.0	6.6	9.7	2.0E-06	64	Host Rock	CDF
BH-WSF2-14D	547152	5692980	404.1	7.7	9.4	1.3E-06	60	Host Rock	CDF
BL-0334D	548847	5692194	396.8	21.6	22.7	1.1E-06	57	Host Rock	CDF
BL-0334S	548847	5692194	396.8	8.2	9.2	2.2E-06	93	Host Rock	CDF
SCH21-049	547341	5694275	421.2	8.2	28.3	1.0E-07	98	Host Rock	CDF
SCH21-049	547341	5694275	421.2	29.4	52.1	1.2E-07	98	Host Rock	CDF
SCH21-049	547341	5694275	421.2	50.6	78.6	4.5E-09	93	Host Rock	CDF
SCH21-049	547341	5694275	421.2	79.8	105.1	7.0E-09	99	Host Rock	CDF
SCH21-049	547341	5694275	421.2	106.3	131.6	4.8E-08	94	Host Rock	CDF
SCH21-049	547341	5694275	421.2	132.7	158.1	1.4E-07	94	Host Rock	CDF
SCH21-049	547341	5694275	421.2	156.6	176.6	2.8E-08	-	Host Rock	CDF
SG22-039	547004	5693798	411.0	3.0	8.6	8.2E-09	93	Host Rock	CDF
SG22-040	547047	5693186	403.5	11.5	14.5	2.3E-09	100	Host Rock	CDF
SG22-040	547047	5693186	403.5	3.0	14.5	3.3E-09	96	Host Rock	CDF
SG22-041	546792	5694467	401.9	4.5	7.3	4.6E-08	92	Host Rock	CDF
SG22-041	546792	5694467	401.9	3.0	7.3	4.1E-06	87	Host Rock	CDF
SG22-042	546581	5694466	401.2	2.0	5.3	3.1E-08	97	Host Rock	CDF
SG22-043	547397	5694549	400.4	2.5	5.7	8.2E-08	94	Host Rock	CDF

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SGH22-MW-006	547532	5694692	401.6	2.7	4.9	1.7E-08	98	Host Rock	CDF
SGH22-MW-006	547532	5694692	401.6	2.6	12.6	4.4E-09	98	Host Rock	CDF
SH22-MW-006B	547532	5694692	401.6	3.0	6.0	1.7E-07	97	Host Rock	CDF
SH22-MW-002A	546868	5694900	410.0	12.4	15.4	1.9E-05	94	Host Rock	CDF
SG22-037	546806	5693724	408.9	0.8	10.0	4.9E-07	-	Host Rock	CDF
SH22-MW-005A	546806	5693726	408.8	0.7	6.7	2.2E-07	-	Host Rock	CDF
SG21-007	549296	5693041	402.6	101.4	512.0	9.7E-09	87	Host Rock	CDF
SG21-007	549296	5693041	402.6	198.5	510.1	1.4E-09	85	Host Rock	CDF
SG21-007	549296	5693041	402.6	200.4	512.0	8.9E-10	85	Host Rock	CDF
SGH22-MW-006A	547532	5694692	401.6	9.0	12.0	Low	98	Host Rock	CDF
SH22-MW-001A	548477	5694283	410.2	12.5	15.5	Low	100	Host Rock	CDF
SH22-MW-001B	548477	5694283	410.2	2.8	5.9	Low	96	Host Rock	CDF
SH22-MW-003A	548425	5692154	400.1	12.7	15.8	Low	94	Host Rock	CDF
SG22-038	547337	5693631	409.0	6.0	9.9	Low	96	Host Rock	CDF
BL-0334	548847	5692197	396.8	26.6	229.1	1.6E-07	87	Host Rock	CDF
SH22-MW-002B	546868	5694900	410.18			Low	-	Host Rock	CDF
SG22-033	547686	5692276	395	0.2	15.7	1.20E-07	-	Host Rock	CDF
BH18-01	549852	5692492	389.2	5.9	8.7	7.0E-07	52	Host Rock	Dike
BH18-02	549871	5692478	388.9	4.4	9.1	6.0E-07	95	Host Rock	Dike
BH18-03	550020	5692471	388.6	11.1	12.6	2.4E-06	42	Host Rock	Dike
BH18-04	550078	5692424	380.8	16.9	19.9	4.6E-07	87	Host Rock	Dike
BH18-04	550078	5692424	380.8	26.3	29.3	2.0E-07	103	Host Rock	Dike
BH18-04	550078	5692424	380.8	39.8	48.8	7.9E-07	80	Host Rock	Dike
BH18-05	550138	5692380	384.3	12.4	16.0	2.6E-06	88	Host Rock	Dike
BH18-05	550138	5692380	384.3	17.1	20.5	1.5E-05	67	Host Rock	Dike
BH18-05	550138	5692380	384.3	22.5	31.0	1.2E-05	48	Host Rock	Dike
BH18-07	550274	5692392	384.2	15.0	18.0	9.6E-06	48	Host Rock	Dike
BH18-07	550274	5692392	384.2	19.9	27.4	1.6E-07	69	Host Rock	Dike
BH18-08	550327	5692409	388.2	4.5	6.0	6.7E-07	77	Host Rock	Dike

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
BH18-09	550857	5693246	388.2	8.4	11.4	1.0E-06	80	Host Rock	Dike
BH18-10	550872	5693300	384.5	11.6	14.6	1.8E-05	40	Host Rock	Dike
BH18-11	550886	5693353	387.6	12.0	19.5	4.8E-07	67	Host Rock	Dike
BH18-09	550857	5693246	388.2	11.4	18.9	7.8E-07	80	Host Rock	Dike
SGH20-010	550894	5693412	392.0	89.3	171.6	2.7E-08	66	Host Rock	Dike
SGH20-010	550894	5693412	392.0	231.8	307.2	3.1E-07	69	Host Rock	Dike
BH-CAMP-32	551360	5693903	408.0	2.5	5.0	2.4E-07	82	Host Rock	East
BH-PP-31	550823	5694626	402.9	4.5	8.0	1.8E-08	96	Host Rock	East
BH-PP-31	550823	5694626	402.9	28.5	41.0	4.4E-08	94	Host Rock	East
BH-PS-07-R1D	550473	5694184	405.1	8.6	10.8	1.7E-06	101	Host Rock	East
BH-PS-07-R1S	550473	5694184	405.1	5.1	7.3	8.4E-06	88	Host Rock	East
BH-PS-08-R1D	550666	5693923	400.6	8.3	11.1	8.5E-06	88	Host Rock	East
BH-PS-09-R1D	550747	5693841	400.1	6.1	8.2	1.5E-05	94	Host Rock	East
BH-SP-39	550014	5695397	396.1	6.0	10.0	7.3E-09	97	Host Rock	East
BH-SP-40	550705	5695041	400.3	2.5	6.0	3.2E-08	100	Host Rock	East
BH-WSF1-01D	549772	5695076	399.0	5.9	8.2	8.4E-07	99	Host Rock	East
BH-WSF1-02D	550399	5694977	399.9	5.9	8.1	1.1E-06	82	Host Rock	East
BH-WSF1-02D	550399	5694977	399.9	5.9	8.1	1.4E-06	82	Host Rock	East
BH-WSF1-03D	550726	5694431	404.3	8.2	10.4	2.8E-07	0	Host Rock	East
BH-WSF1-11D	551085	5694725	399.0	6.1	11.3	2.6E-05	65	Host Rock	East
BH-WSF1-12D	549785	5695494	395.2	6.1	8.2	3.3E-06	93	Host Rock	East
SCH21-052	551109	5693893	407.8	4.0	31.0	5.2E-06	85	Host Rock	East
SCH21-052	551109	5693893	407.8	32.2	56.3	1.4E-06	89	Host Rock	East
SCH21-052	551109	5693893	407.8	60.4	87.3	7.7E-07	90	Host Rock	East
SCH21-052	551109	5693893	407.8	88.6	115.5	1.3E-06	95	Host Rock	East
SCH21-052	551109	5693893	407.8	119.6	146.5	2.0E-06	95	Host Rock	East
SCH21-052	551109	5693893	407.8	158.9	185.8	2.1E-07	97	Host Rock	East
SCH21-052	551109	5693893	407.8	187.2	225.5	1.6E-08	98	Host Rock	East
SCH21-052	551109	5693893	407.8	226.9	256.5	2.2E-08	97	Host Rock	East
SCH21-052	551109	5693893	407.8	257.7	287.5	3.7E-08	92	Host Rock	East

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SH22-MW-004C	549885	5694792	403.2	12.5	15.5	2.7E-08	96	Host Rock	East
SH22-MW-004D	549885	5694812	403.1	2.7	5.7	6.2E-08	100	Host Rock	East
SH22-MW-008A	551001	5694632	399.7	6.6	9.6	7.0E-07	75	Host Rock	East
SH22-MW-008B	551001	5694632	399.7	1.8	4.8	5.6E-06	69	Host Rock	East
SH22-MW-009A	551192	5694354	400.3	11.0	14.0	8.5E-07	81	Host Rock	East
SH22-MW-009B	551192	5694354	400.3	3.3	6.3	2.3E-06	97	Host Rock	East
SH22-MW-007A	550823	5695082	400.18			2.5E-08	-	Host Rock	East
SG22-021	549412	5693301	370.2	240.8	306.2	1.5E-05	5	UGM	Open Pit
SG13-200	549649	5693248	364.4	155.0	186.1	2.1E-06	83	UGM	Open Pit
SG22-029	549756	5693136	358.9	91.8	172.9	1.1E-06	19	UGM	Open Pit
BL-0143D	549041	5693629	396.1	20.9	22.3	3.7E-06	100	Host Rock	Open Pit
BL-0143S	549041	5693629	396.1	8.3	9.7	1.1E-06	90	Host Rock	Open Pit
SGH20-005	549019	5694324	408.1	74.0	135.8	3.9E-08	77	Host Rock	Open Pit
SGH20-005	549019	5694324	408.1	229.2	320.3	1.1E-09	82	Host Rock	Open Pit
SGH20-008D	549328	5694167	400.0	22.4	24.8	1.1E-07	78	Host Rock	Open Pit
SGH20-008S	549328	5694167	400.0	12.5	13.7	1.5E-06	79	Host Rock	Open Pit
SPW20-001	549026	5694166	406.9	203.6	401.0	2.6E-07	91	Host Rock	Open Pit
SH22-001	548872	5694407	393.7	9.3	35.0	3.2E-07	96	Host Rock	Open Pit
SH22-001	548872	5694407	393.7	33.3	65.0	1.2E-06	95	Host Rock	Open Pit
SH22-001	548872	5694407	393.7	63.3	95.0	7.6E-07	99	Host Rock	Open Pit
SH22-001	548872	5694407	393.7	93.3	122.0	8.8E-07	95	Host Rock	Open Pit
SH22-002	548722	5694325	393.5	9.3	35.0	1.7E-06	83	Host Rock	Open Pit
SH22-002	548722	5694325	393.5	33.3	65.0	1.2E-06	88	Host Rock	Open Pit
SH22-002	548722	5694325	393.5	63.3	95.0	3.4E-08	93	Host Rock	Open Pit
SH22-002	548722	5694325	393.5	93.3	122.0	1.0E-09	95	Host Rock	Open Pit
BL-0102	548936	5694200	408.6	4.8	252.1	8.9E-08	-	Host Rock	Open Pit
BL-0104	548882	5694234	401.7	5.0	267.6	1.7E-07	99	Host Rock	Open Pit
SG22-017	549974	5693213	393.3	22.5	61.5	1.1E-06	88	Host Rock	Open Pit
SG22-017	549974	5693213	393.3	71.9	118.6	2.3E-07	67	Host Rock	Open Pit

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SG22-023	549958	5693381	387.8	14.8	68.6	9.9E-07	89	Host Rock	Open Pit
SGH20-006	549959	5693538	398.8	316.5	346.7	2.1E-06	66	Host Rock	Open Pit
SG22-019	549672	5693606	386.3	31.4	66.7	1.6E-06	90	Host Rock	Open Pit
SG22-019	549672	5693606	386.3	78.2	116.0	1.2E-05	94	Host Rock	Open Pit
SG22-023	549958	5693381	387.8	229.2	300.4	5.2E-08	100	Host Rock	Open Pit
SG13-203	549300	5693676	371.5	138.7	165.9	3.7E-07	-	Host Rock	Open Pit
SGH20-007	549578	5693988	399.6	229.0	316.0	2.4E-07	82	Host Rock	Open Pit
SG22-023	549958	5693381	387.8	119.1	187.4	6.0E-07	97	Host Rock	Open Pit
SG13-201	549801	5693265	376.7	281.9	318.6	1.1E-06	40	Host Rock	Open Pit
SG13-204	549521	5693730	378.0	293.6	318.1	4.0E-09	-	Host Rock	Open Pit
SG13-205	549782	5693447	388.5	93.0	121.2	4.0E-06	-	Host Rock	Open Pit
SG13-205	549782	5693447	388.5	279.1	298.8	6.0E-08	-	Host Rock	Open Pit
SG13-205	549782	5693447	388.5	303.1	328.4	2.0E-09	-	Host Rock	Open Pit
BL-0034	549370	5694153	400.0	32.8	556.9	1.9E-07	95	Host Rock	Open Pit
BL-0050	549259	5694225	400.0	58.5	361.3	1.9E-07	100	Host Rock	Open Pit
BL-0111	549484	5694377	401.0	91.6	449.5	9.6E-08	93	Host Rock	Open Pit
BL-0232	549654	5694100	400.7	57.9	107.4	4.9E-07	93	Host Rock	Open Pit
BL-0232	549654	5694100	400.7	83.5	107.4	1.1E-06	94	Host Rock	Open Pit
SGH20-006	549959	5693538	398.8	87.2	145.8	3.4E-07	70	Host Rock	Open Pit
SGH20-006	549959	5693538	398.8	148.6	221.4	1.1E-05	76	Host Rock	Open Pit
SGH20-006	549959	5693538	398.8	266.8	316.0	8.0E-07	60	Host Rock	Open Pit
SGH20-007	549578	5693988	399.6	75.3	134.0	7.8E-07	93	Host Rock	Open Pit
SGH20-008	549328	5694167	400.0	91.9	169.4	2.8E-08	81	Host Rock	Open Pit
SGH20-008	549328	5694167	400.0	247.9	325.4	2.9E-07	91	Host Rock	Open Pit
SPW20-001	549026	5694166	406.9	278.6	356.0	3.4E-07	95	Host Rock	Open Pit
BL-0310	549209	5694049	396.4	2.7	75.7	2.5E-07	-	Host Rock	Open Pit
BL-0385	548880	5694421	393.6	2.5	104.0	1.3E-06	-	Host Rock	Open Pit
SG22-021	549412	5693301	370.2	408.9	506.1	1.0E-10	99	Host Rock	Open Pit
SG22-023	549958	5693381	387.8	64.0	120.7	1.2E-06	90	Host Rock	Open Pit

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SG22-023	549958	5693381	387.8	145.2	230.9	2.8E-07	96	Host Rock	Open Pit
SG22-023	549958	5693381	387.8	298.8	384.4	3.7E-08	62	Host Rock	Open Pit
SG13-200	549649	5693248	364.4	186.1	329.8	3.8E-07	22	Host Rock	Open Pit
SG13-204	549521	5693730	378.0	95.2	114.2	1.3E-06	-	Host Rock	Open Pit
SG13-206	549140	5693889	367.4	214.9	237.9	2.0E-06	-	Host Rock	Open Pit
BL-0052	548917	5694334	403.3	32.3	446.3	1.5E-07	98	Host Rock	Open Pit
BL-0098	549028	5694095	400.7	89.4	255.8	1.5E-08	97	Host Rock	Open Pit
SG22-017	549974	5693213	393.3	277.1	321.3	2.4E-05	66	Low RQD	Open Pit
SG22-021	549412	5693301	370.2	55.3	97.6	7.9E-06	62	Low RQD	Open Pit
SG22-021	549412	5693301	370.2	95.9	190.3	1.2E-05	50	Low RQD	Open Pit
SG22-021	549412	5693301	370.2	185.7	261.8	3.8E-07	24	Low RQD	Open Pit
SG22-021	549412	5693301	370.2	348.0	410.5	4.4E-08	95	Low RQD	Open Pit
SG13-200	549649	5693248	364.4	50.7	59.2	3.6E-06	-	Low RQD	Open Pit
SG13-200	549649	5693248	364.4	56.4	64.8	8.7E-07	-	Low RQD	Open Pit
SG13-200	549649	5693248	364.4	67.7	85.5	6.6E-07	-	Low RQD	Open Pit
SG13-201	549801	5693265	376.7	64.8	90.2	2.5E-06	60	Low RQD	Open Pit
SG13-201	549801	5693265	376.7	155.0	188.9	3.8E-07	69	Low RQD	Open Pit
SG13-202	549500	5693423	369.3	219.9	228.3	4.0E-05	-	Low RQD	Open Pit
SG13-202	549500	5693423	369.3	307.3	329.8	1.2E-06	-	Low RQD	Open Pit
SG13-206	549140	5693889	367.4	80.4	98.8	2.0E-06	-	Low RQD	Open Pit
SG13-206	549140	5693889	367.4	124.1	147.1	8.0E-08	-	Low RQD	Open Pit
SGH20-009	549217	5693349	397.1	257.4	308.9	1.8E-05	13	UGM	Open Pit / CDF
BH-TMF-15D	549463	5692557	395.4	9.2	11.2	2.5E-06	71	Host Rock	Open Pit / CDF
BL-0024	548927	5693982	400.0	79.2	218.2	2.4E-08	93	Host Rock	Open Pit / CDF
BL-0283	548813	5694193	398.0	22.9	66.6	1.6E-06	81	Host Rock	Open Pit / CDF
BL-0284	548828	5694192	400.3	49.0	64.7	9.2E-07	91	Host Rock	Open Pit / CDF
BL-0321	548909	5693708	393.6	31.6	161.2	1.7E-08	100	Host Rock	Open Pit / CDF
BL-0321D	548909	5693708	393.6	21.3	23.6	8.6E-07	86	Host Rock	Open Pit / CDF
BL-0321S	548909	5693708	393.6	6.9	8.0	1.4E-07	-	Host Rock	Open Pit / CDF
BL-0357	549473	5692455	395.3	16.5	17.5	2.0E-07	91	Host Rock	Open Pit / CDF

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SGH20-002	548918	5693693	393.9	18.0	19.1	6.4E-07	91	Host Rock	Open Pit / CDF
SGH20-002	548918	5693693	393.9	84.0	146.3	2.5E-08	95	Host Rock	Open Pit / CDF
SGH20-002	548918	5693693	393.9	228.7	306.4	3.3E-07	96	Host Rock	Open Pit / CDF
SGH20-003	549813	5692527	393.7	75.5	130.2	2.4E-08	60	Host Rock	Open Pit / CDF
SGH20-004	548811	5694076	407.1	19.0	21.3	3.4E-06	85	Host Rock	Open Pit / CDF
SGH20-004	548811	5694076	407.1	66.3	125.6	1.3E-09	79	Host Rock	Open Pit / CDF
SGH20-004	548811	5694076	407.1	176.6	224.5	4.0E-10	85	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	4.8	24.3	2.9E-07	99	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	42.3	63.7	7.0E-07	95	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	74.5	80.8	1.8E-06	100	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	63.2	80.8	2.6E-06	99	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	79.0	100.3	1.7E-06	96	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	93.3	100.5	4.3E-06	95	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	25.6	103.3	8.4E-07	97	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	84.8	106.1	2.3E-06	95	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	107.4	128.7	2.1E-06	97	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	115.8	128.7	2.7E-06	98	Host Rock	Open Pit / CDF
SGH21-006	549171	5693255	399.0	98.8	128.6	1.3E-06	96	Host Rock	Open Pit / CDF
SG22-008	549194	5693449	393.6	62.6	81.0	8.1E-06	98	Host Rock	Open Pit / CDF
SG22-008	549194	5693449	393.6	97.9	123.8	1.6E-04	91	Host Rock	Open Pit / CDF
SGH20-001	549339	5693015	402.6	19.3	21.6	1.5E-06	98	Host Rock	Open Pit / CDF
SGH20-001	549339	5693015	402.5	89.9	116.4	1.1E-07	95	Host Rock	Open Pit / CDF
SGH20-003	549813	5692527	393.7	215.7	302.6	2.0E-08	52	Host Rock	Open Pit / CDF
BL-0322	549850	5692577	390.5	31.5	273.1	1.8E-06	97	Host Rock	Open Pit / CDF
BL-0357	549446	5692468	395.9	42.1	141.6	5.0E-08	78	Host Rock	Open Pit / CDF
SGH20-001	549339	5693015	402.5	274.2	327.7	1.1E-06	6	Low RQD	Open Pit / CDF
SGH20-009	549217	5693349	397.1	101.3	171.8	1.8E-05	49	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	129.0	142.8	8.4E-06	66	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	135.5	154.0	1.9E-06	30	Low RQD	Open Pit / CDF

Exploration Borehole ID	Easting	Northing	Surface Elevation (masl)	Test Interval - Vertical Depth (mbgs)		Hydraulic Conductivity (m/s)	Approximate RQD (%)	Stratigraphic Model Unit	Site Location
				From	To				
SGH21-006	549171	5693255	399.0	158.0	173.7	6.9E-08	47	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	176.9	203.9	4.8E-07	27	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	208.0	229.3	5.1E-06	13	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	224.9	246.2	8.8E-07	20	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	233.3	246.2	9.2E-07	22	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	244.6	268.8	4.3E-06	8	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	255.9	285.7	6.7E-06	2	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	286.9	308.2	6.9E-06	4	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	306.6	325.1	3.4E-06	16	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	323.5	350.5	1.8E-05	27	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	306.6	325.1	3.1E-06	16	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	323.5	350.5	1.6E-05	29	Low RQD	Open Pit / CDF
SGH21-006	549171	5693255	399.0	334.8	367.4	5.7E-06	34	Low RQD	Open Pit / CDF
SG22-008	549194	5693449	393.6	155.0	196.6	1.3E-04	95	Low RQD	Open Pit / CDF
SG22-008	549194	5693449	393.6	189.9	220.0	2.8E-04	83	Low RQD	Open Pit / CDF

Annex A

2021 Hydrogeology Baseline Report

APPENDIX L

HYDROGEOLOGY TECHNICAL SUPPORT DOCUMENTS

L-1 Hydrogeology Baseline Report
L-2 Hydrogeological Modelling Report

Hydrogeology Baseline Report

Springpole Gold Project
First Mining Gold Corp.

ONS2104

Prepared by:
Wood Environment & Infrastructure Americas
a Division of Wood Canada Limited

May 2021

2020 Baseline Report
Springpole Gold Project

Red Lake District, Northwest Ontario
Project #ONS2104

Prepared for:

First Mining Gold Corp.
1800 – 925 West Georgia Street
Vancouver, British Columbia, V6E 4A2

Prepared by:

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2020 Winston Park Drive, Suite 600
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Canada
T: (905) 568-2929

Summary

First Mining Gold Corp. (FMG) proposes to develop an open pit mine and with supporting facilities known as the Springpole Gold Project. The Springpole Gold Project is located in a remote area of northwestern Ontario, approximately 110 kilometres (km) northeast of the Municipality of Red Lake.

This document is one of a series of baseline reports prepared by Wood Environment & Infrastructure Americas, a division of Wood Canada Limited (Wood) on behalf of FMG to describe the current environmental conditions in the area. During the consultation process, project-specific input from regulatory agencies and Indigenous communities will be considered at key milestones of the environmental assessment process including baseline studies, alternatives, assessment approach, mitigation and monitoring where appropriate.

The proposed Springpole Project is situated between two prominent lakes, Birch Lake, to the north of the Project site, and Springpole Lake, to the south of the Project site. The footprint of the proposed open pit mine extends to the southeast out into Springpole Lake and will require construction of two cofferdams to isolate the open pit from the lake while at its northern edge the open pit will come to within 50 m of Birch Lake.

Data for the Hydrogeology Baseline Study were collected through logging of test pits and boreholes advanced as part of geotechnical/characterisation studies, hydraulic testing of both overburden and bedrock (packer tests) and monitoring site groundwater levels. Acoustical Televiewer surveys were conducted in selected boreholes to map fracture frequency and orientation with the bedrock. A long-term (30-day) pumping test was also carried out to determine bedrock hydraulic properties and assess drawdown from pumping. Water quality sampling and stable isotope analysis were also conducted as part of field programs used for the Hydrogeology Baseline Study.

Overburden geology in the Project area generally consists of surficial organics (i.e., peat) and glacial sediments with the overall thickness ranging from thin/absent in areas of higher bedrock topography and becoming thicker and finer in nature in the lower laying areas. Sediment thickness under Springpole Lake can be more than 40 metres (m). Water levels in the overburden are generally within 3 m of the ground surface, even during the summer months with shallow groundwater directions following the local topography and shallow groundwater discharging to Birch Lake and Springpole Lake. Several local creeks appear to flow intermittently, ceasing to flow during parts the summer, suggesting that recharge to groundwater, which is one of the drivers to groundwater discharge, is low. Most groundwater is expected to flow towards the lakes, which given their large size relative to the anticipated low volume of groundwater discharge, indicates that groundwater discharge plays almost no role in maintaining water levels in the lakes.

Packer testing of the host metavolcanic (andesite) bedrock, which forms the predominant rock type around the Springpole deposit, indicates that its hydraulic conductivity is generally quite low. Because of this, it is expected that the fracture networks present within the host metavolcanic rock are poorly connected and that flow through them is limited. Surveys conducted within deep exploration boreholes within these rocks have also indicated that what few open fractures exist become be less common with depth, as is consistent with the patterns of fracturing seen in Archean rock in northern Ontario, creating a trend of reduced bulk hydraulic conductivity within the host bedrock.

Packer testing of the intrusive bedrock zone which forms the bulk of the Springpole deposit does show markedly higher hydraulic conductivity than the surrounding host bedrock. Hydraulic conductivity within this zone does not appear to decrease with depth in the same manner that is anticipated with the surrounding host rock. Higher permeabilities in this zone likely reflect the presence of weak porphyry

rock, which appears more prone to fracturing and weathering than the host rock surrounding it. Pumping test results from within this rock suggest that the fracture networks present, while resulting in a higher bulk hydraulic conductivity of this zone, may not be hydraulically connected with either Birch Lake or Springpole Lake as the water produced from this zone, after 30 days of pumping, did likely not originate from the surrounding lakes. This is also reflected in the groundwater chemistry, which indicates the presence of relatively oxygenated groundwater in the shallow bedrock, but more reduced conditions at depth (likely reflecting a long residence time due to very slow groundwater movement at depth). Groundwater within those deeper fracture zones within the porphyry zone appears be essentially near stagnant water that was recharged from precipitation rather than from the lakes.

Under existing conditions, most of the local groundwater flow will be driven by recharge in higher elevation areas into the overburden sediments which cover most of the area. What limited groundwater flow that exists will be preferential through the overburden and shallow fractured bedrock towards surface water features such as Birch Lake and Springpole Lake. Discharge to the lakes will, however, be limited by what appears to be poor connectivity of fractures in the metavolcanic and metasediments which largely separate the more fractured bedrock of the porphyry zone from the lakes, and by the clay sediments in the lake beds, which can reach thicknesses of greater than 40 m.

The low porosity of bedrock, where groundwater is found in a sparse fracture network, indicates that the bedrock fracture network contains very little water on a per volume of material basis compared to the overburden. The groundwater chemistry of the overburden and shallow bedrock is expected to dominate the water chemistry of the active groundwater flow system, although the volume of groundwater flow under existing conditions is expected to be small.

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1.0 INTRODUCTION

First Mining Gold Corp. (FMG) proposes to develop an open pit mine and with supporting facilities known as the Springpole Gold Project. The Springpole Gold Project is located in a remote area of northwestern Ontario, approximately 110 kilometres (km) northeast of the Municipality of Red Lake (Figure 1-1).

This document is one of a series of baseline reports prepared by Wood Environment & Infrastructure Americas, a division of Wood Canada Limited (Wood) on behalf of FMG to describe the current environmental conditions and update existing information. This introduction is included in each baseline document, such that the reports can be read independent of one another. Other environmental baseline reports in the series address the following environmental aspects:

- Air Quality;
- Noise;
- Geochemistry;
- Hydrology;
- Aquatic Resources;
- Terrestrial Resources; and
- Socioeconomic.

During the consultation process, project-specific input from regulatory agencies and Indigenous communities will be considered at key milestones of the environmental assessment process including baseline studies, alternatives, assessment approach, mitigation and monitoring where appropriate. Non-confidential information from Indigenous Traditional Knowledge and Traditional Land Use studies will be presented in the where applicable to the Project. An overview of the consultation input and key Indigenous information that was considered during the effects assessment in relation to this report will be summarized in the Environment Impact Statement and Environmental Assessment.

The intent here is to summarize hydrogeological data from various studies in a single document and provide a description of the basic geology, hydrogeology and hydrology of the Project area that can be used to supplement the ongoing characterization work that is being completed.

1.1 Background

Gold exploration at the Project has been carried out during two main periods with the first period being in the 1920s to 1940s, and the second period from 1985 to the present.

The first period of exploration saw trenching and prospecting activities carried out followed by advancement of 10 shallow boreholes totaling about 450 m in depth. After this the site lay dormant until the second phase of exploration began in the mid 1980's and continues to the present day.

Work conducted in the second phase of exploration has consisted of both airborne and ground based geophysical surveys a well as significant advancement of Diamond Drill Holes (DDH's) across the Project site. Information collected during this work led to the identification of the currently understood prospect areas, namely the Portage Zone, the East Extension Zone and Camp Zone.

In addition historical work at the Project site, there have been two historical mines in the area, the MacIntyre Gold Mine on the northeast side of Birch Lake, and the Casey Summit Mine (later renamed the Casummit Mine) located on Casummit Lake, approximately 10 km north of the Springpole Gold Project.

1.2 Proposed Mining and Dewatering

The proposed open pit and relevant site features are area shown in Figure 1-2. Based on current information, the proposed Springpole Gold Project will consist of an open pit that is to be developed in phases. The ultimate open pit is roughly oval in shape trending northwest-southeast and following the mineralization zone identified as the Portage Zone (Section 3.2.2). The open pit will be approximately 1.7 km long and have a maximum width of 1 km comprising about 120 hectares (ha) in size. The pit footprint extends under the northern portion of Springpole Lake and will be about 350 deep m at its deepest point. The pit will be constructed in three phases and is anticipated to have one year of pre-production stripping, 9 years of mining and 3 years of processing stockpiled material.

Because the footprint of the mine extends under what is currently the northernmost bay of Springpole Lake two cofferdams will be required in order to isolate the mine from the lake. These cofferdams are expected to be approximately 38 m wide and have a combined length of 940 m. The maximum height of the cofferdams will be approximately 17 m.

In addition to the open pit, a fish habitat replacement excavation is expected to be established near the plant location in the pre-production period at the location.

The current mining plan, which is in development and subject to change, includes a single Co-Disposal Facility (CDF) that will be constructed west of the open pit, over what is currently Lake L-3, for storage of filtered tailings from ore processing and mine rock from mining. The CDF will store approximately 76 Mm^3 of tailings and 41 Mm^3 of mine rock and have a maximum height of approximately 70 m.

1.3 Groundwater users

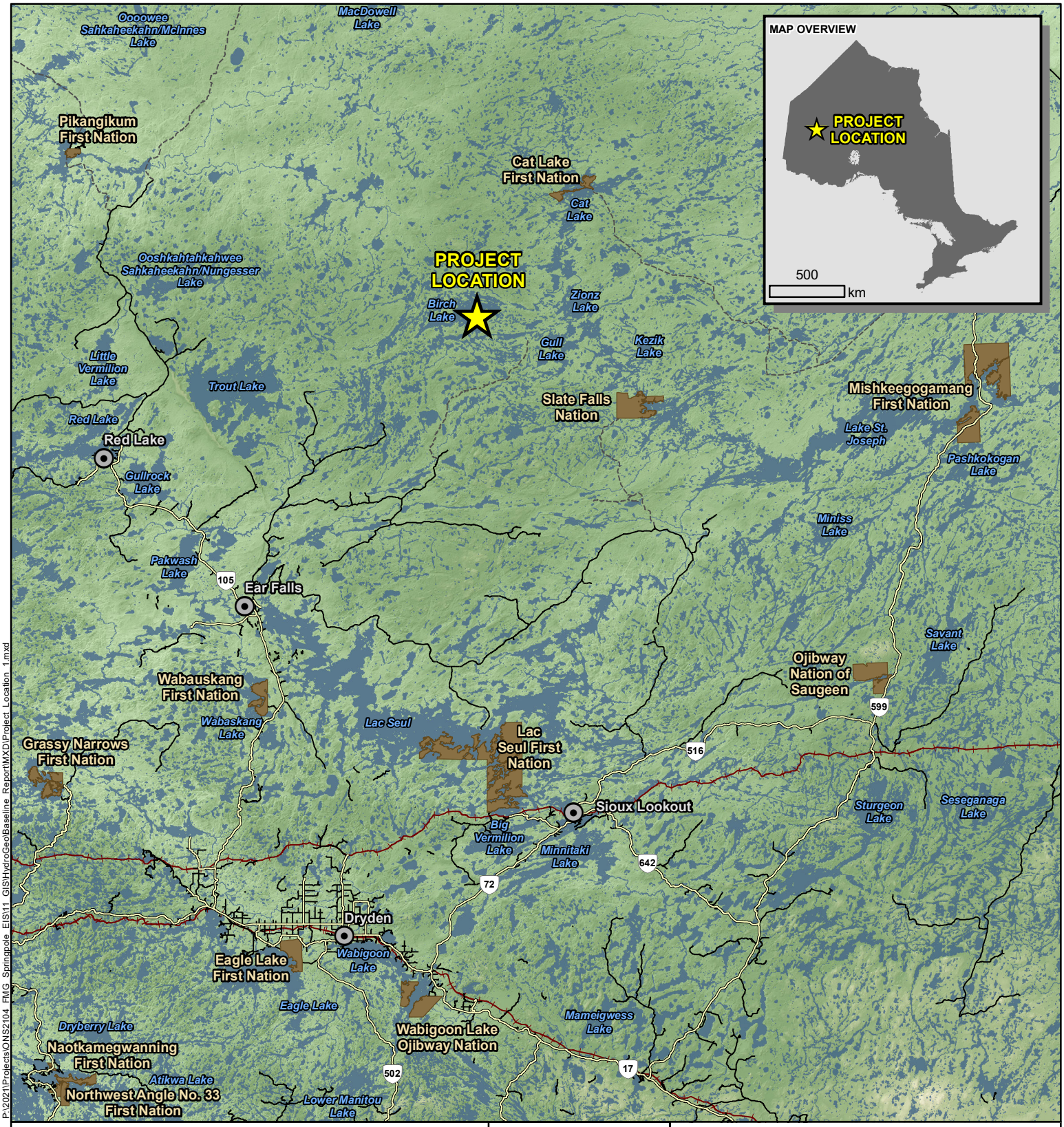
The Project site is located in a remote area of northwestern Ontario and there are no nearby industrial / commercial developments. An assessment of the Ontario Ministry of Environment, Conservation and Parks (MECP) Water Well Information System (WWIS) indicates a single monitoring well installation at the Project site for the purpose of monitoring. There are no other wells listed within the WWIS database that are within the area.

The Project site is located approximately 40 km from Cat Lake First Nation, 45 km from Slate Falls First Nation, and 120 km from the community of Hudson in the Lac Seul First Nation. All of these communities are well away from any anticipated impacts to groundwater from the proposed Project.

1.4 Previous studies used in preparing this report

The bulk of the information contained in this report has been obtained from the following sources:

- Hydrogeological Baseline Report First Mining Gold, Gold Canyon Resources Springpole Lake Project Site, Ontario (FracFlow, 2021a) - included in Appendix A of this report;
- First Mining Gold Corp. NI 43-101 Technical Report and Pre-Feasibility Study on the Springpole Gold Project, Ontario, Canada. (AGP, 2021);
- Hydrology Baseline Report (Wood, 2021);
- Final Factual Report, Geotechnical Program, Winter-Summer 2020 (FracFlow, 2020);
- Springpole Gold Project Pre-Feasibility Design of Cofferdams, (Knight Piesold, 2021);
- Diamond Drill Hole (DDH) database provided for the Project provided by the FMG; and
- Selected geologic information taken from the geologic structural model developed by FMG.



P:\2021\Projects\ONS2104 FMG Springpole EIS\11 GIS\HydroGeoBaseline Report\MXD\Project Location 1.mxd

LEGEND

- Project Location
- Town
- First Nation Reserve
- Highway
- Secondary Road
- Resource / Winter Road
- Railway

0 12.5 25 50 75 100 Kilometres

NOTES:
- Topographic information extracted from LIO, MNRF.

Datum: NAD83
Projection: UTM Zone 15N

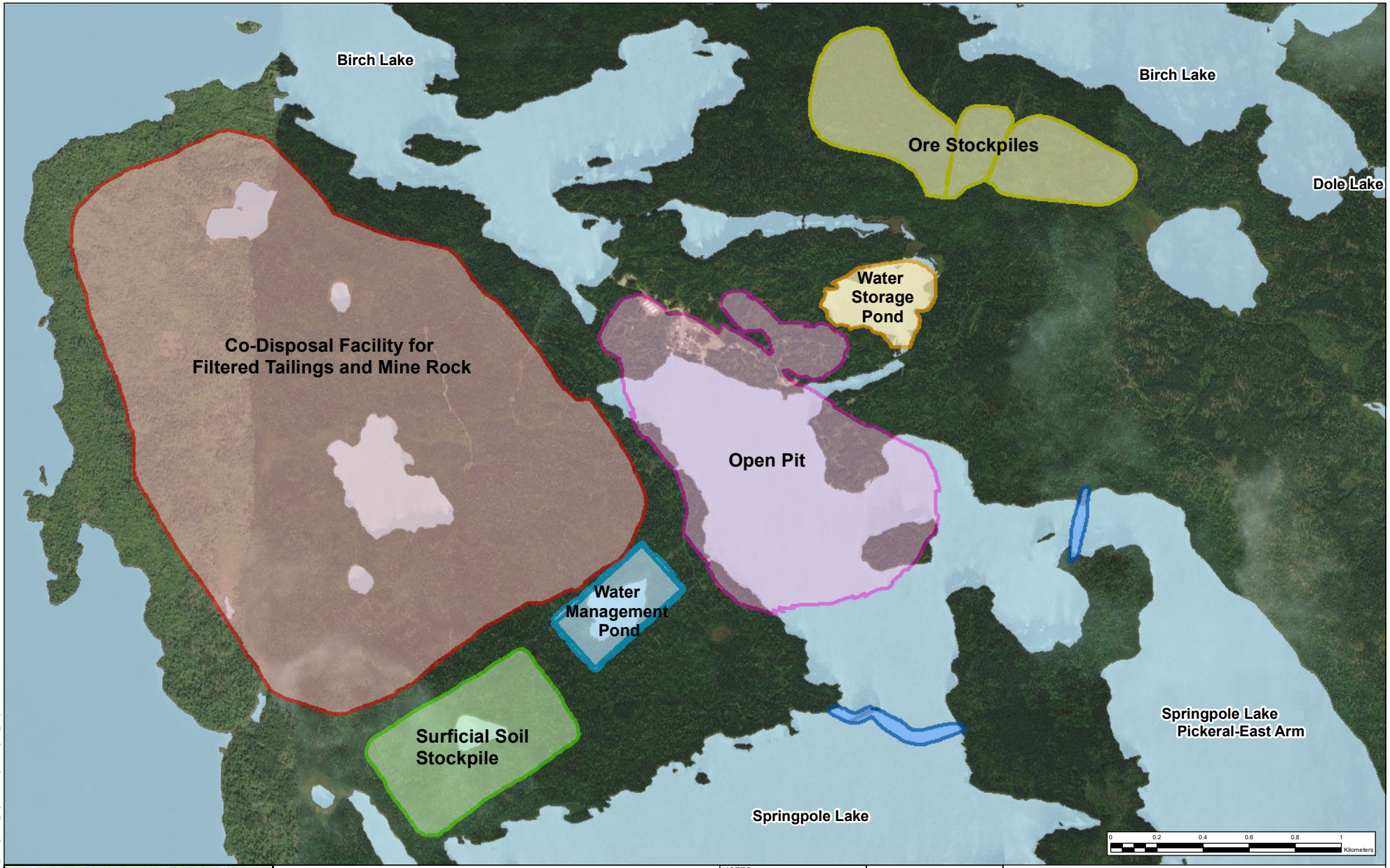
First Mining Gold

wood.

SPRINGPOLE GOLD PROJECT

Project Location

PROJECT N°: ONS2104	**FIGURE: 1-1**
SCALE: 1:1,500,000	DATE: May 2021



LEGEND

- Co-Disposal Facility for Filtered Tailings and Mine Rock
- Open Pit
- Ore Stockpile
- Surficial Soil Stockpile
- Cofferdams
- Water Management Pond
- Water Storage Pond
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Project Site Detail

PROJECT N°:	ONS2104
DATE:	April 2021

FIGURE: 1.2

Wood Environment & Infrastructure Solutions
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wood.

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2.0 SITE SETTING

The following section provides a brief description of the Project area and geology and surface water hydrology based on the reports listed above.

2.1 Climate

The following information is summarized from the Springpole Project meteorology report prepared by Ausenco (2020) and Wood (2021). The climate at the Project site can be classified as subarctic (Dfc) with cold winters and mild summers. The bulk of precipitation at the Project site falls occurs as rain in the warmer months although winter snowfall amount can be substantial.

The mean annual monthly temperature of the study area is 1.7 °C with the coldest month being January, having a mean daily minimum and maximum temperature of -28.4 °C and -3.5 °C respectively. The warmest month is July with a mean daily minimum and maximum value of 12.3 °C and 24.5 °C. These values are taken from 2008-2020 data collected for the Casummit Lake weather station which is located approximately 11 km from the Project site.

Precipitation data is taken from the Environment Canada Climate Canada (ECCC) Red Lake station (located 110 km from the site) as the nearby Casummit Lake station showed considerably lower precipitation values than the surrounding ECCC stations (Wood, 2021). The total annual precipitation from the Red Lake station is 686.4 millimetres per year (mm/yr). 74% of the total precipitation falls from May to October with a maximum average monthly precipitation value of 103.4 mm occurring in July.

Lake evaporation was estimated based on the daily maximum and minimum temperatures of the Casummit Lake station using Hargreaves method. The resulted average monthly potential evaporation is between 1.0 mm for January and 106 mm for July and the multi-year potential evaporation is 460 mm.

2.2 Topography and Drainage

Site topography and major site features are shown in Figure 2-1. The Project site topography is typical of northern Ontario and can be characterized as moderately rugged. Overall relief at the site is about 35 m with the topographic high area, located to the north west of what is currently Lake L-3, being at elevation 426 m and the elevation of Springpole Lake being about 391 m (from Lidar dataset).

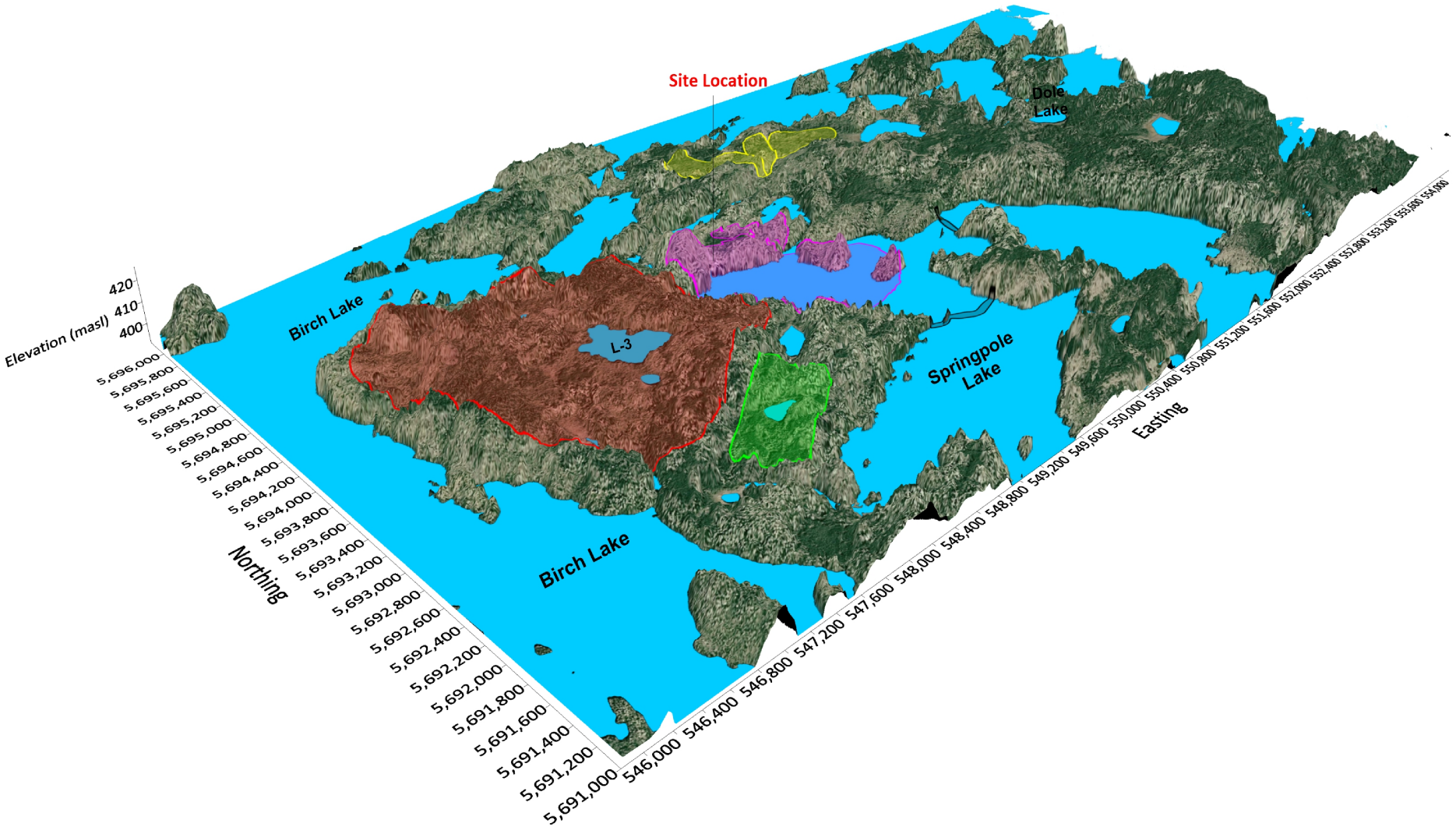
Lake L-3 is located on the west side of the proposed pit, on the land between Springpole Lake and Birch Lake. The Lake L-3 catchment, which is located underneath a portion of the footprint of the proposed CDF, drains to the southwest and discharges into Birch Lake. On the Springpole Lake side of this flow divide the area is drained by several small ponds and tributaries which discharge into Springpole Lake.

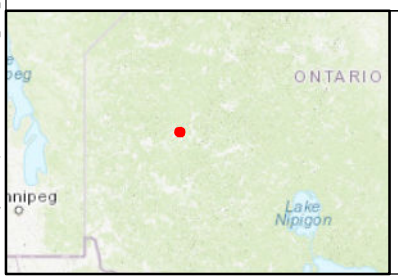
The surface water divide between the northern portion of Springpole Lake and Birch Lake runs south and east of what is currently Lake L-3 and then along the narrow (about 250 m at its narrowest) east-west strip of land that separates Birch Lake from Springpole Lake. The elevation of Birch Lake is approximately 2 m to 4 m (depending on the season) above Springpole Lake.

East of the proposed open pit the topography is similar with the topographic high area, at 414 m elevation separating the catchment of Dole Lake / South Dole Lake, which drain into Birch Lake, from that of Springpole Lake.

The proposed ore stockpile area straddles the surface water flow divide between Birch lake and Springpole Lake.

Details of major surface water drainage pathways surrounding the Project Site are discussed below in Section 4.0.





LEGEND

- Co-Disposal Facility for Filtered Tailings and Mine Rock
- Open Pit
- Ore Stockpile
- Surficial Soil Stockpile
- Cofferdams
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Site Topography

PROJECT N°:	ONS2104
DATE:	April 2021

FIGURE: 2.1

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C:\Users\tana.yan\Desktop\6. Small Tasks\ONS2104_FMG_Springpole\3_Figure plotting\Map\Fig 2.1_Site Topography.mxd*5/7/2021*

3.0 GEOLOGIC SETTING

3.1 Overburden Geology

Detailed overburden geology mapping from the Ontario Geological Survey is not available for the Project site, with the closest available coverage from the Northern Ontario Engineering Geology Terrain Study ending about 45 km south of the site. In the absence of the provincially available date the following descriptions of the overburden geology at the site are based on:

- Geologic descriptions from the 14 geotechnical boreholes advanced as part of the winter-summer 2020 drilling field program;
- Geologic descriptions from the 21 test pits excavated during the winter-summer 2020 field works;
- Geologic descriptions from 9 hand auger locations advanced during the summer 2020 field works; and
- Exploration boreholes (cumulative database of DDH's advanced during multiple drilling programs, current to the end of 2020) which contain information on the total thickness of the overburden across the site (~600 data points across the site).

The overburden geology in the Project area generally consists of surficial organics (i.e., peat) and glacial sediments. The overall thickness of overburden can be thin to absent in some locations of higher bedrock topography and tends to become thicker under lakes and ponds (i.e., in low-lying areas).

Measured overburden/sediment thickness, obtained from DDH logs, test pits and monitoring well locations, plotted as a function of ground surface elevation (for terrestrial locations) or lake bottom elevation, are shown in Figure 3-1. Data plotted in Figure 3-1 indicate that, on-land, overburden thickness values are typically less than 5 m, while lake bottom sediment thickness is often greater than 5 m thick with as much as greater than 40 m seen in some locations. Overburden is frequently absent along the shoreline of Springpole Lake and Birch Lake, possibly where it is eroded by wave and ice action on the lake shore.

Total overburden thickness contours are shown in Figure 3-2. The thin overburden between Birch Lake and Springpole Lake indicates that the two lakes are separated by a bedrock high. Overburden/lakebed sediment thickness is also thin, generally less than 2 m, in the area of the proposed cofferdam alignments.

The overburden hydrostratigraphy in the immediate vicinity of the Project site can be simplified as (in the order they generally occur from ground surface to bedrock):

- *Peat/Organics:* The Project site is generally covered by a thin layer of dark brown to black peat/organics which is typically less than 1 m on-land, but is up to approximately 5 m thick at the base of Springpole Lake; underlain by,
- *Glaciolacustrine Clay/Silt*. A thin layer of clay/silt is found predominantly in lower-lying areas at site, corresponding to ground surface elevations of less than roughly 405 masl (i.e., it is typically absent in test pits/boreholes drilled at higher elevations). Its colour is generally greenish grey (i.e., olive) and it has variable plasticity. On-land, its thickness is generally less than 3 m; however, thicknesses in exploration holes drilled within Springpole Lake have shown more than 10 m of clay at the base of the lake; which are in turn underlain by; and
- *Glacial Till*. A thin layer of glacial till (typically less than 3 m on-land, up to at least 20 m off-land) is present at site. Its composition is variable, but generally consists primarily of sand and silt with smaller amounts of other particle sizes.

3.2 Bedrock Geology

3.2.1 Regional Geology

The overall regional bedrock geologic setting for the Project area is shown in Figure 3-3 and is best described by the following excerpt taken from Devaney (2001):

> *"The Birch-Uchi Greenstone Belt is the portion of the Uchi Sub-province with an arcuate, concave to the southeast, (i.e., a major oroclinal bend between the Red Lake and Meen-Dempster portions of the sub-province). Studies of the southern part of the Birch-Uchi greenstone belt as a rootless greenstone belt only a few kilometres thick, have revealed a long (ca. 3.0 to 2.7 Ga), multistage history of crustal development. Based on mapping, lithogeochemistry, and radiometric dating, the supracrustal rocks of the greenstone belt were subdivided into three stratigraphic group-scale units (listed in decreasing age): the Balmer, Woman and Confederation assemblages. This three-part subdivision was applied to most of the Uchi Subprovince. The Confederation assemblage is thought to be a continental margin (Andean-type) arc succession, versus the less certain tectono-stratigraphic context of the other assemblages. Workers performing recent and ongoing studies of the southern Birch-Uchi greenstone belt and the Red Lake greenstone belt (i.e., the Western Uchi Subprovince NATMAP Project) have proposed some modifications and additions to the Balmer-Woman-Confederation stratigraphic scheme. As discussed herein, some relatively small conglomeratic units likely form a synorogenic, discontinuously distributed, post-Confederation assemblage in the Birch-Uchi greenstone belt. Radiometrically dated plutons within the Birch-Uchi greenstone belt are of post-Confederation assemblage, ca. 2725-2700 Ma age.*
>
> *The northern margin of the Birch-Uchi greenstone belt forms a pattern of sub-regional scale cusps of supracrustal strata alternating with batholiths. Basaltic units are prominent around the periphery of the greenstone belt and may be part of the Woman assemblage, but the accuracy of this stratigraphic assignment is unknown. Based on a ca. 2740 Ma age of Shabumeni Lake [intermediate to felsic fragmental] volcanic rocks at a site near the northern greenstone belt margin, suggested that Confederation assemblage age rocks make up the bulk of the greenstone belt".*

The Archean Orogenic gold deposit model developed by various authors has been applied to the mineral deposits of the Archean Superior Province. Orogenic gold deposits are epigenetic, structurally controlled gold deposits that are hosted in orogenic belts. They are generally accepted as having formed during late stages of continental collision (about 2.6 billion years ago). Most of the discovered orogenic gold deposits in the world occur in greenstone belts situated on the margins or within Archean cratons in North America, Australia, and southern Africa.

3.2.2 Property Geology

The geology of the local Project site is shown in Figure 3-4. Bedrock in the Project area is composed primarily of three major groupings:

- Trachyte Porphyry Intrusion (the heart of the Springpole deposit, hosting the mineralization zones);
- Metavolcanic and Siliciclastic Rocks (host rock that pre-dates the intrusion, representing the bulk of the bedrock seen in the vicinity of the propose open pit); and
- Metasediments (located to the north east of the proposed open pit).

The zone of intrusive feldspar porphyry (trachyte) that is observed on the northeast shore of Springpole Lake, shown in red (zone 6D) on Figure 3-4, extends out to the south under the footprint of the lake and forms the heart of the Springpole deposit. It is this rock zone that forms of the bulk of what has been deemed the Portage Zone (so-named after the nearby portage route between Springpole and Birch Lakes) that extends from surface to a depth of greater than 400 m and over 1,500 m to the southeast. Studies conducted in 2009 and 2010 (Saunders and McIntosh, 2009, 2010) confirmed that this trachyte intrusion is the dominant lithology within the Portage Zone and host to significant mineralization.

The Portage Zone bedrock has undergone significant alteration and metamorphism which has reduced the original porphyry intrusion to a complex alteration assemblage dominated by sercite, biotite, pyrite, calcite/dolomite and quartz. The bedrock of the Portage Zone shares little in common with the surrounding bedrock other than their location in proximity to the Project site.

The metavolcanic host rocks that predate the intrusion, shown as grey and green (Zones 1 and 2 respectively) on Figure 3-4, are composed of a complex sequence of altered and metamorphosized volcanic (primarily andesite) and associated volcaniclastic rocks. These represent the primary rock type that is found in the immediate area of the proposed open pit, outside of the Portage Zone.

To the north of the proposed open pit location is found a band of clastic metasedimentary rock, shown in purple (Zone 3) on Figure 3-4. These contain clasts of the trachyte porphyry and are assumed to postdate the intrusion.

3.3 Structural Setting

Gravity and magnetic surveys that have been carried out across the Project Site demonstrate that several phases of deformation are evident. This deformation has added complexity to the apparent geometry of the Springpole deposit. In addition to this, ductile shearing and brittle faulting have played a significant role in redistributing structurally controlled blocks of the mineralization (SRK, 2013).

Studies conducted by SRK have led to the development of a preliminary model of the structural controls on the mineralized deposit geometry. SRK determined that the deposit had been subjected to several deformation events which resulted in:

- Early folding resulting in tight to isoclinal fold geometries and development of associated shear zones,
- Intermediate large-scale, potentially deep-rooted shear zones; and
- Late stage brittle faulting.

Faults within the proposed open pit and immediate vicinity have been modelled and preliminary structural domains developed which are described below.

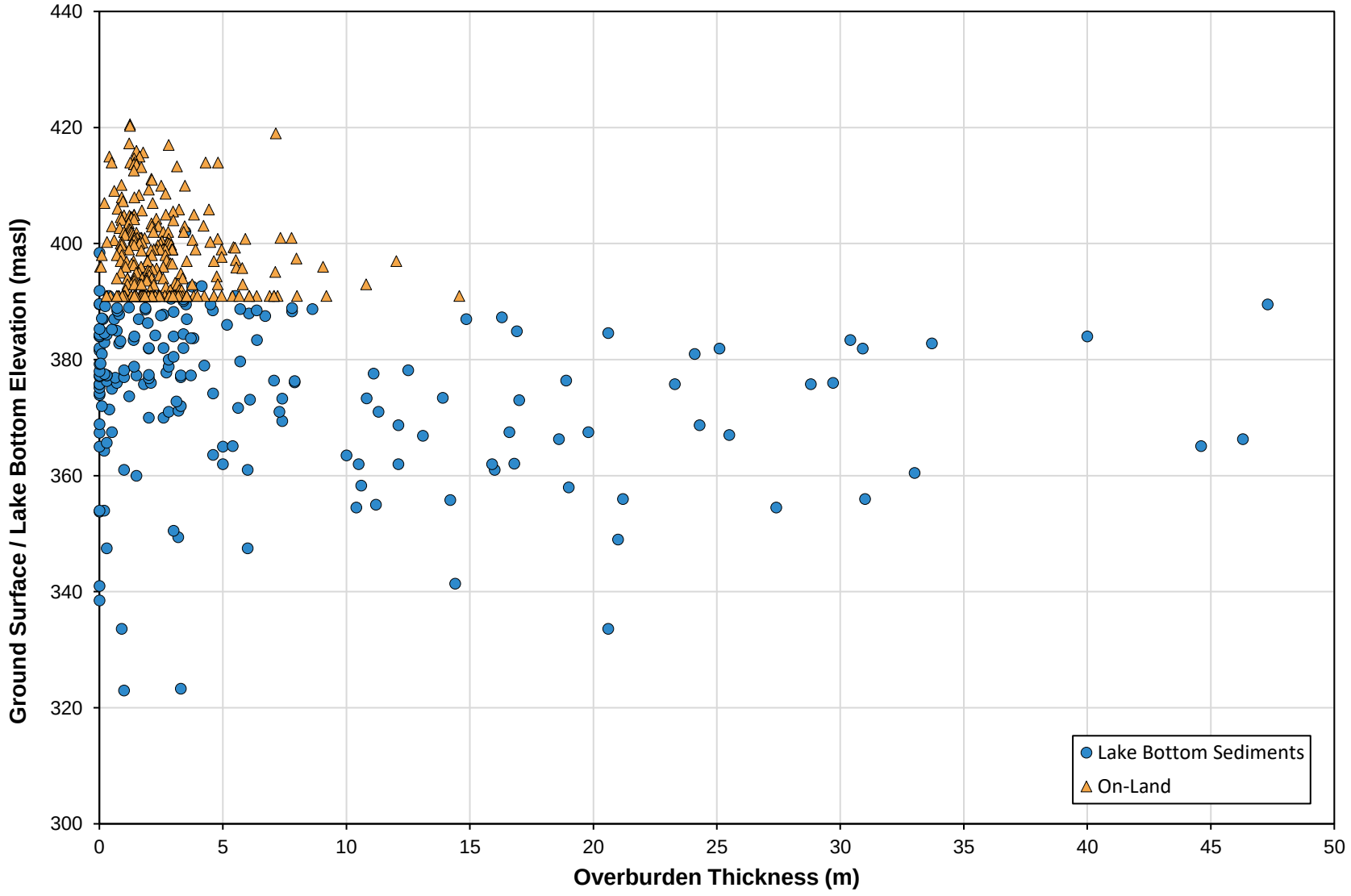
3.4 Faults and Fracture Zones

3D structural modelling developed by SRK (2013) identified a total of 12 faults and 5 shear zones in the vicinity of the Springpole deposit. An additional 5 zones of weakness (defined by very low RQD values, advanced argillic alteration and gold mineralization) were also modelled.

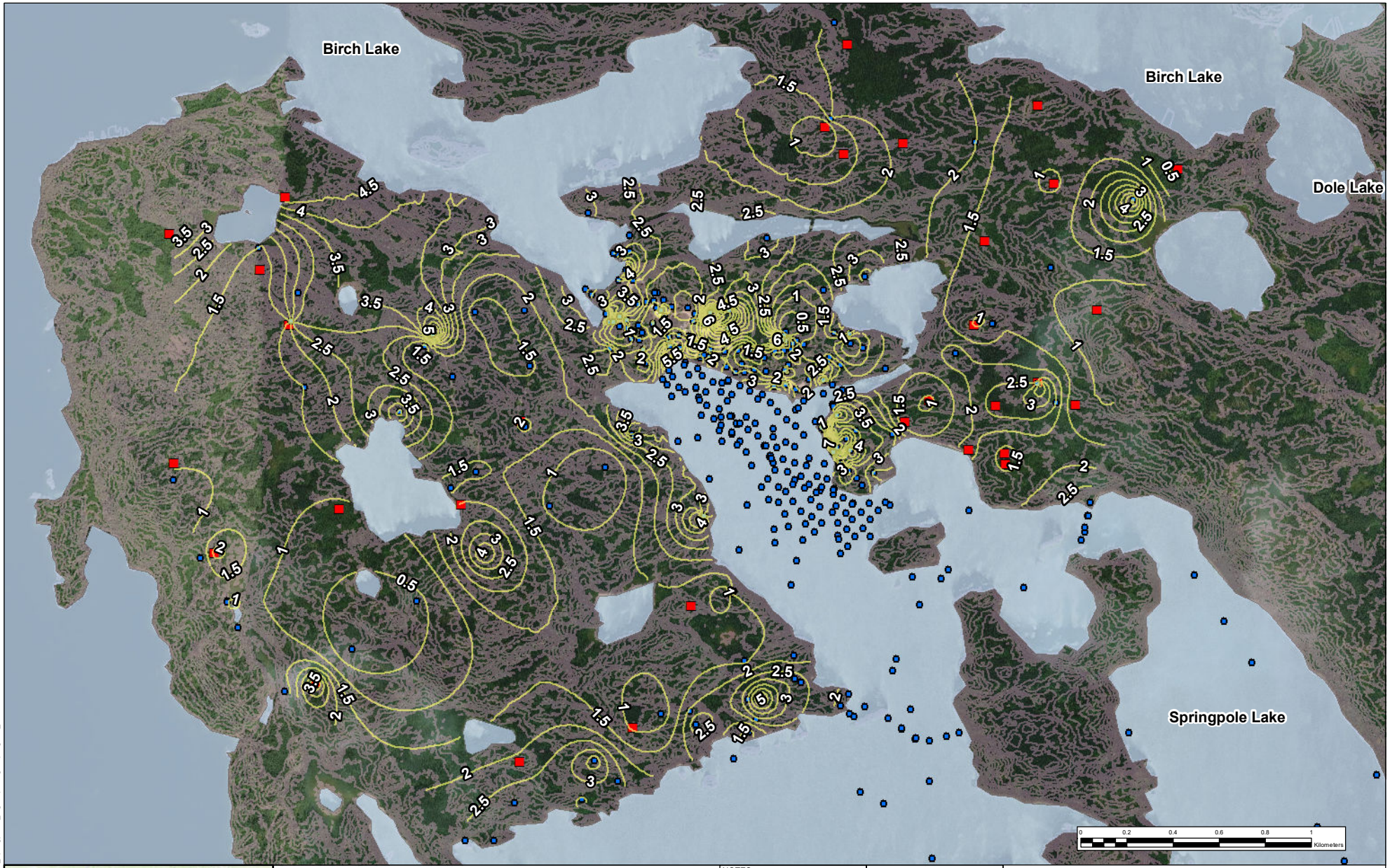
Of the 12 modeled faults 5 are considered to have higher levels of confidence associated with them and are shown in Figure 3-5 along with the zones of weakness. The youngest of these faults (SW1 and SW2 on Figure 3-5) are southwest striking, steeply dipping (around 60°) and have been interpreted as brittle faults. An additional series of west striking faults, which run parallel to regional east-west trending lineaments, have been identified as brittle faults. These faults bound the northern and southern extents of the weak zones and are themselves offset by the southwest striking faults.

Acoustic Televiewer (AT) surveying of boreholes conducted by FracFlow Consultants Limited in 2019 on 21 exploration boreholes located at the northern end of the proposed open pit, indicated that fractures tended to have a northwest to southeast strike and a northeast dip. The boreholes AT surveyed during the 2019 program were all generally aligned on a northeast to southwest bearing so to reduce bias in the dataset a series of boreholes drilled in 2020 around the perimeter of the proposed open pit, that tended to have a southeast bearing were AT surveyed. The 2020 data set indicated a slightly more diverse set of orientations with a one strong cluster northwest to south east strike along with at least one weaker cluster that has a northeast to southwest trend.

Additionally, the average fracture frequency observed in the 2019 borehole data set ranged from 2.2 to 19 fractures when over averaged over 3 m compared to a fracture frequency that ranged from 0.4 to 2.9 per 3 m interval for the 2020 borehole dataset which confirms that dominant fracture set is oriented approximately perpendicular to the 2019 borehole orientations.



First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Total Overburden Thickness vs. Elevation**	
wood.	Checked By: BM		
	Rev: 0	Figure # **3.1**	Project Number: **ONS2104**



LEGEND

- Total Overburden Thickness Contours (m)
- Ground Surface Elevation Contours (masl)
- Borehole
- Test Pit
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

HYDROGEOLOGICAL INVESTIGATION

Springpole Gold Project

Total Overburden Thickness Contours

PROJECT N°: ONS2104

DATE: April 2021

FIGURE: 3.2

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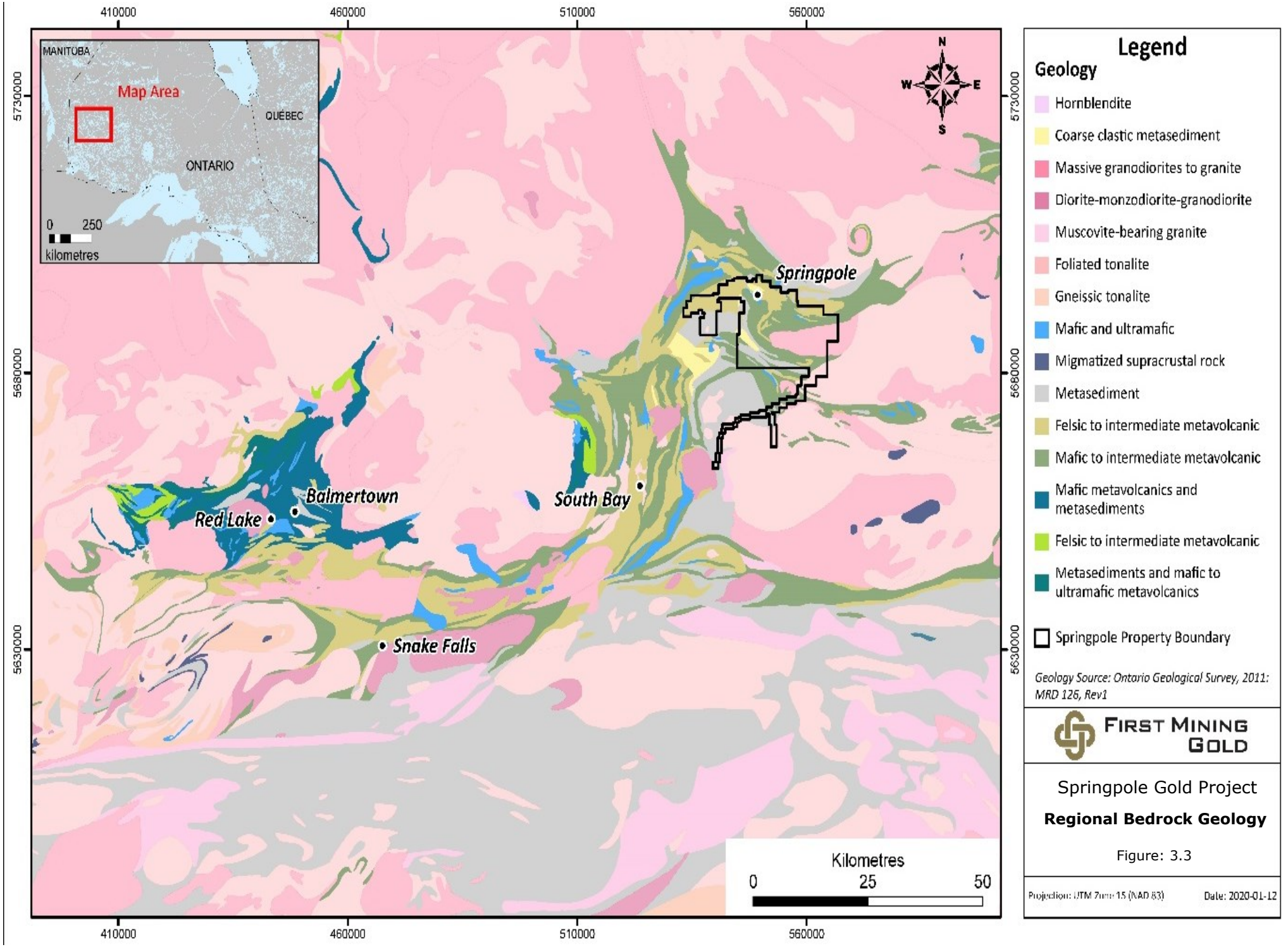
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460000
510000
560000
5730000
5680000
5630000
MANITOBA
Map Area
QUÉBEC
ONTARIO
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kilometres
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W
E
S
Springpole
Balmertown
Red Lake
South Bay
Snake Falls
Kilometres
0 25 50
Legend
Geology
Hornblendite
Coarse clastic metasediment
Massive granodiorites to granite
Diorite-monzodiorite-granodiorite
Muscovite-bearing granite
Foliated tonalite
Gneissic tonalite
Mafic and ultramafic
Migmatized supracrustal rock
Metasediment
Felsic to intermediate metavolcanic
Mafic to intermediate metavolcanic
Mafic metavolcanics and metasediments
Felsic to intermediate metavolcanic
Metasediments and mafic to ultramafic metavolcanics
Springpole Property Boundary
Geology Source: Ontario Geological Survey, 2011: MRD 126, Rev1
First Mining Gold
Springpole Gold Project
Regional Bedrock Geology
Figure: 3.3
Projection: UTM Zone 15 (NAD 83)
Date: 2020-01-12

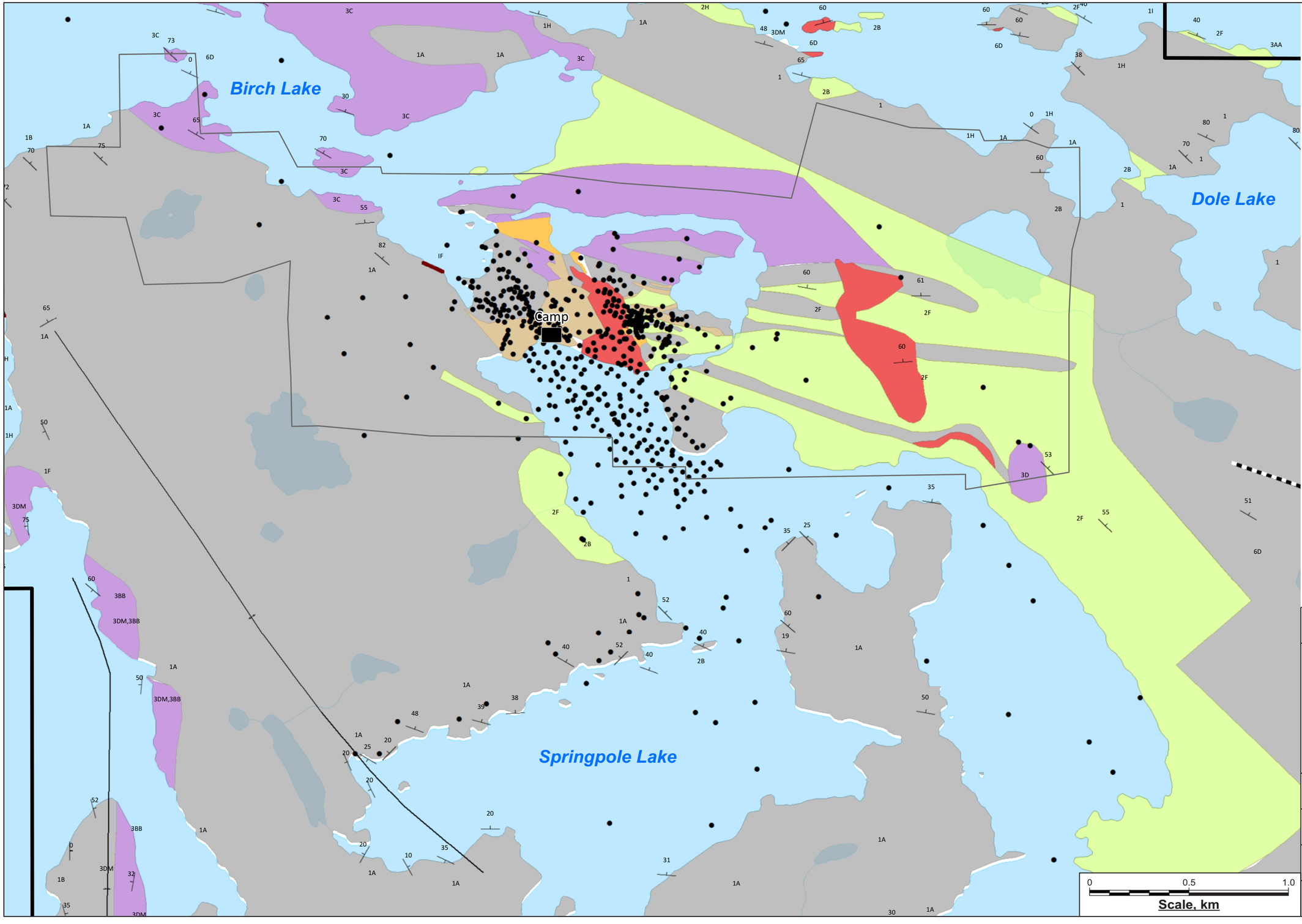


Figure 3.4

Local Geologic Setting

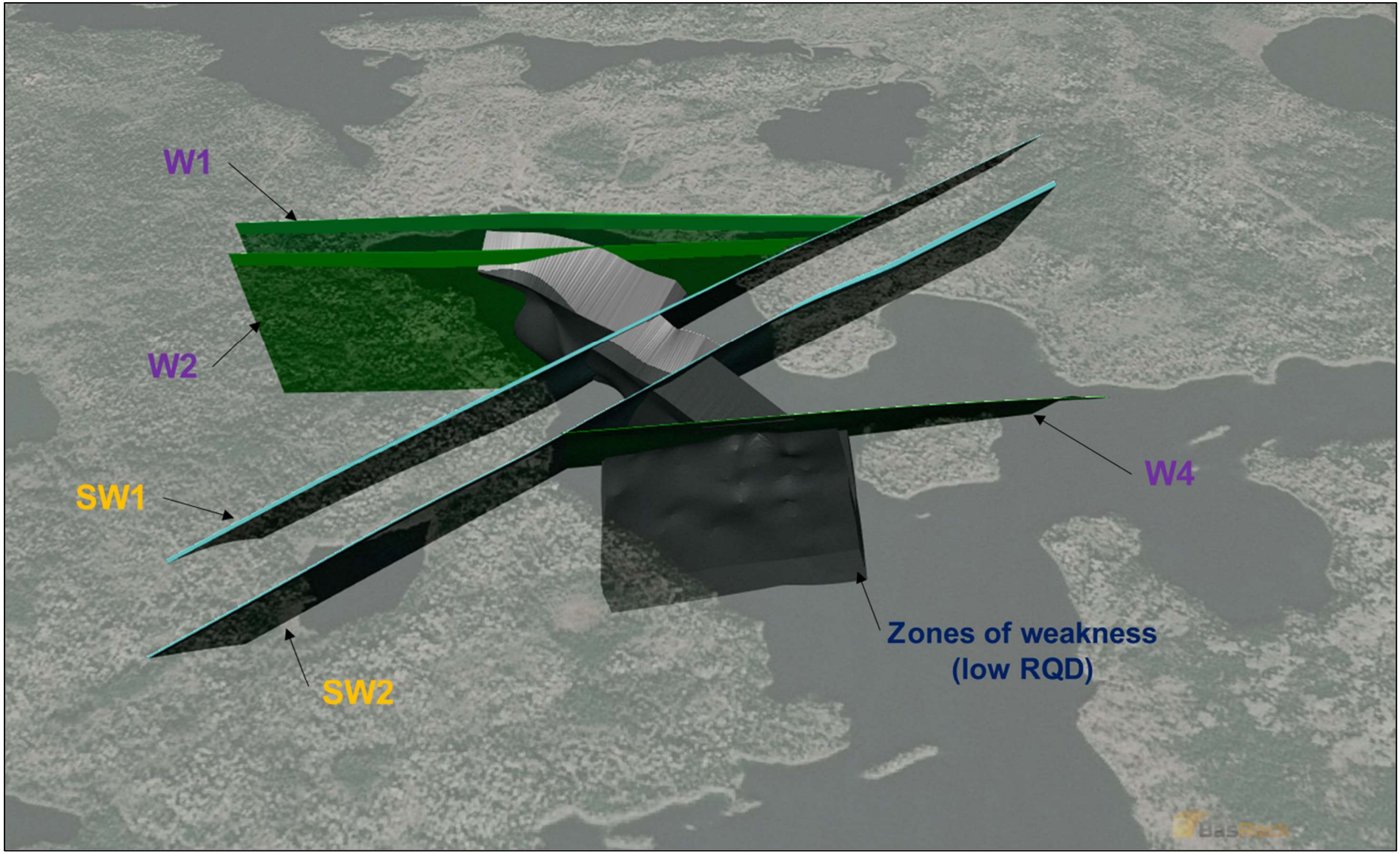
Project No.
ONS2104

Location
Springpole, ON

Document Reference
FFC-NL-3134-002

Date
April 2021

FFC



First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Springpole Structural Geology Model (SRK 2013)**	
wood.	Checked By: BM		
	Rev: 0	Figure # **3.5**	Project Number: **ONS2104**

4.0 SURFACE WATER FEATURES

The surface hydrology of the area has been described in the Wood Baseline Hydrology Report (2021). An overview of the surface water hydrology data is provided in this report as it provides semi-qualitative information on the groundwater discharge as derived from low-flow (summer, 2020) creek gauging which is relevant to estimating recharge to the groundwater system.

There are two major watersheds that the Project area falls within: Birch Lake and Springpole Lake. The catchment area for Birch Lake and Springpole Lake is shown in Figure 4-1 and described in more detail below.

4.1 Birch Lake

Birch Lake is a large lake that is located up-stream of Springpole Lake. It has a watershed area of approximately 1,050 km^2. The elevation of Birch Lake, taken from the available Lidar Data (August 2020) is 392.7 m and is generally between 2 m and 4 m higher than Springpole lake depending on the season (Wood, 2021).

The footprint of Birch Lake essentially bounds the Springpole Project site on its eastern, northern and western sides. Birch Lake discharges from Exit Bay which is located at the south end of the lake (west of Springpole Lake). From Exit Bay surface water discharges into Satterly Lake and then to Cromarty Lake via Bumpy Creek. Cromarty Lake also receives surface water discharge from the Seagrave Lake drainage network (located to the south of Springpole Lake). Cromarty lake in turn discharges to the Pickerel-East arm of Springpole Lake. The outflow from Cromarty Lake into Springpole Lake (station F7-HS1, Figure 4-1) takes place through a relatively shallow channel, with exposed boulders and rock outcrops.

Average monthly discharges at the F7-HS1 station measured during the summer 2020 field program are shown in Table 4-1 (values reproduced from FracFlow 2021b and are attached in Wood, 2021 Appendix B).

4.2 Springpole Lake

At a regional scale, Springpole Lake flows through the Birch River towards Lake St. Joseph to the south. Historically, Lake St. Joseph discharged into the Albany River which ultimately flowed to James Bay. In 1957 the hydroelectric dam constructed at the lower end of Lake St. Joseph at Rat Rapids was converted to a diversion dam as part of the Manitoba - Ontario Lake St. Joseph Diversion Agreement. The diversion dam has resulted in an average annual water flow of 86 cubic metres per second (m^3/sec) being redirected east towards Lac Seul through the Root River, and onwards to the Nelson River watershed to the west.

The local Springpole Lake watershed is approximately 98.2 km^2 , however the total area reporting to the Springpole Lake outlet is approximately 1,367 km^2. Springpole Lake includes multiple freshwater bodies, as shown on Figure 4-1. The direct catchment area upstream of what is proposed to become the dewatered portion of lake area is approximately 1.5 km^2 (Knight Piesold, 2021). Approximately 70% of the surface area of the local Springpole Lake drainage basin is covered by surface water features.

Springpole Lake can be divided into two separate sections, the north section, where the Project Site is located, and the south section, denoted as the Pickerel-East Arm that is elongated in the east-west direction and which the north section flows into. The Pickerel-East arm of Springpole receives surface water discharge from the Birch Lake catchment area as well as the Seagrave Lake catchment area through Cromarty Lake which is directly upstream of Springpole Lake. Springpole Lake ultimately discharges into Gull Lake at the eastern end of the Pickerel-East arm via the Birch River (station F8-HS7, Figure 4-1). The outflow channel here is primarily exposed bedrock outcrops with a rocky channel bottom. The point at

which Cromarty Lake discharges into Springpole Lake is at the westernmost end of the Pickerel-East arm of the lake. The Pickerel-East arm is oriented east-west and forms the southern portion of Springpole Lake and is essentially separated from the northern portion of Springpole Lake by an approximately 160 m wide channel that widens as it progresses north and opens into the northern lobe of the lake. It is expected that since there are no lake outflows in the northern lobe of the lake there will be limited interaction between water that is discharged from Cromarty Lake and the northern portion of the lake with the bulk of the water traveling eastward as if flows toward the outlet of the lake.

Discharges at the F8-HS7 station measured during the summer 2020 field program are shown in Table 4-2 (values reproduced from FracFlow 2021b and are attached in Wood, 2021 Appendix B).

4.3 Smaller Lakes and Tributaries

Within the Springpole Lake Surface water catchment area there are a number of smaller ponds and creeks with drain into both Birch Lake and Springpole Lake (Figure 1-2). The location of these features and their delineated watersheds are shown in Figure 4-2. In the northern portion of Springpole Lake these smaller watershed features generally contribute relatively little flow to Springpole Lake. Along the northern shore of the Pickerel-Arm east portion of Springpole Lake many of the smaller creeks are ephemeral in nature. The south shore of the Pickerel-East arm of Springpole Lake accepts surface run off from several catchments of interconnected ponds that are permanent in nature although the surface water inputs are relatively small compared to the inflow from Cromarty Lake.

Lake L-3, located within the footprint of the proposed CDF, and Dole Lake located to the east side of the Springpole Lake both drain into Birch Lake.

Discharges from these smaller surface water features into Springpole Lake measured during the summer 2020 field program are shown in Table 4-3 (values reproduced from FracFlow, 2021b and are attached in Appendix B of Wood, 2021).

Table 4-3 lists the average inflows measured at the gauging stations discharging into Springpole Lake for the summer 2020 monitoring period. The minimum flows measured at the gauging stations, based on the rating curves developed by FracFlow (2021b) indicate that at some stations such as F4 and F10 flow essentially stop flowing for brief periods. This may be the case for the other small tributaries that are gauged but gaps in the data record make this difficult to determine.

4.4 Recharge

Minimum daily flows measured within the sub-catchments of Springpole Lake provide a quantitative indication of groundwater discharge and by inference also groundwater recharge within these sub-catchment areas. For gauging stations closest to the Project site that have summer low flow data (stations F3-HS4 and F4 on Figure 4-2) the daily minimum flows essentially drop to zero indicating that ground water recharge within these sub-catchments may be quite low. When considering the average estimated monthly flows for August 2020 for the F3-HS4 sub-catchment (28 m^3/d, from Table 4-3), a flow rate of about 7 mm/yr is obtained when this normalized by the sub-catchment area. For sub-catchment F4, over the same period, the average monthly flow is about 8 mm/yr (when normalized over the catchment area). Both of these sub-catchment areas sit at similar elevations with the majority of their topography being below 405 metres above sea level (masl) in elevation where glaciolacustrine clays are typically encountered (Section 3) so a low recharge estimate is anticipated.

The average monthly flow reported for the Lake L-3 sub-catchment area (sub-catchment F5-HS5 reported in FracFlow, 2021b), which drains into Birch Lake, appears to be on the order of 170 m^3/d to 260 m^3/d which, when normalized over the catchment area, translates into 46 mm/yr to 70 mm/yr recharge. The

sub-catchment watershed for Lake L-3 is set predominantly above elevation 405 masl and less glaciolacustrine clay is expected here which allows increased recharge over the lower elevation sub-catchment areas.

Table 4-1: Average Monthly Surface Water Discharge from Cromarty Lake

Date Interval		Average Flow from Cromarty Lake[1] (m^3/d)
		Catchment Area: 1,268 km^2
June 20, 2020	July 1, 2020	1,712,448
July 1, 2020	August 1, 2020	1,450,656
August 1, 2020	September 1, 2020	756,864
September 1, 2020	October 1, 2020	705,888
October 1, 2020	October 30, 2020	691,200[2]

Notes:
(1) Gauging Station F7-HS1
(2) Estimated value.
Source: FracFlow (2021b)

Table 4-2: Average Monthly Surface Water Discharge from Springpole Lake

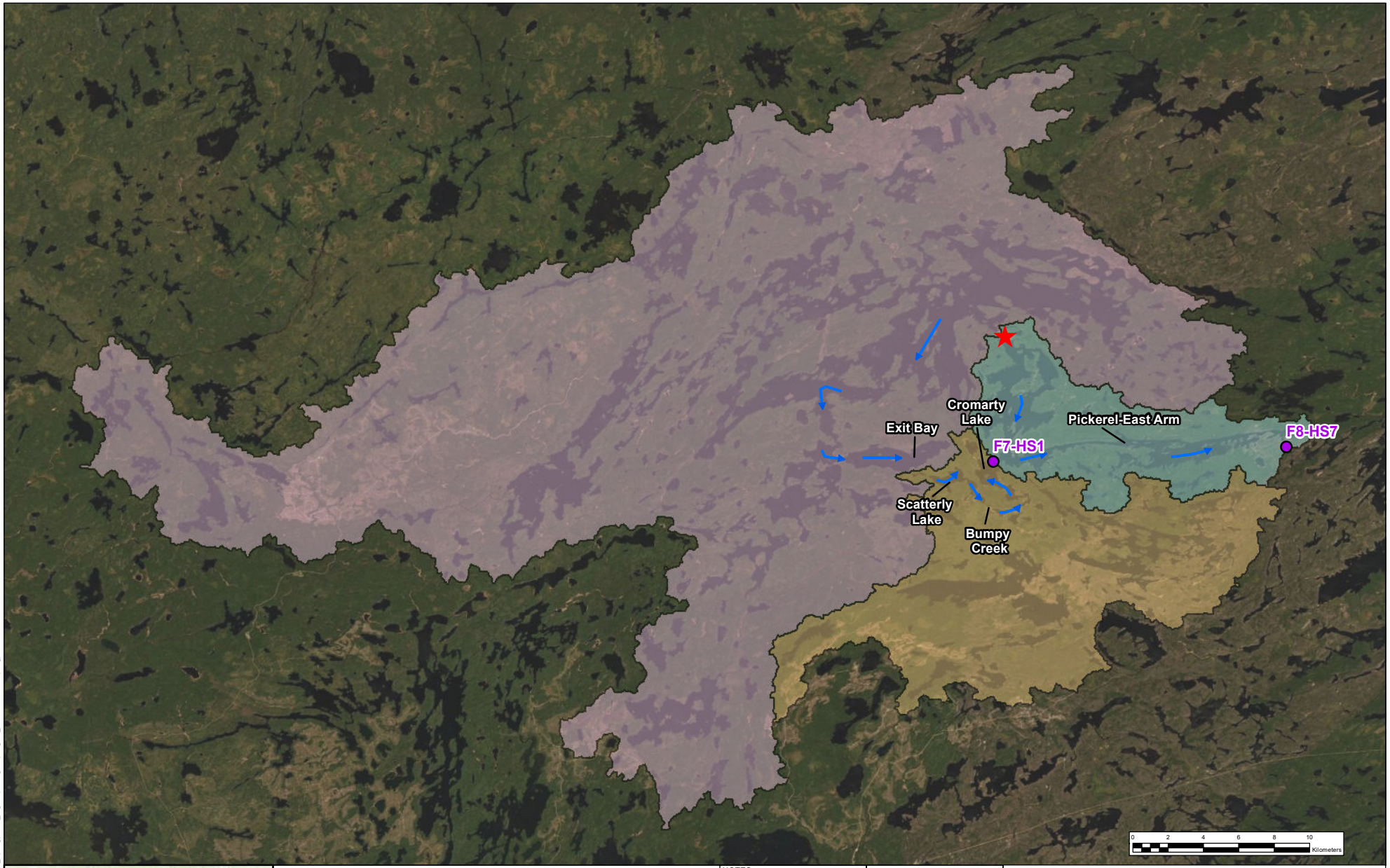
Date Interval		Average Flow from Springpole Lake[1] (m^3/d)
		Catchment Area: 1,367 km^2
June 20, 2020	July 1, 2020	1,518,912
July 1, 2020	August 1, 2020	1,473,120
August 1, 2020	September 1, 2020	1,016,064
September 1, 2020	October 1, 2020	872,640
October 1, 2020	October 30, 2020	864,000[2]

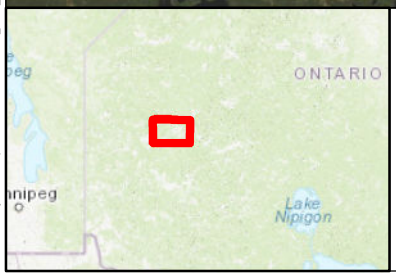
Notes:
(3) Gauging Station F8-HS7
(4) Estimated value.
Source: FracFlow (2021b)

Table 4-3: Average Monthly Surface Water Discharge from Select Springpole Lake Sub-catchments

Date Interval		Average Monthly Flows (m^3/d)[1]							
		F3-HS4	F4	F10-HS6	F11-HS2	F12	F13	F14	F15
		1.51 km^2	0.57 km^2	1.71 km^2	9.30 km^2	4.69 km^2	3.51 km^2	4.42 km^2	3.49 km^2
July 1, 2020	August 1, 2020	34[2]	69	180	4,839	1,182[2]	969	1,607	1,477
August 1, 2020	September 1, 2020	28[2]	12	3	6,237	971[2]	4,202	3,224	2,255
September 1, 2020	October 1, 2020	105	46	125	48,782	3,664	4,915	7,285	3,116
October 1, 2020	October 30, 2020	232	75	991	94,004[2]	7,061[2]	4,559	14,039[2]	6,004[2]

Notes:
(5) Values rounded to nearest m^3/d
(6) Estimated value.
Source: FracFlow (2021b)





LEGEND

- Site location
- Monitoring Points
- Main Surface Water Flow Path

Watershed

- Birch Lake
- Cromarty Lake
- Springpole Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: KL
Revision: A	Projection: UTM Zone 15N
SCALE: 1:300,000	

N W E S

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Birch Lake and Springpole Lake Catchment Areas

PROJECT N°: ONS2104	**FIGURE: 4.1**
DATE: April 2021	

Wood Environment & Infrastructure Solutions
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wood.

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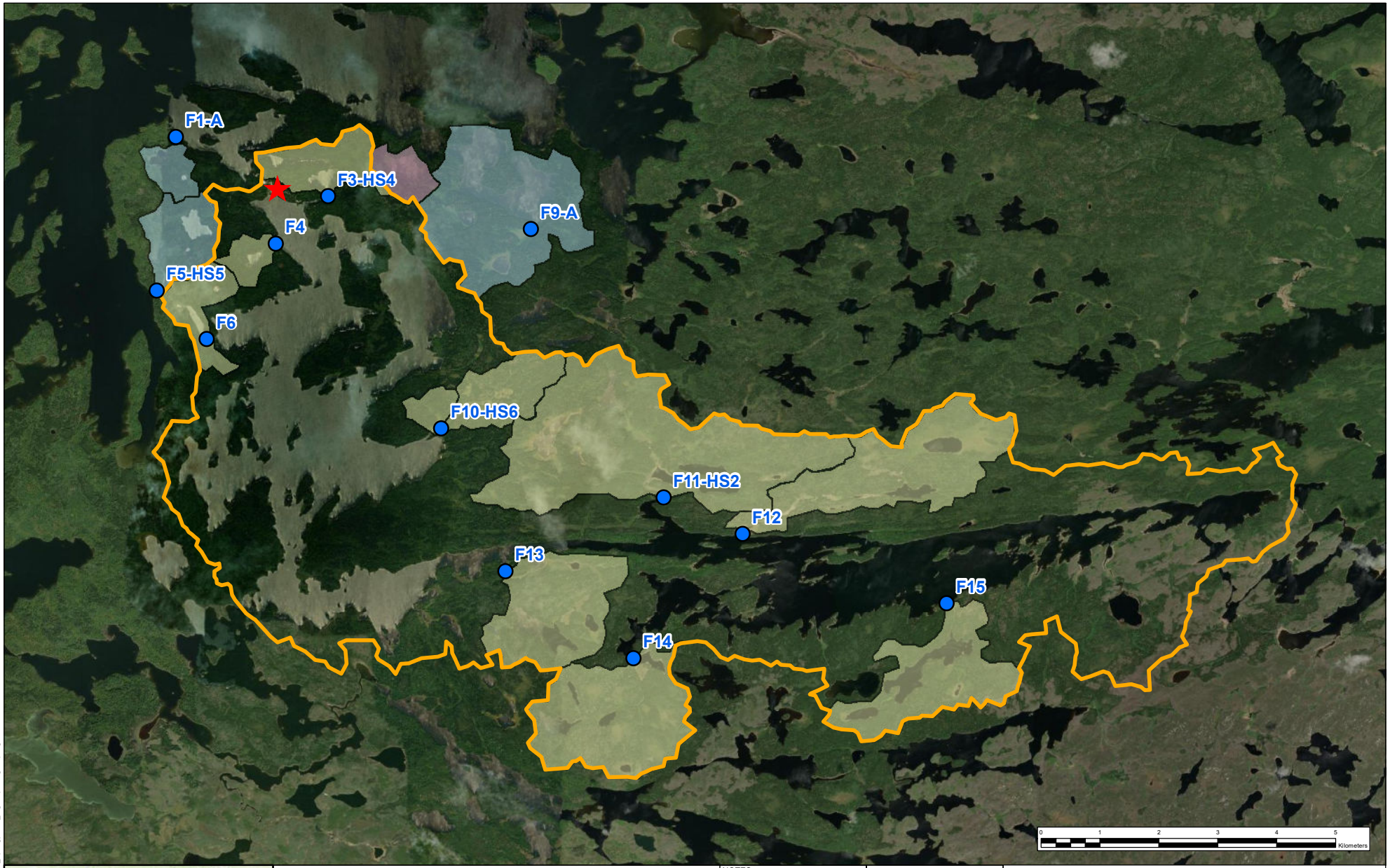

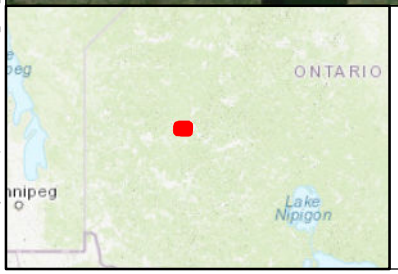

LEGEND

- Site location
- Monitoring Points

Watershed

- Springpole Lake

Sub watersheds

- Birch Lake
- Dole Lake
- Springpole Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:90,000	

N W E S

HYDROGEOLOGICAL INVESTIGATION

Springpole Gold Project

Select Sub-Watersheds within Birch Lake and Springpole Lake Catchment Areas

PROJECT N°: ONS2104

DATE: April 2021

FIGURE: 4.2

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5.0 PROJECT AREA HYDROGEOLOGY

Hydrogeological field programs conducted by FracFlow Consultants Limited during 2019 and 2020 field seasons (FracFlow, 2021a) form the bulk of the available hydrogeological testing that has been conducted at site. Additional field programs conducted by Tetra Tech Canada Inc. (2019) in the vicinity of the proposed cofferdam alignments also provide hydrogeological data.

The current hydrogeological monitoring network at the Project site consists of 30 monitoring well locations with 16 of these being nested well locations. Eight of these monitoring locations are screened within the overburden. Monitoring well locations are shown on Figure 5-1.

5.1 Overburden/Shallow Bedrock Hydrogeology

5.1.1 Hydraulic Testing in Overburden/Shallow Bedrock

A summary of available hydraulic conductivity measurements for overburden and shallow bedrock at the Project Site by overburden material type are provided in Table 5-1 (FracFlow, 2020, 2021a; Knight Piesold, 2021; Tetra Tech, 2019).

Table 5-1 lists only those hydraulic conductivity estimates, derived from falling-head tests, that are available from screened monitoring well installations in overburden and upper fractured bedrock (maximum well depth 15m) and packer test results for the upper 50 m of bedrock obtained along the proposed cofferdam alignments (Tetra Tech, 2019). The locations of the hydraulic tests are shown on Figure 5-2. Hydraulic conductivity estimates made from grain size distribution data or obtained from slug testing of back-filled test pits are not shown here as they are screening level type estimates only.

It is generally anticipated, however, that:

- Peat hydraulic conductivity would be relatively high near-surface, and decreasing with depth due to increasing decomposition and/or compression (the one peat value in Table 5-1 is assumed to be representative of the near surface peat);
- Glaciolacustrine clay/silt would have low hydraulic conductivity given the due to its finer grain size; and
- The glacial till would have relatively higher permeability compared to the overlying clays/silts (where they are present) due to its typically sandier composition.

Hydraulic conductivity estimates of the shallow bedrock zone ranged from 1.6E-7 m/s to 2.6E-5 m/s although it should be noted that in three of the intervals tested by Tetra Tech (2019) the flow rate was too low to be accurately measured during pressure injection which indicates that the bedrock is of very low hydraulic conductivity and likely well below 10E-7 m/s. This range in hydraulic conductivity is reflective of the fractured nature of the upper shallow bedrock and is an important consideration given that the uppermost fractured bedrock and overburden/bedrock contact provide a significant conduit for groundwater seepage compared to deeper, generally more competent rock.

5.1.2 Groundwater Flow directions

A summary of available water levels and monitoring well details for wells previously installed at the Project Site is provided in Table 5-2.

Groundwater levels from these monitoring wells as well as water level measurements from exploration diamond drillholes (DDH) and tests pits from site were used to generate groundwater level contours depicted in Figure 5-3. For water levels taken from the exploration DDH's it is assumed that the observed

water level corresponds to the shallow bedrock/overburden flow system although it is understood that water levels in these long boreholes may intersect several hydrostratigraphic horizons.

Contours were generated using the ordinary kriging gridding method (50×50 m grid) with breaklines set at the shorelines of the various lakes/ponds at site. Groundwater levels generally correlate with local topography. Groundwater levels generally decrease from in-land topographic highs towards surrounding topographic lows and surface water features (measured groundwater levels range from approximately 389.8 to 418.8 masl). Shallow/local groundwater flow pathways are likely towards nearby lakes/ponds, while deeper groundwater pathways are likely directed to larger lakes of the area (i.e., Springpole and Birch Lake).

Groundwater levels observed within the overburden and shallow bedrock monitoring wells, measured in fall and summer of 2019/2020 respectively, are generally within 1 m of the ground surface with only three monitoring wells showing water levels greater than 2 metres below ground surface (mbgs).

Water levels measured in exploration DDH's in the July/August of 2019, were generally about 3 m below ground surface and as much as 11 m in several locations, generally in the topographic higher areas such as the ridge of land that separates Birch Lake from Springpole Lake.

5.1.3 Vertical Hydraulic Gradients

Based on water level measurements from nested wells shown in Table 5-2, shallow groundwater vertical gradients from approximately 0.53 (downward) to -0.15 (upward). Vertical gradients are typically downward based on these data (10 of 14), which represent groundwater recharge zones and typically correspond to local topographic highs. Conversely, negative values are upward gradients, which represent possible groundwater discharge zones. Locations where vertical gradients have been calculated are shown on Figure 5-4.

Nested monitoring wells within the planned CDF footprint include: BH-TMF-04, BH-WSF2-13, and BH-WSF2-14. Vertical gradients for BH-TMF-04 and BH-WSF2-14 are quite mild; however, BH-WSF2-13 shows an upward gradient of approximately -0.15 (i.e., a head difference of approximately 1 m between 1.9 mbgs and 8.6 mbgs screened-interval mid-points). This well nest is located adjacent to a small lake and is immediately north of a topographic high, which is consistent with the gradient observation. Further to this, the differences in heads suggests that the hydraulic connection between these two zones is likely limited, suggesting that local bedrock fracturing is not well connected over this scale at this location.

Generally speaking, native flow system vertical gradient in the planned CDF area will depend on local topography and proximity to surface water features (as well as hydraulic properties of the overburden/rock).

5.2 Bedrock Hydrogeology

The local bedrock geology, described above in Section 3, features structural features such as brittle fault zones and areas of weak bedrock associated with the Springpole deposit and identified in the SRK (2013) structural model. Hydrogeological characterization work has been carried out to assess patterns in and distributions of hydrogeological properties across the site and associated with these features and trends, specifically:

- Hydraulic conductivity of host metavolcanic (andesite);
- Hydraulic conductivity of mineralized zones (zones showing high degree of deformation and alteration); and

- Hydraulic connection of fracture zones to surface water features.

As the proposed open pit intersects many of these structures, information on the hydrogeology of these features is important for estimation of drawdown of the proposed pit.

5.2.1 Rock Quality Designation Data

Rock Quality Designation (RQD) is a measure of the quality of rock core that is taken from a borehole and is determined from the natural number of breaks per core run expressed as a percentage of intact rock retrieved. It is a standard parameter in drill core logging and is a leading indicator for low quality rock zones. RQD values of 75% or greater indicate good quality hard rock whereas RQD values of less than 50% indicate low quality weathered rock. FMG have collected RQD data for just under 300 boreholes based on 3 m core runs totaling almost 90 km of borehole length, with individual boreholes ranging from 8 m to 975 m in length.

RQD values have been tabulated here for the two dominant rock types that are encountered in the vicinity of the proposed open pit; the andesite that forms the bulk of host metavolcanic rock and the trachyte porphyry intrusive bedrock, which hosts the bulk of the mineralization that represents the Springpole deposit (Table 5-3).

Values shown for the andesite indicate relatively uniform values and steady increase in RQD with depth down to 400 m. The overall average RQD value regardless of depth is 79% which indicates 'good quality' hard rock.

Conversely, RQD values shown in Table 5-3 for the trachyte porphyry intrusion bedrock are quite different than those obtained for the andesite with the overall average RQD value being only 42% which indicates poor quality weathered rock. Additionally, it seems that there is a reduction in RQD with depth within the porphyry intrusion with average values decreasing to 33% from 300 m to 400 m depth (contrasted to 86% of the same interval for andesite). The likely reason for this can be attributed to the pervasive alteration and metamorphism that these rocks have undergone since intrusion. It should be noted that the RQD values alone are not sufficient to completely characterize a particular rock mass. RQD statistics shown in the above table are taken from DDH holes which are predominantly situated within the Portage Zone and it is possible that outside of the ore zone the rock quality may be much higher. There will also be bias introduced given that the boreholes have a dominant northeast to southwest orientation. The RQD values however are a good general indicator of the degree of alteration and metamorphism that these rocks have undergone.

5.2.2 2019 and 2020 Packer Testing Field Programs

Hydraulic packer testing programs were undertaken by FracFlow Limited at the site during the 2019 and 2020 field seasons for the purpose of determining the bedrock hydraulic properties at the Springpole site. The 2019 packer testing program consisted of single packer type hydraulic injection tests that were conducted a total of 14 previously drilled exploration boreholes (locations shown in Figure 5-5). Using this approach, the packer was inserted into the borehole and used to isolate a zone extending from the base of the packer to the bottom of the borehole. Hydraulic conductivity estimates are made for the entire length of the borehole below the packed off section as it is not possible discreetly isolate specific sections along the length of the borehole. Given that a drill rig was not available during the 2019 program to assist in lowering equipment to depth, packer testing was limited to the upper 100 m of the exploration boreholes. The exploration boreholes were typically from several hundred metres long to as much as over 760 m long.

Using this methodology, a total of 42 single packer tests were conducted. Packer testing results for the 2019 field testing program are shown in Table 5-4.

Hydraulic conductivity estimates shown on this table represent an average estimate of hydraulic conductivity along the entire borehole. This can be misleading considering that in settings such as are found at site, i.e. fractured bedrock, the hydraulic conductivity estimate from a long test interval can be dominated by a few small scale fractures in otherwise competent bedrock. The bedrock mass between these features can have a hydraulic conductivity that is several orders of magnitude lower than the apparent hydraulic conductivity of the packer test interval. For this reason, the hydraulic testing results obtained during the 2019 packer testing program should be considered as screening level type estimates only and not used to draw inferences about the bulk hydraulic conductivity of the bedrock. In addition to this, additional bias in hydraulic conductivity estimates is also possible given that the majority of the boreholes tested had a similar orientation and are more likely to intersect fractures.

During the 2020 field testing program packer tests were conducted in ten inclined boreholes and one vertical borehole (locations shown on Figure 5-5). The boreholes were located around the perimeter of the proposed open pit footprint and cofferdam location. During the 2020 packer testing program the methodology was similar to the 2019 hydraulic testing program except that:

- The borehole was advanced to approximately half of its total planned depth and hydraulic testing conducted on this section from the bottom of the borehole at the mid-point of drilling upward,
- Having a drill rig on hand allowed the packers to be inserted to the base of the borehole and testing was not limited to the upper 100 m.

This methodology, adopted to overcome some of the limitations noted during the 2019 field testing program, provides increased resolution as the tested length of borehole is shorter but still relies on hydraulic conductivity estimates being made over successively longer, and overlapping, intervals within the borehole from its bottom upward. While it is possible to estimate a differential hydraulic conductivity of the non-overlapping portions of the borehole these estimates are not generally considered as reliable as hydraulic testing done on discrete intervals within the bedrock, where the lower part of the borehole has relatively high hydraulic conductivity values especially considering the complex and fractured nature of the bedrock encountered at site. For this reason, the hydraulic conductivity estimates made for the shortest, bottom interval, are considered to have higher reliability and are reported here.

Packer testing results for the 2020 field testing program are shown in Table 5-5.

Hydraulic conductivity data shown in Table 5-5 is discussed in the context of the predominant rock types found at the site below in Sections 5.2.3 and 5.2.4.

5.2.3 Hydraulic Conductivity of Portage Zone Intrusive Porphyry Rocks

Plots of hydraulic conductivity estimates derived from packer test results from the shorter interval testing in 2020 for the porphyry intrusion bedrock are shown on Figure 5-6. Results are plotted to show the inferred hydraulic conductivity of each tested interval with depth. The 'whiskers' indicate the packer tested interval.

Hydraulic conductivity estimates obtained from packer testing within the porphyry rocks associated with the Portage Zone range from about 3E-7 m/s to almost 2E-5 m/s with an average value of about 3.9E-6 m/s. Based on the available data there does not appear to be a relationship or only a weak relationship between decreasing hydraulic conductivity and depth of the tested intervals within the upper 400 m of bedrock within these rock type.

5.2.4 Hydraulic Conductivity of Metavalocanic and Metasedimentary Rocks

Plots of hydraulic conductivity estimates derived from packer test results with shorter intervals for the metavolcanic (andesite) and metasedimentary bedrock types, that dominate the southwest and northeast flanks of the open pit respectively, are shown on Figure 5-7. Results are plotted to show the inferred hydraulic conductivity of each tested interval with depth. The 'whiskers' indicate the packer tested interval.

In the upper 200 m of bedrock profile the hydraulic conductivity estimates were in the range of 1E-9 to 1E-7 m/s with the bulk of the values falling around 2E-8 m/s to 3E-8 m/s. These values are considered typical for these depths and rock type given experience in similar geologic settings.

Hydraulic testing conducted in the deeper bedrock, beyond 200 m depth yields hydraulic conductivity estimates ranging from 4E-10 m/s all the way to 1.8E-5 m/s. This represents a wide range in hydraulic conductivity estimates and is a likely reflection of the fractured nature of the bedrock, complex geology and also the long testing intervals used. Borehole logs for SGH20-004 and SGH20-005, located at the north end of the open pit, show relativity uniform lithology along their length and yield anticipated estimates of hydraulic conductivity, i.e., values in the range of 1E-8 m/s and lower given the rock type and depth. Where sections of porphyry rock are identified at depth in these boreholes, the RQD values remain high and fracture frequency low. The hydraulic conductivity estimates obtained from these two boreholes are considered what is likely typical of the metavolcanic rocks at depth, and that it is discontinuities such as fractures, joints, shear zones etc., the effect of which is applied over long testing intervals, that are responsible for the increase in apparent permeability seen in the remainder of the 2020 packer test data set for the metavolcanic rock described below.

In borehole SPW20-001 the hydraulic conductivity was estimated to range from 2.6E-7 to 3.4E0-7 m/s over tested intervals of 279 to 356 m and 204 to 401 m. Along these intervals segments of porphyry rock, low RQD values (noted from about 360 to 370 m) and increased fracture frequency (noted from about 350 m to 368 m) are observed. In addition to this, the tested intervals straddle a 50 m sequence of volcanic tuff (from 303 to 356 m), which has not been discreetly packer tested to date. These features may be responsible for the higher than anticipated hydraulic conductivity at depth although this is not possible to determine with certainty given that both the tested intervals straddle them.

In borehole SG20-003 the hydraulic conductivity was estimated to be 2E-8 m/s over the tested interval of 282 to 395 m. Although this is not considered an overly high value, wide ranges in the RQD values and fracture frequency along the entire tested section, along with trachyte/porphyry sequences observed from 282 to 306 m and 374 to 391 m, indicate this hydraulic estimate may not be indicative of the bulk hydraulic conductivity of the metavolcanic rock.

In borehole SG20-002 the hydraulic conductivity was estimated to be 3.3E-7 m/s over the tested interval of 299 to 400 m which is considered high given the depth. Reduced RQD values and increased fracture counts, from 343 to 346 m, may be responsible for this although it not possible to determine with certainty given the length of the tested intervals. Figure 5-8 shows the trace of borehole SG20-002 plotted on the geologic structural model developed by SRK (Section 3.4) it can be seen that the tested interval intersects the SW1 brittle fault zone and the influence of this may also explain the high estimate.

In borehole SG20-007 the hydraulic conductivity was estimated to be 2.4E-7 m/s over the tested interval of 291 to 401 m which is considered high given the depth. Reduced RQD values and increased fracture counts, from 377 to 380 m may be responsible for this although it not possible to determine if these features are responsible given the length of the tested interval. This low RQD interval was not associated with a structural feature identified by SRK (2013).

In borehole SG20-009 the hydraulic conductivity was estimated to be 1.8E-5 m/s over the tested interval of 291 to 401 m which is considered very high. The log for this borehole indicates that the breccia encountered in the entirety of this interval is highly fractured with some sections of the core being completely broken. This observation is consistent with the structural model developed by SRK, as the base of the borehole SG20-009 penetrates into weak zone M4 and is shown in Figure 5-9.

5.2.5 Packer Testing Conclusions:

The main conclusions from packer testing of the metavolcanic and metasedimentary rocks from the 2019 and 2020 packer testing data are:

- Hydraulic conductivity of the trachyte porphyry intrusive bedrock is high compared to the host andesite bedrock with the average hydraulic conductivity value being almost 4E-6 m/s; This higher hydraulic conductivity zone could be a function of both the rock type and the presence of structural features within the portage zone where the majority of this bedrock type is located.
- Hydraulic conductivity of the trachyte porphyry intrusive bedrock does not appear to show a reduction with depth, which is consistent with the tabulated RQD data.
- Hydraulic conductivity of the metavolcanic (andesite) host rock is generally low, with the average hydraulic conductivity of the upper 200 m of bedrock being on the order of 2E-8 m/s which is considered typical for this type of bedrock.
- Hydraulic conductivity of the deep (below 200 m) metavolcanic (andesite) is likely on the order of 1E-8 m/s, although some structural features may impart higher permeabilities to the andesite bedrock where present. Packer test results from andesite bedrock intervals that intercept structural features in boreholes SG20-002 (structural feature SW1 (brittle fault zone)) and SG20-009 (structural feature M4 (weak rock zone)) indicate that some structural features may also be features with higher permeabilities, at least in the vicinity of the proposed open pit.
- Hydraulic conductivity values from packer test results in the metasediments to the northwest of the open pit are not available, however, results from packer test intervals that include metasediments and other bedrock types indicate the metasediments will behave similar to the metavolcanic sediments, with generally low hydraulic conductivities, except where associated with some structural features.

5.2.6 Long term Pumping Test

In order to further characterize the hydraulic properties of the bedrock at site a long-term pumping test was carried out at borehole location SPW20-001 which was completed as a test-well (FracFlow, 2021a) located on the northside of Springpole Lake (Figure 5-5). The test well was cased to 4 m below ground surface and then completed as a 123 mm diameter open hole in bedrock to 50 m depth and as a 96 mm open hole in bedrock (HQ drill rod) from 50 m to 401 m. The well was pumped at a rate of between 160 L/min and 174 L/min from October 18 to November 16, 2020 and drawdown monitored in the pumped well as well as 18 inclined exploration DDH's which were used as surrogate observation wells during the pumping test. Theis and Cooper Jacob straight line analysis were performed using the drawdown data from the pumping well and observation wells to determine the bulk hydraulic and storage properties of the aquifer (FracFlow, 2021a). Based on the pumping well data the fractured bedrock aquifer was characterized as leaky-confined with a hydraulic conductivity of 2.5E-7 m/s to 2.8E-7 m/s with a storativity of 2.12E-6. These values agree well with the packer testing data that was carried out at SP20-001 prior to the pumping test.

During the pumping test it was noted that two DDH's, BL-0102 and SGH20-005 showed at strong correlation to the water levels observed in the pumping well suggesting that they are well hydraulically connected, likely through a high permeability fracture.

The pumping well for the long term pumping test was completed across an interval of rock that included a considerable portion of porphyry bedrock and likely intercepted one or more structural features identified by SRK (2013). The results of the pumping test, as well as the packer tests within the pumping well, indicate that the well draw water largely from the porphyry bedrock, consistent with packer test results from other boreholes completed in this type of bedrock (Section 5.2.4).

Groundwater quality results collected during the pumping test indicated the water withdrawn from pumping progressively reflected deeper groundwater (higher total dissolved solids; TDS), suggesting that the pumping test did not draw in water from the nearby lakes, suggesting the deep water production zone was not strongly connected to the either lake. This was supported by isotope data from pumping test water samples which showed the pumped water to be dominated by recharge from precipitation, and not reflective of lake water, whose isotopic characteristics are influenced to a greater degree by evaporation than groundwater.

5.3 Groundwater Quality Data

Groundwater samples were collected by FracFlow (2021a) from a number of monitoring wells and boreholes to determine if there was any significant degree of spatial and temporal variability in groundwater quality across the Springpole Lake Project site. Groundwater samples were collected from a total of 13 open boreholes, at various depths ranging from 40 to 400 m using low-flow sampling procedures, 7 monitoring wells installed in overburden and 15 multi-level piezometers installed in bedrock (primarily less than 30 m depth). Groundwater sampling locations for the 2019 and 2020 field programs are shown in Figure 5-10. Samples were analyzed for standard physical-water parameters, major and minor ions, total metals and dissolved metals. The intent of the sampling program was to determine if there were any significant changes in the variability of groundwater quality across the Springpole Gold Project site, and to try and relate any such variability to the geology and the characteristics of the flow system.

Findings of the groundwater sampling program indicate that most intermediate to deep groundwater samples there were collected in the fractured bedrock were alkaline in nature and that samples collected from the shallow bedrock and overburden were slightly acidic to neutral.

All groundwater samples collected were classified as either calcium-bicarbonate (Ca-HCO_3) type or calcium-magnesium-bicarbonate (Ca-Mg-HCO_3) type, having TDS concentrations between 157 mg/L and 1,360 mg/L. Elevated levels of sulphate, dissolved arsenic, dissolved iron and other heavy metals seen in some groundwater samples are attributed to the interaction between groundwater and the Springpole deposit orebody which contains zones of disseminated sulfide minerals (pyrite and arsenopyrite). Elevated levels of some metals indicate interaction between groundwater and sphalerite in association with pyrite and arsenopyrite. Trace concentrations of silver may be associated with rocks such as trachyte.

Sulphide oxidation within groundwater, which would be anticipated given the oxidizing nature of the groundwater (based on the presence of dissolved oxygen and positive Eh) would create low pH conditions, which are not widely observed in groundwater samples collected at site. The predominantly alkaline nature of the groundwater samples suggests that any acidification that is occurring is being neutralized by dissolution of carbonate mineralogy within the bedrock.

In addition to the groundwater sampling described above, daily groundwater samples were collected during the long-term aquifer pumping test conducted at borehole location SP20-001 (Section 5.2.7).

During the course of pumping groundwater chemistry changed from a calcium-magnesium-bicarbonate (Ca-Mg-HCO3) type at the start of pumping, to a calcium-bicarbonate-sulphate (Ca-HCO_3-SO_4) type, and then a calcium-sulphate-bicarbonate (Ca-SO_4-HCO_3) type at late-time. Stable isotopic analysis indicated that the likely source of groundwater during the later portion of the pump test was meteoric, i.e., recharge from precipitation, which can be in indication that the groundwater flow system, at least in the upper portions of bedrock, is preferentially recharged via precipitation.

Since the test well is constructed as a long open interval in a fractured bedrock setting it is likely that several water producing features are encountered along its length and that sampled groundwater chemistry may be biased toward the most significant water producing feature. It is anticipated that these features may produce fresh water near surface and progressively more mineralized water at depth.

Table 5-1: Hydraulic Testing Results in Overburden / Shallow Bedrock

Overburden Type	Number of Hydraulic Tests	Hydraulic Conductivity (m/s)	Comments
Peat	1	3.3E-6	Single test in peat at BH-WFS1-11-Shallow
Glaciolacustrine clay/silt[1]	1	1.7E-6	Single test in glaciolacustrine clay/silt at BH-TMF-15-Shallow, value considered high
Overburden/bedrock contact[2]	4	1.1E-5[5]	Range was 2.1E-6 to 3.1E-5
Lakebed Sediments [3]	2	<10E-8	Constant head lab tests
Shallow Bedrock[4]	30	2.6E-6[5]	Range was 1.6E-7 to 2.6E-5

Notes:

[1] Excludes value of 2.9E-6 m/s estimated at BH-WFS-02-Shallow as it is screened across multiple overburden types

[2] Well screen straddles overburden/bedrock contact

[3] Primarily clay based on lab description (Tetra Tech, 2019)

[4] Fractured bedrock wells screened within uppermost 50 m of bedrock

[5] Geometric mean value

Table 5-2: Groundwater Levels

Monitoring Well ID	Easting (m)	Northing (m)	Ground Elevation (masl)	Screen Top (mbgs)	Screen Bottom (mbgs)	Completion Unit	Groundwater Elevation (masl)[1]	Vertical Hydraulic Gradient [2]
BL-0143S	549041	5693629	397.35	8.68	10.18	Bedrock	397.3	0.0063
BL-0143D				21.95	23.45	Bedrock	397.2	
BL-0321S	548909	5693708	394.37	9.12	10.62	Bedrock	393.7	0.015
BL-0321D				28.28	31.28	Bedrock	393.4	
BL-0334S	548847	5692194	398.00	11.54	13.04	Bedrock	395.3	0.10
BL-0334D				30.56	32.06	Bedrock	393.4	
BL-0357	549473	5692455	396.61	23.71	25.21	Bedrock	395.2	-
SGH20-001	549339	5693015	403.51	25.16	28.20	Bedrock	NA	-
SGH20-002	548918	5693693	394.92	23.45	24.97	Bedrock	NA	-
SGH20-004	548811	5694076	408.58	25.21	28.25	Bedrock	NA	-
SGH20-008S	549328	5694167	400.81	15.84	17.36	Bedrock	NA	-
SGH20-008D				28.43	31.47	Bedrock	NA	-
MW1	549750	5694109	-[3]	1.37	2.17	Overburden	NA	
MW2	548946	5694468	-[3]	3.35	4.15	Overburden	NA	-
MW3	550320	569013	-[3]	1.22	2.02	Overburden	NA	-
MW4	552068	569061	-[3]	1.52	2.32	Overburden	NA	-
MW5	549556	5692429	-[3]	3.66	4.46	Overburden	NA	-
MW-B000	553931	5689607	-[3]	NA	3.80	unknown	NA	-
MW-E080	554040	5689456	-[3]	NA	3.00	unknown	NA	-
MW-K04	553352	5689759	-[3]	NA	3.70	unknown	NA	-
BH-WSF1-01D	549772	5695076	398.80	NA	NA	Bedrock	NA	-
BH-WSF1-01S				NA	NA	Overburden	NA	
BH-WSF1-02D	550399	5694977	399.96	5.86	8.13	Bedrock	400.0	-0.013
BH-WSF1-02S				0.18	2.25	Bedrock	399.9	
BH-WSF1-03D	550726	5694431	404.63	8.24	10.36	Bedrock	403.6	0.15
BH-WSF1-03S				2.84	4.98	Overburden	404.4	
BH-WSF1-11D	551085	5694725	399.30	6.08	11.3	Bedrock	399.2	-0.00061
BH-WSF1-11S				1.2	3.01	Bedrock	399.2	
BH-WSF1-12D	549785	5695494	395.23	6.05	8.21	Bedrock	395.19	0.020
BH-WSF1-12S				1.71	3.32	OB/BR Interface	395.1	
BH-TMF-04D	548122	5693471	412.57	9.95	14.19	Bedrock	411.1	-0.0040
BH-TMF-04S				3.13	4.94	Bedrock	411.1	
BH-TMF-05	547428	5694198	413.31	6.62	9.64	Bedrock	413.1	-
BH-WSF2-06	548012	5694089	420.34	4.13	8.09	Bedrock	418.8	-
BH-WSF2-13D	547290	5694515	401.47	6.58	9.65	Bedrock	401.0	-0.15
BH-WSF2-13S				0.65	2.3	OB/BR Interface	400.0	
BH-WSF2-14D	547152	5692980	404.20	7.66	9.44	Bedrock	404.0	0.0042
BH-WSF2-14S				0.35	3.54	OB/BR Interface	404.0	
BH-TMF-15-D	549463	5692557	395.75	9.21	11.2	Bedrock	395.5	0.024

Monitoring Well ID	Easting (m)	Northing (m)	Ground Elevation (masl)	Screen Top (mbgs)	Screen Bottom (mbgs)	Completion Unit	Groundwater Elevation (masl)[1]	Vertical Hydraulic Gradient [2]
BH-TMF-15S				3.6	5.27	Overburden	395.6	
BH-PS-07-R1D	550473	5694184	404.85	8.6	10.75	Bedrock	402.4	0.53
BH-PS-07-R1S				5.12	7.3	Bedrock	404.2	
BH-PS-08-R1D	550666	5693923	400.80	8.3	11.09	Bedrock	400.3	0.025
BH-PS-08-R1S				3.02	5.87	OB/BR Interface	400.5	
BH-PS-09-R1D	550747	5693841	400.40	6.08	8.2	Bedrock	400.1	0.0061
BH-PS-09-R1S				1.42	3	OB/BR Interface	400.1	

Notes:
[1] Groundwater level measurements taken in July to August, 2019 and September to November, 2020
[2] Vertical convention taken as downward = positive, upward = negative
[3] Could not locate survey information

Table 5-3: Summary RQD Statistics for Andesite and Trachyte/Porphyry Intrusive Bedrock

Depth Interval along Borehole (m)	Andesite		Trachyte Porphyry Intrusive	
	Mean RQD (%)	Standard Deviation (%)	Mean RQD (%)	Standard Deviation (%)
<50	75	24	59	33
50-100	76	24	51	38
100-150	78	24	52	38
150-200	79	26	49	37
200-300	84	25	36	36
300-400	86	18	33	37
>400	81	28	41	43

Table 5-4: Packer Testing Results from 2019 Field Program

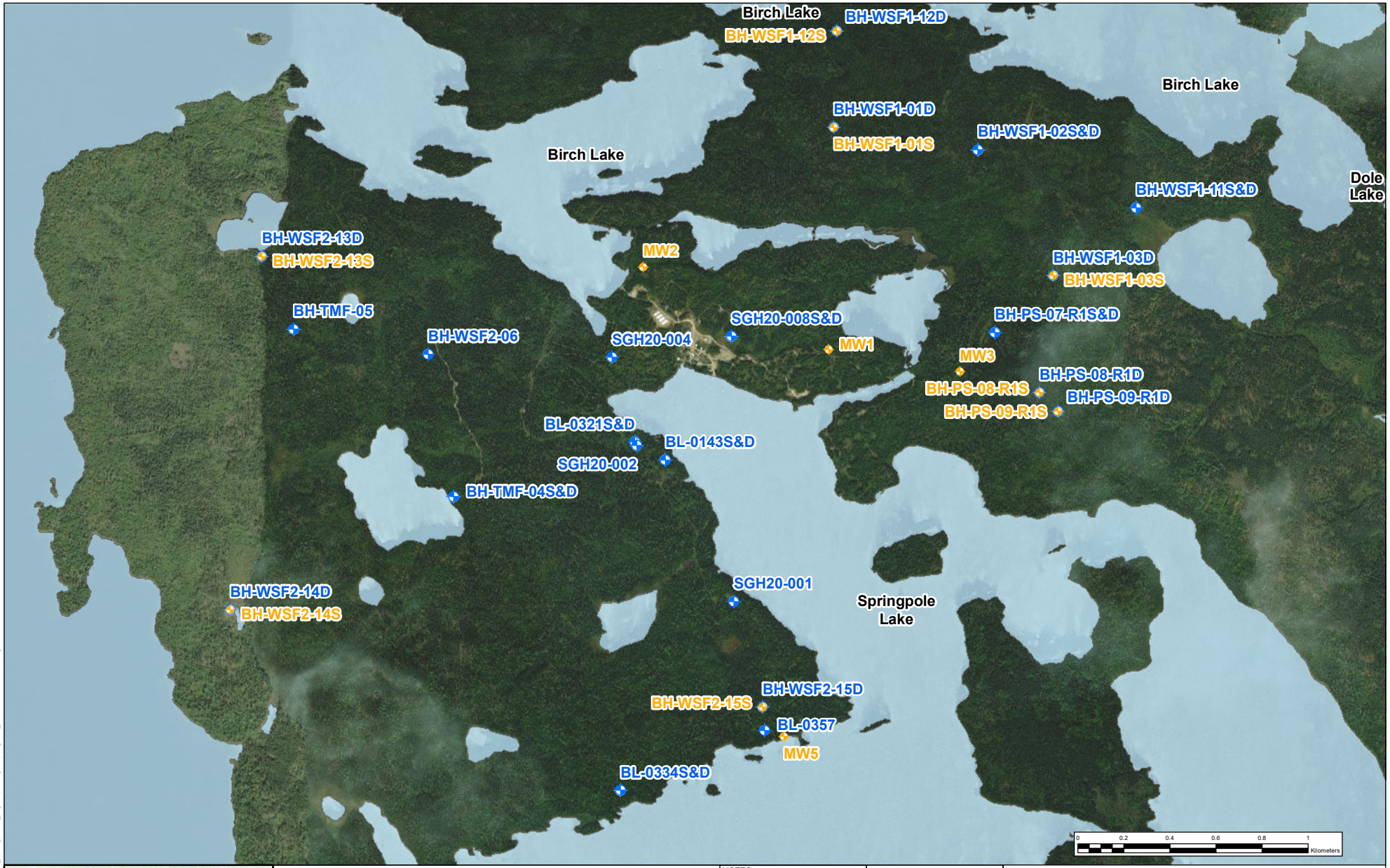
Exploration Borehole ID	Test ID	Interval[(1)] (m)		Hydraulic Conductivity (m/s)
		From	To	
BL-0024	024-1	21	252	1.1E-07
	024-2	32	252	1.2E-7
	024-3	61.5	252	2.6E-8
	024-4	91.5	252	2.4E-8
BL-0034	034-1	11.64	614.48	1.9E-7
	034-2	36.2	614.48	1.9E-7
BL-0050	050-3	1.25	374	2.3E-7
	050-1	20.6	374	2.7E-7
	050-2	60.6	374	3.3E-7
BL-0052	052-1	13.1	462.08	1.2E-7
	052-2	33.4	462.08	1.5E-7
BL-0098	098-1	14.6	282.24	1.9E-8
	098-2	98.6	282.24	1.5E-8
BL-0111	111-1	4.1	496	7.5E-8
	111-2	12.6	496	8.3E-8
	111-3	64.6	496	8.9E-8
	111-4	101.1	496	9.6E-8
BL-0232	232-1	11	124.05	4.7E-7
	232-2	35.4	124.05	4.9E-7
	232-3	66.8	124.05	4.9E-7
	232-4	96.4	124.05	1.1E-6
BL-0283	283-1	12	87	1.1E-6
	283-2	28	87	1.8E-6
	283-3	29.9	87	1.6E-6
BL-0284	284-1	11.2	84.43	1.1E-6
	284-2	25	84.43	1.7E-6
	284-3	45.1	84.43	2.4E-6
	284-4	64	84.43	9.2E-7
BL-0143	143-1	9.4	764.13	1E-8
	143-2	22.6	764.13	9.4E-9
BL-0321	321-1	12.1	228	2.3E-8
	321-2	28.7	228	2.4E-8
	321-3	44.7	228	1.7E-8
BL-0322	322-1	4.5	386.18	1.4E-6
	322-2	12.6	386.18	1.3E-6
	322-3	44.6	386.18	1.8E-6
BL-0334	334-1	13.6	324	8.1E-8
	334-2	37.6	324	1.6E-7
BL-0357	357-1	12	200.25	7.3E-8
	357-2	22.6	200.25	5.2E-8
	357-3	59.6	200.25	5E-8

Notes:
(1) metres along borehole

Table 5-5: Packer Testing Results from 2020 Field Program

Monitoring Well ID	Test ID	Interval[1] (m)		Hydraulic Conductivity (m/s)
		From	To	
SGH20-001	001-2	109.7	142.1	1.1E-7
	001-6	334.7	400.1	1.1E-6
SGH20-002	002-11	109.6	191.0	2.5E-8
	002-14	298.6	400.0	3.3E-7
SGH20-003	003-61	98.6	170.0	2.4E-8
	003-64	281.6	395.0	2.0E-8
SGH20-004	004-22	86.6	164.0	1.3E-9
	004-25	230.6	293.0	4.0E-10
SGH20-005	005-28	92.6	170.0	3.9E-8
	005-31	287.0	401.0	1.1E-9
SGH20-006	006-34-1	110.6	185.0	3.4E-7
	006-36	188.6	281.0	1.1E-5
	006-38	338.6	401.0	8.0E-7
	006-41	401.6	440.0	2.1E-6
SGH20-007	007-43	95.6	170.0	7.8E-7
	007-46	290.6	401.0	2.4E-7
SGH20-008	008-49	116.6	215.0	2.8E-8
	008-52	314.6	413.0	2.9E-7
SGH20-008	009-55	128.6	218.0	1.8E-5
	009-58	326.6	392.0	1.8E-5
SGH20-010	010-67	116.6	224.0	2.7E-8
	010-70	302.6	401.0	3.1E-7
SPW20-001	PW1-17	278.6	356.0	3.4E-7
	PW1-19	203.6	401.0	2.6E-7

Notes:
[1] metres along borehole



LEGEND

Groundwater Monitoring Wells

- Bedrock
- Overburden
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

N W E S

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Groundwater Monitoring Well Locations

PROJECT N°: ONS2104	**FIGURE: 5.1**
DATE: April 2021	

Wood Environment & Infrastructure Solutions
3450 Harvester Rd, Suite 100., Burlington, Ontario, L7N 3W5
tel: 905-335-2353 www.woodplc.com

wood.

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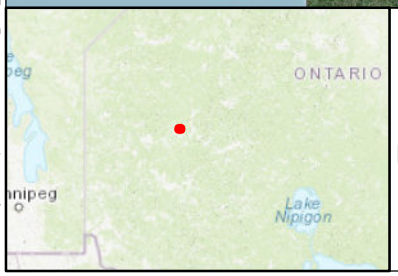

LEGEND

- Overburden Hydraulic Test Locations
- Shallow Bedrock Packer Test Locations
- Shallow Bedrock Slug Test Locations
- Lake

Unit of Hydraulic Conductivity (K): m/s

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: KL
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

HYDROGEOLOGICAL INVESTIGATION

Springpole Gold Project

Locations and Values of Overburden/ Shallow Bedrock Hydraulic Tests

PROJECT N°: ONS2104

DATE: April 2021

FIGURE: 5.2

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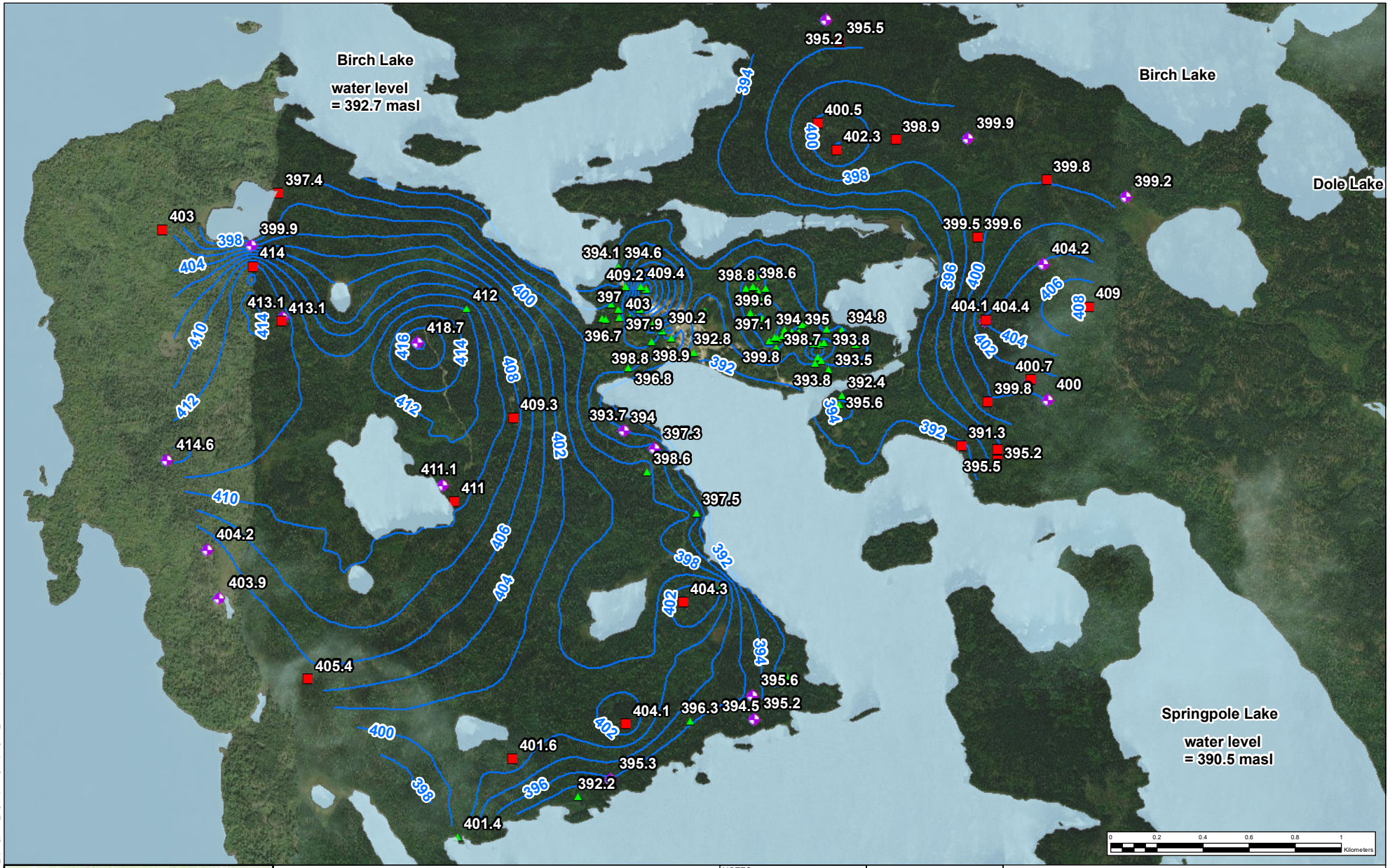

LEGEND

- Groundwater Elevation Contours (masl)
- Monitoring Well
- Open Borehole
- Test Pit
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

HYDROGEOLOGICAL INVESTIGATION

Springpole Gold Project

Shallow Groundwater Equipotential Map

PROJECT N°:	ONS2104
DATE:	April 2021

FIGURE: 5.3

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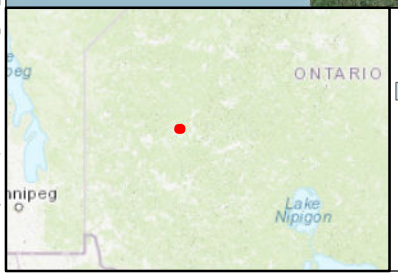

LEGEND

- Monitoring Well
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: KL
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

N W E S

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Vertical Hydraulic Gradients

PROJECT N°:	ONS2104
DATE:	April 2021

FIGURE: 5.4

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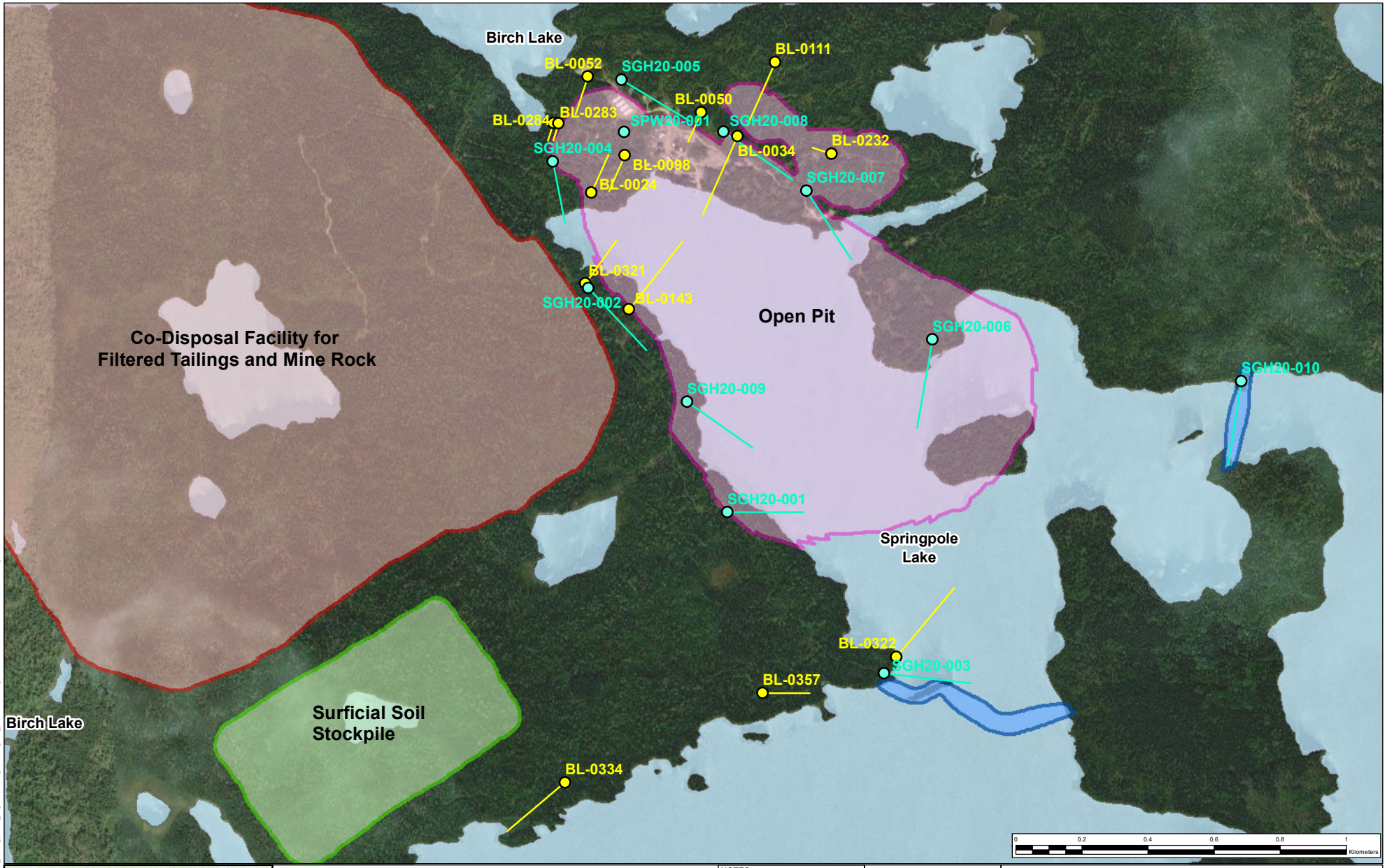

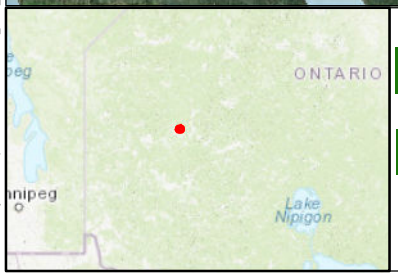

LEGEND

- BL-0024 — Location of borehole collar and its trace projected to the surface (2019)
- SGH20-001 — Location of borehole collar and its trace projected to the surface (2020)
- Co-Disposal Facility for Filtered Tailings and Mine Rock
- Open Pit
- Surficial Soil Stockpile
- Cofferdams
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:16,000	

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Packer Testing Locations - 2019 and 2020 Field Programs

PROJECT N°: ONS2104	FIGURE: 5.5
DATE: April 2021	

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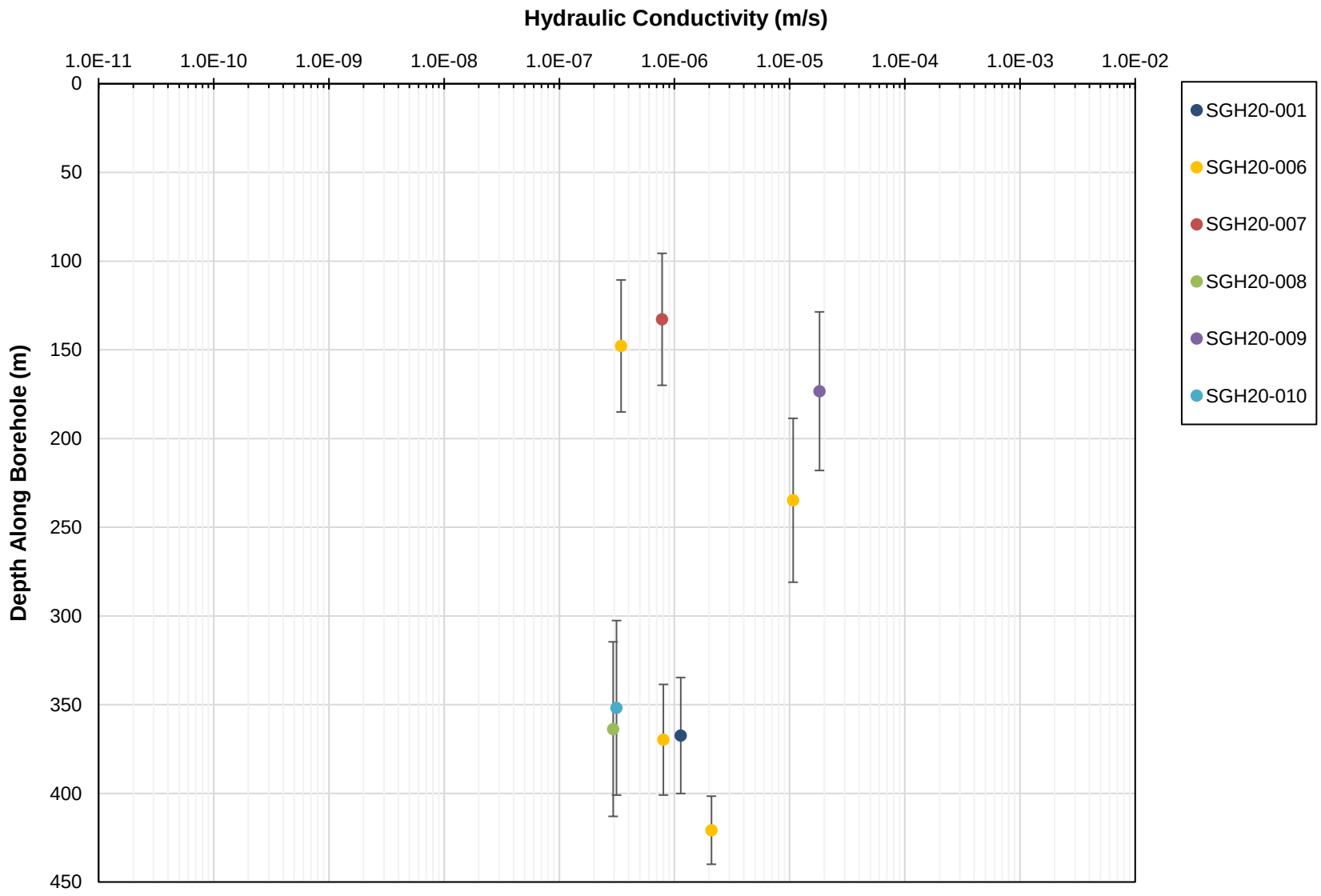
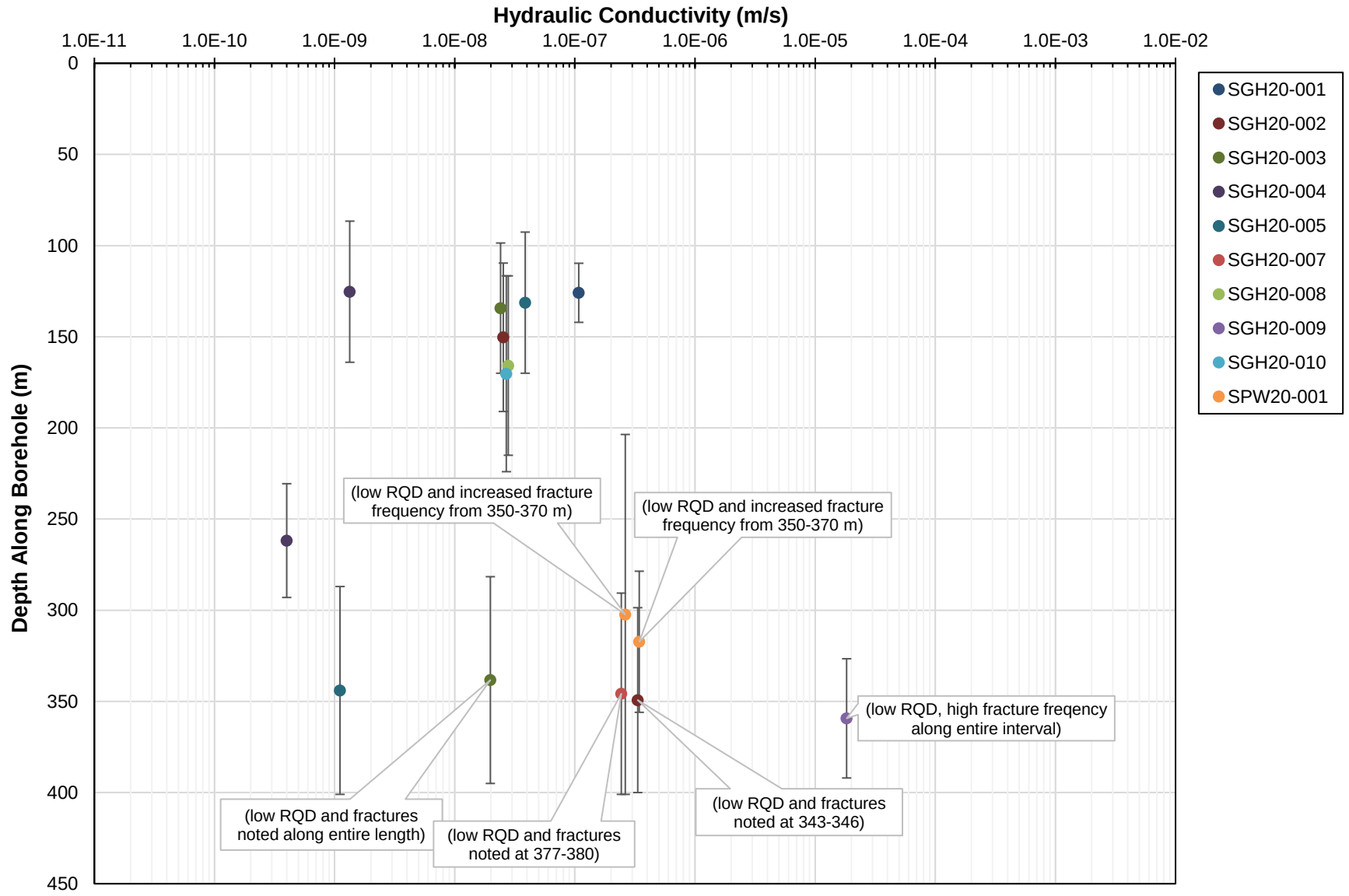
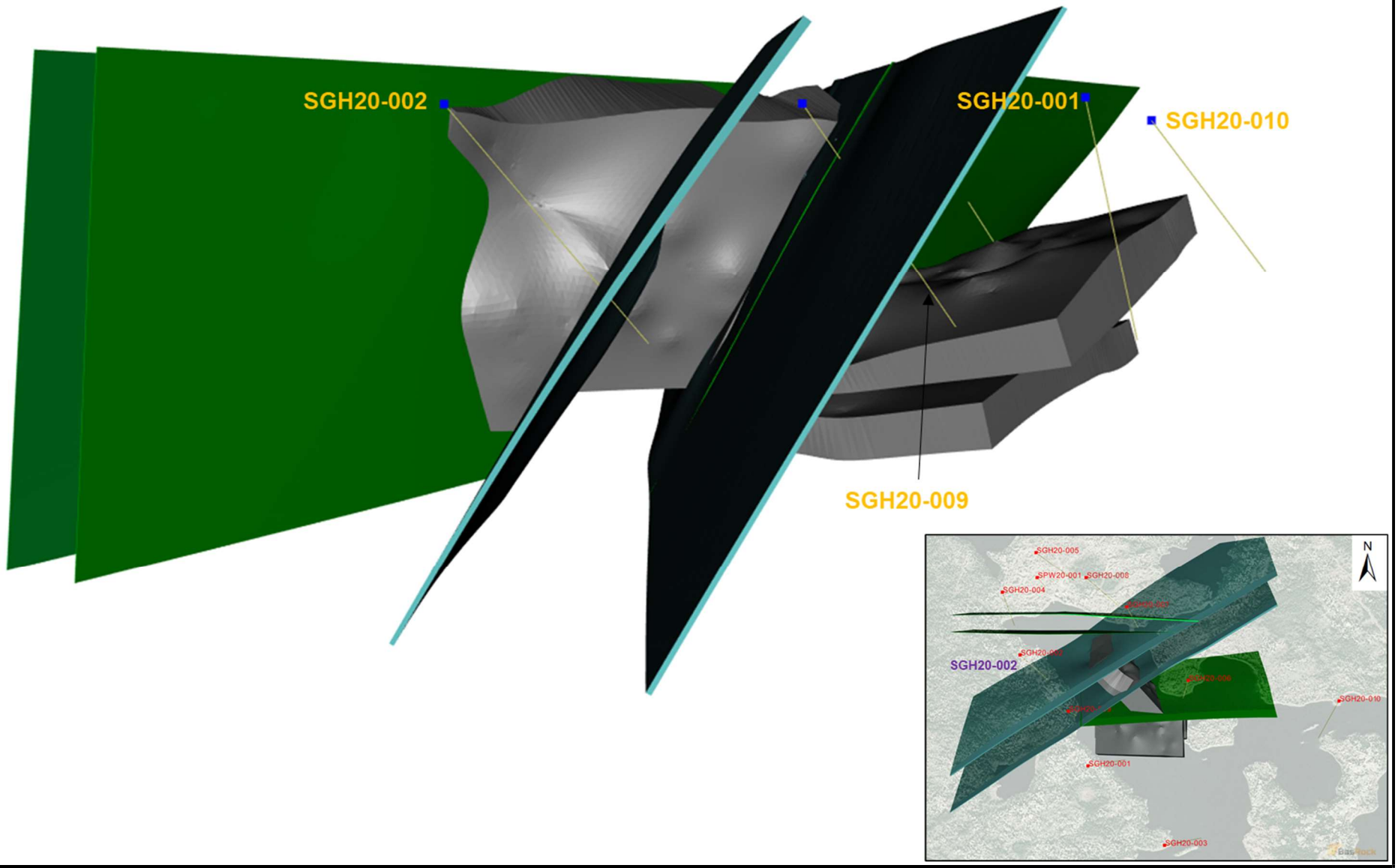
C:\Users\tana.yan\Desktop\6. Small Tasks\ONS2104_FMG_Springpole\3_Figure plotting\Map\Fig 5.5_Packer Testing Locations - 2019 and 2020 Field Programs .mxd 5/7/2021



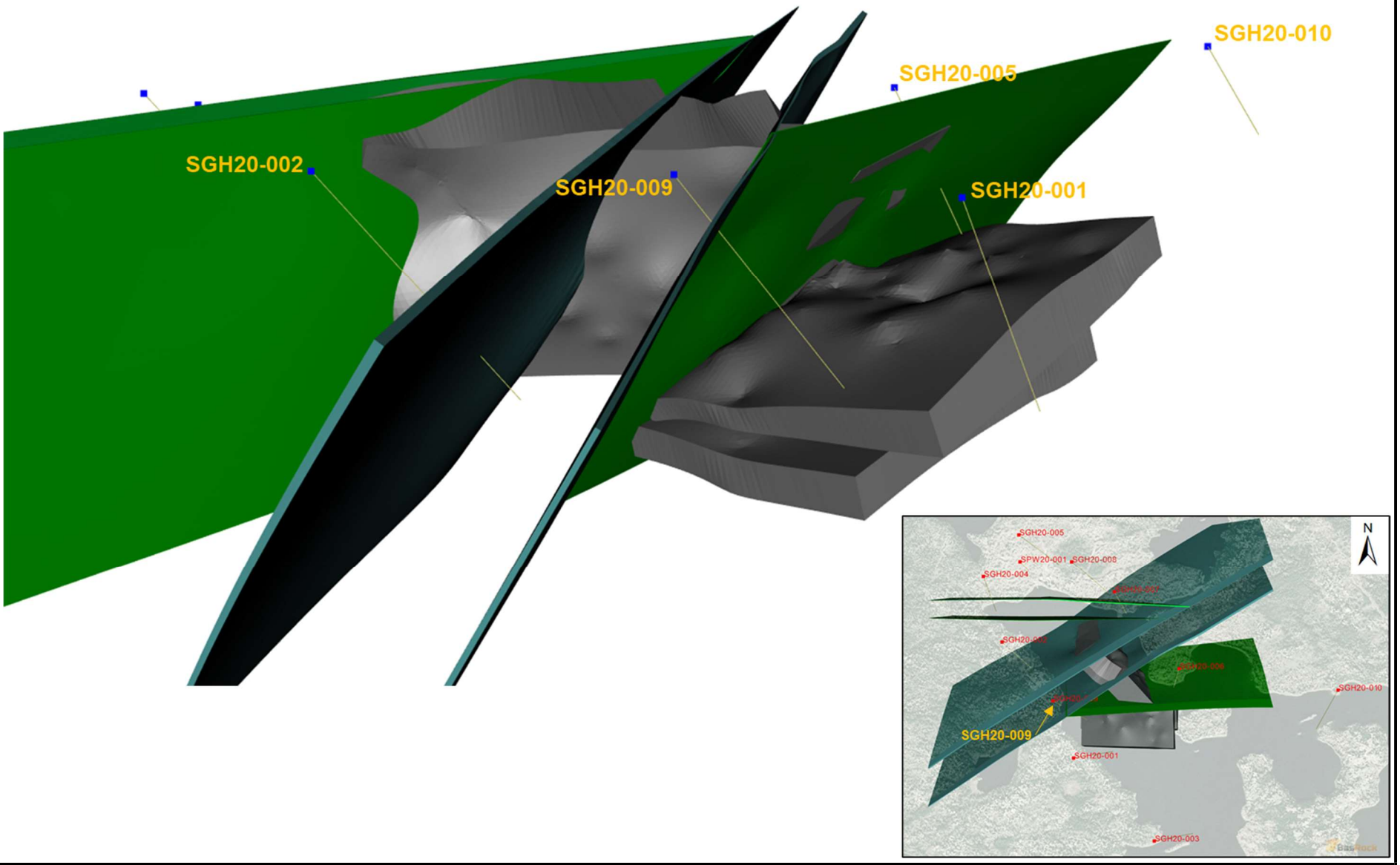
First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Hydraulic Conductivity vs Depth for Trachyte Porphyry Intrusive Bedrock**	
wood.	Checked By: BM		
	Rev: 0	Figure # **5.6**	Project Number: **ONS2104**



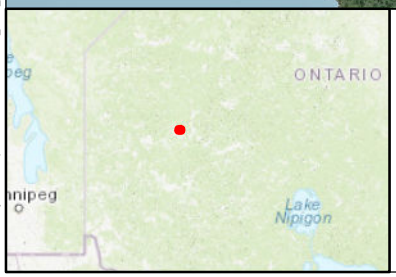
First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Hydraulic Conductivity vs Depth for Metavolcanic and Metasedimentary Bedrock**	
wood.	Checked By: BM		
	Rev: 0	Figure # **5.7**	Project Number: **ONS2104**



First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Trace of SG20-002 Overlain on Structural Geologic Model**	
wood.	Checked By: BM		
	Rev: 0	Figure # **5.8**	Project Number: **ONS2104**



First Mining Gold	Date: April 2021	**Springpole Gold Project**	
	Prepared By: TY	**Trace of SG20-009 Overlain on Structural Geologic Model**	
wood.	Checked By: BM		
	Rev: 0	Figure # **5.9**	Project Number: **ONS2104**



LEGEND

- Groundwater Sample Locations
- Co-Disposal Facility for Filtered Tailings and Mine Rock
- Open Pit
- Ore Stockpile
- Surficial Soil Stockpile
- Cofferdams
- Water Management Pond
- Water Storage Pond
- Lake

NOTES:

LOCATION OF FEATURES ARE APPROXIMATE

Conditions encountered in the field may be different from the interpreted information presented on this figure.

CLIENT: First Mining Gold

Drawn By: TY	Checked By: BM
Revision: A	Projection: UTM Zone 15N
SCALE: 1:23,000	

HYDROGEOLOGICAL INVESTIGATION
Springpole Gold Project

Groundwater Sample Locations

PROJECT N°: ONS2104	**FIGURE: 5.10**
DATE: April 2021	

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6.0 GROUNDWATER - SURFACE WATER INTERACTION

Groundwater - surface water interactions at the Project site consist of both year round groundwater discharge to Birch Lake and Springpole Lake and much smaller, largely seasonal discharges to other small lakes near the site as well as surface water recharge to the groundwater flow system. The primary groundwater discharge features will be Birch Lake and Springpole Lake.

Groundwater discharge to surface water features is ultimately driven by recharge from precipitation. Bedrock at the Project site is essentially continuously covered by one or more metres of either peat, glaciolacustrine silts/clays (in lower laying areas) or sand/silt till which can absorb precipitation and localized depressions can favor ponding of surface water which favors infiltration, however, infiltration will be limited by the rate at which water can drain from the overburden which is in turn limited by the connectivity of fractures within the bedrock.

Groundwater recharge close to the Project site from precipitation is anticipated to be low based on the creek flow data and observation that several creeks appear to intermittently go dry during the summer months. Baseflow estimates, which are frequently equivalent to groundwater recharge on a watershed basis vary from several mm/yr in lower elevation watersheds likely dominated by clay sediments to 46 to 69 mm/yr for the higher elevation parts of the watershed dominated by till cover (Section 4.4). Given the large size of the receiving water bodies relative to the anticipated low volume of groundwater discharge the relative importance of groundwater discharge to these features from the Project site is considered low.

7.0 HYDROGEOLOGICAL CONCEPTUAL MODEL

There are several important elements in the hydrogeological conceptual model for the Springpole Gold Project site, including: surface water features, overburden cover, bedrock geology, structural setting, and geologic history. The following section briefly summarizes the site hydrogeological conceptual model.

Stream flow gauging suggests that the groundwater regime may have limited groundwater flow and provides minimal baseflow to creeks in the immediate vicinity of the Project site as indicated by a number of the creeks that appear to essentially stop flowing at certain times of the year.

Groundwater flow through the bedrock will be mostly restricted to flow through those open fractures that are part of a connected fracture network. Given the generally low hydraulic conductivity of the host andesite rock seen at site it is expected that the fracture networks present within the host metavolcanic rock are poorly connected and that flow through them is limited. Furthermore, within the host andesite it is anticipated that the open fractures will be less common with depth as is consistent with the patterns of fracturing seen in Archean rock in northern Ontario, creating a trend of reduced bulk hydraulic conductivity within the host bedrock.

The heart of the Springpole deposit, identified as the Portage Zone is an intrusive bedrock zone with markedly higher hydraulic conductivity than the surrounding host bedrock. Hydraulic conductivity within this zone does not appear to decrease with depth in the same manner that is anticipated with the surrounding host rock. Higher permeabilities in the Portage Zone likely reflect the presence of weak porphyry rock in this zone, which appears more prone to fracturing and weathering that either the metavolcanic (andesite) host rock to the southwest, or the metasediment to the northeast of the proposed open pit. The fracturing within this zone might be focused on several structural features identified by SRK (2013). Pumping test results within the Portage Zone porphyry rock suggest that the fracture networks present within this zone, while resulting in a higher bulk hydraulic conductivity of this zone, may not be hydraulically connected with either Birch lake or Springpole Lake as the water produced from this zone, after 30 days of pumping, did likely not originate from the lakes.

Under existing conditions, most of the local groundwater flow will be driven by recharge in higher elevation areas into the overburden sediments which cover most of the area. What limited groundwater flow that exists will be preferential through the overburden and shallow fractured bedrock towards surface water features such as Birch Lake and Springpole Lake. Discharge to the lakes will, however, be limited by what appears to be poor connectivity of fractures in the metavolcanic and metasediments which largely separate the more fractured bedrock of the porphyry zone from the lakes, and by the clay sediments in the lake beds, which can reach thicknesses of greater than 40 m.

The overall slow rate of groundwater movement through the fractured bedrock is demonstrated by the presence of a high water table in the higher elevation ground, which available data suggests does not drain appreciably after the spring freshet over dry periods, such as the summer, and is insufficient to support year round flow, i.e., several small creeks appear to flow intermittently, ceasing to flow during the summer months.

The above groundwater flow conditions are also reflected in the groundwater chemistry, which indicates the presence of relatively oxygenated groundwater in the shallow bedrock, but more reduced conditions at depth, likely reflecting a long residence time due to very slow groundwater movement at depth. Groundwater within those deeper fracture zones within the porphyry zone appears be essentially stagnant water that was recharged from precipitation rather than from the lakes.

The low porosity of bedrock, where groundwater is found in a sparse fracture network, indicates that the bedrock fracture network contains very little water on a per volume of material basis compared to the

overburden. The groundwater chemistry of the overburden and shallow bedrock is expected to dominate the water chemistry of the active groundwater flow system, although the volume of groundwater flow under existing conditions is expected to be small. Groundwater recharge across the Project area will migrate mostly to Springpole Lake and Birch Lake, but given the size of these lakes, is not expected to make an appreciable contribution to the lake water balance.

8.0 REFERENCES

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9.0 CLOSING

This Hydrogeology Baseline Report was prepared for First Mining Gold by Wood. The quality of information, conclusions and scheduling estimates contained herein is consistent with the level of effort involved in Wood's services and based on: i) information available at the time of preparation; ii) data supplied by outside sources; and iii) the assumptions, conditions and qualifications set forth in this report.

Should you have any questions, please do not hesitate to contact either Mark Ruthven (416) 524-5928 or Bradley Markham at (613)-727-0658.

Yours truly,
Wood Environment & Infrastructure Americas
a Division of Wood Canada Limited

Prepared by:	**Reviewed by:**
Original signed	***Original signed***
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Appendix A
Hydrogeological Baseline Report

Fracflow Consultants Inc.
Environmental, Hydrogeological and
Geotechnical Engineering Consultants

FIRST MINING GOLD

Hydrogeological Baseline Report
First Mining Gold, Gold Canyon Resources
Springpole Lake Project Site, Ontario

(File 3134)

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Executive Summary

Fracflow Consultants Inc. was retained by First Mining Gold, (FMG) (Gold Canyon Resources) (FMG/GC) to prepare a hydrogeological baseline report for the Springpole Lake Gold Project proposed project site. The objective of this hydrogeological baseline report is to provide a description of the hydrogeological conditions that exist at this site before the site is perturbed by the project development and to provide a measure of the hydrogeological properties that are required to predict how the site will be impacted by the proposed project activities. The Springpole Lake Gold Project is located approximately 110 km northeast of the Town of Red Lake. This baseline report is based on an initial reconnaissance level hydrogeological field program in 2019 and a more in-depth hydrogeological field program in 2020. The 2019 hydrogeological field program focussed on the area around the proposed open pit, the starter pit which is located northeast of the main open pit, the proposed mine rock storage area, and the original Tailings Management Area (TMA). The 2020 hydrogeology field program focussed on the shallow groundwater system in the overburden and shallow fractured bedrock. The deep groundwater system that is controlled by the fracture system was characterized in 2020 by drilling and testing 11 deep (up to 400 m of depth) boreholes. The overall hydrogeology program was developed with reference to the basic geological data that were presented in the bedrock geology map.

The Springpole Lake Project site is surrounded by large lakes, primarily Birch Lake to the east, north and west and, once the cofferdams are in place and the open pit section of the lake has been dewatered, the southern boundary of the mining operation will be formed by Springpole Lake. The starter open pit and the main open pit will create a deep (approximately 350 m) groundwater sink and the drawdown cone from the open pit and dewatering wells is expected to extend horizontally to Birch Lake on the northwest end of the open pit and to the cofferdam and island sections that will form the boundary for the southern part of Springpole Lake. In addition, the drawdown cone will extend into the fractured bedrock both on the northeast side of the open pits and into the southwest side of the main open pit where the mine rock and mine tailings storage area is expected to be located.

At its closest point, Birch Lake and Springpole Lake are only 250 m apart. The north-western edge of the main pit is designed to extend into this 250 to 400 m wide rock mass. The north-eastern side of the proposed open pit extends into the rock that forms the north-eastern side of Springpole Lake. The south-western edge of the main open pit skirts along the land mass that is located west of the main pit. The south-eastern edge of the main pit will be defined by part of the main lake shoreline, two cofferdams, several small islands and part of the dewatered Springpole Lake area. The depth of the starter pit is expected to be only approximately 50% of the depth of the main pit excavation.

The geotechnical program confirmed that the Springpole Lake Project site is characterized by overburden, with variable thickness, over fractured bedrock. Overall, all areas of the project site have low relief with the difference in elevation of the landmass that is located between

Springpole Lake and Birch Lake not exceeding 25 to 30 m. The project site area is characterized by a series of rolling hills with intervening depressions. The depressions have relatively thick overburden up to at least 5 m thick and the overburden on the high ground generally ranges from exposed bedrock to a metre or so of organic and granular cover. The water table is close to the surface in the depressions but can be up to 2.6 m or more below ground surface on the high ground. The water table data are essential to calibration of a 3D numerical flow and transport model where the topographic detail can be included in the model mesh but the sparse data by itself with the variable topography are not sufficient to construct a water table contour map.

Based on the low relief within and around the Springpole Lake Project site, the shallow groundwater flow system is characterized by a number of small recharge areas (the elevated areas) and adjacent discharge areas (the adjacent depressions) producing a shallow to intermediate groundwater flow system that interacts with the small surface water drainage basins and the larger lakes. Recharge to the deeper groundwater flow system is considered to be limited under current conditions. The deeper groundwater flow system is considered to be relatively stagnant with low groundwater gradients (estimated at <0.0001) and low groundwater velocities (estimated at <0.00001 m/day) that are typical of low to moderate permeability regional bedrock low systems. Excavation and dewatering of the proposed open pit will have a significant but temporary impact on both the shallow and the deep groundwater flow system baseline conditions but with the deep flow system being re-established as the pit lake is flooded at the end of mining.

Near surface fractured bedrock normally has a porosity of less than 1% while overburden materials generally have porosities that range from 20% to 40% or more. However, fractured bedrock has a wide range of hydraulic conductivity values when compared to a typical layer of granular overburden, and the regularly-fractured bedrock normally exhibits a logarithmic decrease in permeability with depth below the ground surface. For the bedrock in the immediate project area, the rock matrix has very low permeability. The rock mass permeability at this site is contributed by the fracture or discontinuity system and the focus of the deep borehole hydrogeology program was on characterizing the geometrical and hydraulic properties of the fracture system.

The fracture geometry was assessed by conducting Acoustic Televiewer (AT) surveys in 21 old exploration boreholes and in 11 dedicated hydrogeology-pit wall stability (SGH) boreholes. All of the boreholes were inclined except for one 400 m deep vertical borehole that was constructed for a long-term aquifer test. The AT data confirmed that the dominant fracture set had a northwest to southeast strike and dipped to the north-northeast. A less dominant fracture set has a northeast to southwest strike and a near vertical dip. A sub-horizontal fracture set is present throughout the project site.

The SGH core logs and AT logs identified a number of large scale structures in the form of borehole intersections of highly-fractured to intensely-fractured rock, confirming that the project site is cut by a number of fracture or shear zones that are expected to be zones of high permeability, based on the borehole packer injection test data. The extent and orientation of those

large-scale features around the open pit have not been determined but are assumed to have primarily a northwest to southeast trend based on the assumption that the large scale structures mimic the orientation of the small scale structures.

The permeability of the fracture system across the project site was assessed by conducting air-lift tests, and several sets of borehole packer injection tests. The air-lift hydraulic conductivities varied by approximately three orders of magnitude, since the open hole air-lift test averaged the data over the full length of the borehole. The hydraulic conductivity values from the packer injection tests varied over approximately five orders of magnitude since the tests were conducted over specific sections of each borehole rather than the entire borehole. The packer tests, while exhibiting some degree of censoring and truncation in the data distribution, confirmed that high permeability zones do exist within the rock mass around the proposed open pit but that overall the rock mass has a moderate permeability.

The rock mass permeability was further assessed by conducting a long-term (30-day) aquifer test that demonstrated that the rock mass permeability is highly anisotropic as would be expected given the dominance of the northwest-southeast trending facture set. This permeability anisotropy is expected to produce a highly elliptical northwest to southeast trending drawdown cone when the open pit is being dewatered.

Groundwater samples were collected from a number of monitoring wells and boreholes to determine if there was any significant degree of spatial and temporal variability in groundwater quality across the Springpole Lake Project site, and to try and relate any such variability to the geology and the characteristics of the flow system. Most intermediate to deep groundwater samples from boreholes that were completed in the fractured-bedrock were alkaline in nature, while samples collected from shallow borehole depths and from overburden wells were slightly acidic to near neutral. Groundwater samples were classified as either calcium-bicarbonate (Ca-HCO_3) type or calcium-magnesium-bicarbonate (Ca-Mg-HCO_3) type, having total dissolved solids (TDS) concentrations between 157 mg/L and 1,360 mg/L. The majority of groundwater samples collected were either saturated or supersaturated with respect to calcite. Carbonatites and secondary carbonate mineralization on fracture planes, and in vesicles of amygdaloidal volcanics and volcanic breccia, would be the most reactive and most probable sources of calcium and bicarbonate.

The orebody at the Springpole Lake Project site consists of zones of disseminated pyrite and arsenopyrite within variably developed stockworks that are surrounded by intensely altered wall rocks. The interaction of those sulphides with groundwater has generated significant concentrations of sulphate as well as dissolved arsenic, dissolved iron and other heavy metals in some groundwater samples. Elevated concentrations of dissolved zinc in some groundwater samples suggested the presence of sphalerite in association with pyrite and arsenopyrite. Trace concentrations of silver may be associated with rocks such as trachyte, which have an alkalic affinity. While the groundwater has been shown to be oxidizing in nature, based on the presence of dissolved oxygen and positive values of Eh, sulphide oxidation creates low pH conditions that

were not widely observed in Springpole groundwater samples. The alkaline nature of most groundwater samples from Springpole suggests that any acidification generated by sulphide oxidation is being neutralized by concomitant dissolution of carbonate mineralogy.

Groundwater samples were collected daily from the discharge water at Test Well SPW20-001 during the long-term aquifer test. Groundwater evolved during the test from a calcium-magnesium-bicarbonate (Ca-Mg-HCO_3) type in early-time, to a calcium-bicarbonate-sulphate (Ca-HCO_3-SO_4) type, and then a calcium-sulphate-bicarbonate (Ca-SO_4-HCO_3) type in late-time. Measured TDS increased from 338 mg/L to 825 mg/L. During the aquifer test, calcium increased from 89.3 mg/L to 179 mg/L, sulphate increased from 42 mg/L to 300 mg/L, and chloride increased from not detected (<0.55 mg/L) to 48.1 mg/L.

Analysis of the packer test data demonstrated that the flow into the Test Well could be distributed over five zones based on the packer injection test data with the zone at the bottom of the 400 m deep borehole only contributing approximately 3 L/min to the 166.5 L/min pump discharge. Assuming that the Chloride measured in the pump discharge originated from below the bottom of the Test Well, a dilution factor of 55.5 was calculated. This analysis suggests that the groundwater immediately bellow the bottom of the Test Well that is pulled into the Test well through a fracture zone by a 20 m drawdown had a Chloride concentration of approximately 2,645 mg/L after 30 days of pumping the Test Well. Groundwater that is contributed from the upper part of the bedrock, during pit dewatering, with its very low Chloride concentration will dilute the higher Chloride waters to some extent.

Stable isotopic data confirm that the origin of groundwater produced in late-time, during the long-term aquifer test, was meteoric water derived from natural groundwater recharge, with little or no contributions from evaporated lake water. Samples from SPW20-001, plotted in trilinear space, defined a continuum between a Ca-HCO_3 type groundwater and a Ca-Mg-SO_4-HCO_3 type groundwater as the dominant end members. TDS increased along that continuum, suggesting mixing between a shallow groundwater source and a deep groundwater source. The mixing process may not have been chemically conservative. Olfactory evidence of the presence of hydrogen sulphide (H_2S) after the first 14 days of pumping provided strong, albeit qualitative evidence for sulphate reduction to have occurred in the subsurface aqueous environment.

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1.0 INTRODUCTION

Fracflow Consultants Inc. was retained by First Mining Gold/Gold Canyon Resources (FMG/GCR) to prepare to prepare a hydrogeological baseline report for the Springpole Lake Gold Project proposed project site. The Springpole Lake Gold Project is located approximately 110 km northeast of the Town of Red Lake. This baseline report is based on an initial reconnaissance level hydrogeological field program in 2019 and a more in-depth hydrogeological field program in 2020. **Figure 1.1,** updated by FMG/GCR, shows the proposed open pit outline, the starter pit outline, the proposed mine rock storage area, the Tailings Management Facility (TMF), the stockpile area and perimeter access road. The proposed project infrastructure has been adjusted from the original 2019 site plan, on which the hydrogeology programs were based, as additional information has been provided and project planning has evolved.

The proposed main open pit (**Figure 1.1**) is located primarily under the northern section of Springpole Lake, part of which will have to be drained. The main north-western pit perimeter extends into the small area between Springpole Lake and Birch Lake. At its closest point, Birch Lake and Springpole Lake are approximately 250 m apart. The north-western edge of the main pit is designed to extend into this 250 to 400 m wide rock mass. The north-eastern side of the proposed open pit extends into the rock that forms the north-eastern side of Springpole Lake. The south-western edge of the main open pit skirts along the land mass that is located west of the main pit. The south-eastern edge of the main pit will be defined by part of the main lake shoreline, two cofferdams, several small islands and part of the dewatered Springpole Lake area (**Figure 1.1**).

The starter pit (**Figure 1.1**) is located on the northeast side of the main pit. The northeast perimeter of the main pit and the southwest perimeter of the starter pit are very close together. However, the depth of the starter pit is expected to be only approximately 50% of the depth of the main open pit excavation.

The hydrogeology baseline field program was completed in two stages, first a reconnaissance level field program during the summer and fall of 2019 which developed the preliminary conceptual hydrogeology model of the project followed by a more in-depth hydrogeology field program during the winter, summer and fall of 2020. The hydrogeology program was developed with reference to the basic geological data that are presented in the bedrock geology map (**Figure 1.2**).

The 2019 hydrogeological program utilized existing exploration boreholes for the subsurface fracture geometry mapping (Acoustic Televiewer (AT) surveys), borehole permeability measurements using air-lift tests and packer tests, water table measurements, groundwater sampling and piezometer construction. A preliminary 3D Groundwater Flow and Transport model was constructed to provide an initial estimate of mine water inflow.

Most of the accessible land-based exploration boreholes were located between Birch Lake and Springpole Lake, in the area around the proposed starter pit and along what will be the northeast perimeter of the main pit. A small number of land-based boreholes were drilled along what will be the south-western edge of the main pit and along the south edge of the area that is proposed as a mine rock storage area. A number of those boreholes were determined to be suitable for the installation of multi-level piezometers. There were no land-based boreholes available in the area of what will be the southeast to southerly perimeter of the main pit. A large number of vertical exploration boreholes have been drilled from barges in Springpole Lake and from ice pads. It is expected that those boreholes were not fully grouted, creating high permeability pathways from the surface to the bottom of the proposed open pit excavation. However, it is expected that this part of the rock mass will be excavated as mining progresses and that dewatering wells, if constructed, will control any upwelling groundwater through open boreholes within the ore zone.

Access to the proposed mine rock storage areas located to the west and east of the main pit was limited in 2019 to ATV trails and old drill roads. The access roads for the hydrogeology program were partly constructed in the winter of 2020 before the site work was shut-down by Public Health issues and the roads were not useable by heavy equipment and drill rigs after the ground thawed during spring melt. The roads were upgraded and access to most of the sites of interest was completed by August of 2020. For areas of interest that were not accessible by heavy equipment, the sites were investigated using hand operated augers and drive points driven using a jackhammer.

The 2019 Springpole Lake Project infrastructure plan included a proposed Tailings Management Area (TMA) that was located approximately 5 to 6 km southeast of the proposed open pit. Assess to the TMA was by boat and a walking trail. Limited site investigations within the center of the TMA were completed in the fall of 2019 using helicopter support over a three-day period. Work on the TMA was terminated in late 2019 and a new Tailings Management Facility (TMF) area was proposed in 2020 in the area that is immediately west of the proposed open pit. The data that were collected from the original TMA in 2019 (**Appendix A**) are only used in this report to supplement the data set that is available to describe the overburden geology in the general area.

The 2020 hydrogeology program consisted of (1) a geotechnical field and laboratory program to characterize the geotechnical and hydrogeological properties of the overburden and shallow fractured bedrock in the current Tailings Management Facility (TMF) (Fracflow, 2020a), and (2) a hydrogeological program of packer testing, fracture mapping using drill core and AT surveys to characterize the deep bedrock (Fracflow, 2020b). The geotechnical field and laboratory data along with the existing Lidar data provide the basis for computing seepage from the TMF. The deep boreholes which were drilled around the proposed open pit support the pit wall stability calculations and the overall fractured bedrock hydrogeological characterization and provide data for future pit inflow simulations.

1.1 Objectives and Scope

The objectives of the 2019 and 2020 hydrogeological program were to develop a conceptual model of the Springpole Lake Project site and to establish the baseline conditions for the immediate area that would be impacted by the proposed open pit mine dewatering, supporting mine infrastructure, mine rock stockpiles, water management infrastructure and the TMF. The conceptual model was developed by conducting a reconnaissance program that utilized existing exploration boreholes to acquire bedrock hydraulic conductivity data, fracture orientations, water levels, and groundwater and limited surface water chemistry data. In addition, the historical Lidar data were used to generate detailed contour maps of the proposed main project areas. The detailed contour maps were used to interpret and map local recharge and discharge areas in the main areas of interest and to select tentative borehole locations for the 2020 hydrogeology field programs.

The 2019 hydrogeological field program consisted of locating and clearing selected exploration boreholes, conducting an initial set of air-lift tests in these open deep exploration boreholes to measure overall rock mass permeability. Selected boreholes were then logged using the Acoustic Televiewer to map the fracture geometry. Limited Ground Penetrating Radar (GPR) surveys of selected locations in the proposed mine rock disposal area and the original Tailings Management Area were conducted to map the overburden geology, depth to bedrock and to identify potential silty-clay layers.

Based on the data from the initial air-lift tests, stand-alone packer tests were completed, using the end-of-borehole approach with the single packer set within the upper 100 m of each borehole, to obtain hydraulic conductivity data on the fractured bedrock. In addition, well points and multi-level piezometers were installed in selected locations (**Appendix B**).

The 2020 geotechnical field program (Fracflow, 2020a) focussed on (Figure 1.1) the mine rock storage area west of the proposed open pit (WSF2), and the proposed mine rock storage area (WSF1 – now designated as the new Stockpile area)) which is located east of the starter pit, the Plant Site area (PS), and the original Stockpile area (SP) which are located on the south east side of the open pit. The proposed mine rock storage area (WSF2) which is located on the west side of open pit includes the new Tailings Management Facility area (TMF). Two cofferdams, located to the south of the proposed open pits were investigated by earlier geotechnical drilling work and to a limited degree as part of the 2020 geotechnical program.

The winter-summer 2020 geotechnical program consisted of a detailed geotechnical field testing and sampling program, including test pit excavations (21 locations), hand augering (9 locations) of test pit locations that had limited access, and geotechnical borehole drilling (14 boreholes). The intrusive work was supplemented by GPR surveys in selected locations. Piezometers, multi-level were possible, were installed in all of the geotechnical boreholes and used to measure water table elevations and hydraulic conductivities of the overburden and shallow bedrock. The geotechnical factual report (Fracflow, 2020a) provides the relevant details of the field and

laboratory geotechnical program. For ease of discussion and review, the geotechnical data were summarized and grouped into three general areas – The Eastern Area or site, the Western Area or site, and the Plant site area.

During 2020, a parallel hydrogeology-pit wall stability program (the SGH2020 program) was conducted (Fracflow, 2020b) using ten deep HQ inclined boreholes that were drilled sub-parallel to the perimeter of the main open pit eight boreholes for the pit wall investigations and two boreholes for the cofferdam investigations. The plunge of the inclined boreholes ranged between -50 and -53 degrees with depths or lengths that ranged between 293 m and 440 m. The main objectives of the SGH2020 program was (1) to characterize the fracture geometry in representative zones or zones with similar geometry, fracture density, and fracture type, around the proposed open pit perimeter; (2) to measure hydraulic conductivity values in the fractured rock mass along the wall of the proposed main open pit to improve estimates of mine water pit inflows and pit dewatering; (3) to measure rock properties using the drilled cores from representative zones; (4) to collect fracture geometry data and hydraulic conductivity values at the two cofferdam areas; and (5) to collect additional groundwater samples to characterize the baseline water quality in the project area.

The SGH2020 program consisted of logging of drilled cores, through-the-bit packer tests (using the end of the borehole approach), AT mapping of fracture orientations and apertures, rock testing (Point Load tests and Brazilian tests), and multi-level piezometer installation. The orientation of the SGH2020 boreholes was selected to supplement and reduce the bias in the fracture orientation data that had been created in 2019 where only exploration boreholes were available. These old exploration boreholes generally had a north-east to south-west bearing and the SGH holes were designed to have a more southeast to northwest bearing while investigating fracture and flow properties around the open pit perimeter. In addition, one vertical borehole 405 m deep was completed at the north end of the current camp zone to characterize the fractured rock aquifer. Data collected from the ten inclined boreholes and the one vertical borehole are presented in Fracflow (2020b).

1.2 Conceptual Hydrogeological Flow System Model

The Springpole Lake Project site is surrounded by large lakes, primarily Birch Lake to the east, north and west and, once the cofferdams are in place and the open pit section of the lake has been dewatered, the southern boundary of the mining operation will be formed by Springpole Lake. The starter open pit and the main open pit will create a deep (approximately 350 m) groundwater sink and the drawdown cone from the open pit and dewatering wells is expected to extend horizontally to Birch Lake on the northwest end of the open pit and to the cofferdam and island sections that will form the boundary for the southern part of Springpole Lake. In addition, the drawdown cone will extend into the fractured bedrock both on the northeast side of the open pits and into the southwest side of the main open pit where the mine rock and mine tailings storage area is expected to be located.

The Lidar data that were supplied by FMG/GC were used to construct a detailed contour map (**Figure 1.3**) with the contour lines superimposed onto the high resolution aerial photo images. These contour maps were then used to develop a hydrogeological interpretation of the local flow systems and wetlands in the proposed mine rock and tailings management area impoundments. Each area consists of a number of small hills that are areas of recharge (R) and low lying areas that are areas of groundwater discharge (D). The wetlands, except for the small depressions, are limited to areas around the surface water bodies or to the areas of local groundwater discharge. The interpreted local flow patterns are shown by flow lines (**Figure 1.3**).

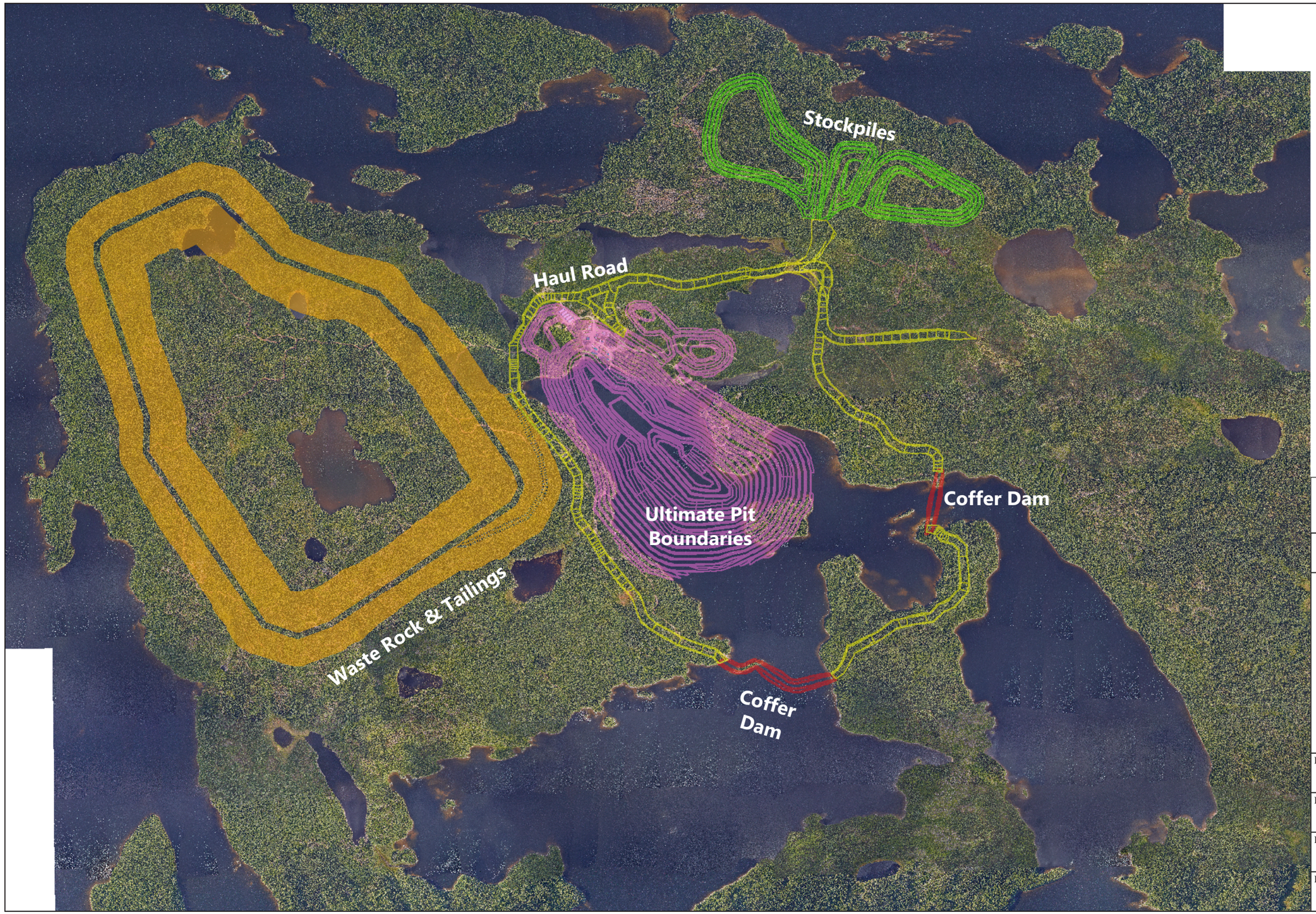
The mine rock storage area (**Figures 1.1** and **1.3**), with a maximum relief of approximately 25 m above Springpole Lake, is dominated by Jamie Lake with a drainage basin area (**Figure 1.4**) of 191.04 ha based on area measurements presented by DST Consulting Engineers (DST, 2012). The outlet stream from the Jamie Lake drainage basin flows to the west into Birch Lake.

The outcrops that are exposed within the project area, primarily along the lake shoreline, confirm that the site is characterized by thin overburden over fractured bedrock. The overburden consists of a thin organic layer overlying bedrock or a thin granular layer or exposed bedrock on the elevated areas, and with obvious thicker layers of granular and silty-clay overburden in the depressions. The fractures exposed in surface outcrops strike northwest to southeast and also northeast to southwest with a well-developed sub-horizontal fracture set or foliation features. The aerial photographs show that at least one set of major structures, with a northwest to southeast strike, cuts through the proposed open pit area.

1.3 Previous Work

There were no borehole permeability or borehole fracture geometry measurements that were available for the Springpole Lake Project site. Previous work at this site consisted primarily of surface water measurements in five drainage basins (**Figure 1.4**) in 2011 by DST (2012) and at six locations in 2012 (DST 2013a; 2013b) of which three locations are within areas which would be impacted by the project activities.

Earlier hydrogeological investigations (summarized in Fracflow 2020b) consisted of sampling groundwater in seven shallow boreholes, several of which were not completed below the dry season water table, and from several exploration boreholes but with very limited purging of the accumulated drill water before the water samples were collected.



Base orthorectified image provided by First Mining Gold Corp (2020).

Figure 1.1

Springpole mine infrastructure.

Project No.
3134

Location
Springpole, ON

Document Reference
FFC-NL-3134-002

Date
February 2021

FFC

Birch Lake

Dole Lake

Springpole Lake

Camp

Legend

- Drillhole Collar
- Camp
- Property Outline
- Patents Outline

Geology Mapping 20k Scale

- 1-Mafic to Intermediate Metavolanics; 1A-Massive Lava
- 2-Intermediate to Felsic Metavolcanics; 2B-Intermediate to Felsic Tuff
- 2A-Rhyolite
- 3AA-Clastic Sediment; 3C-Conglomerate; 3DM-Metasediments; 3BB-Siltstone and Greywacke; 3
- 6B-Quatz Porphyry
- 6D-Feldspar Porphyry
- B
- O
- Lithology Observation
- Structure Strike/Dip
- BIF
- Shear
- Anticline
- Syncline

Note: Base geolological map provided by First Mining Gold/Gold Canyon Resources (2016).

0 0.5 1.0

Scale, km

Figure 1.2

Springpole Geology Mapping.

Project No.
3134

Location
Springpole, ON

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FFC-NL-3134-002

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February 2021

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