Independent Expert Engineering Investigation and Review Panel

Report on Mount Polley Tailings Storage Facility Breach

Appendix F: DRAWINGS

Drawing F1: Pre-breach Piezometer and Inclinometer Locations

Drawing F2: Pre-breach Piezometer and Inclinometer Locations in Breach Area

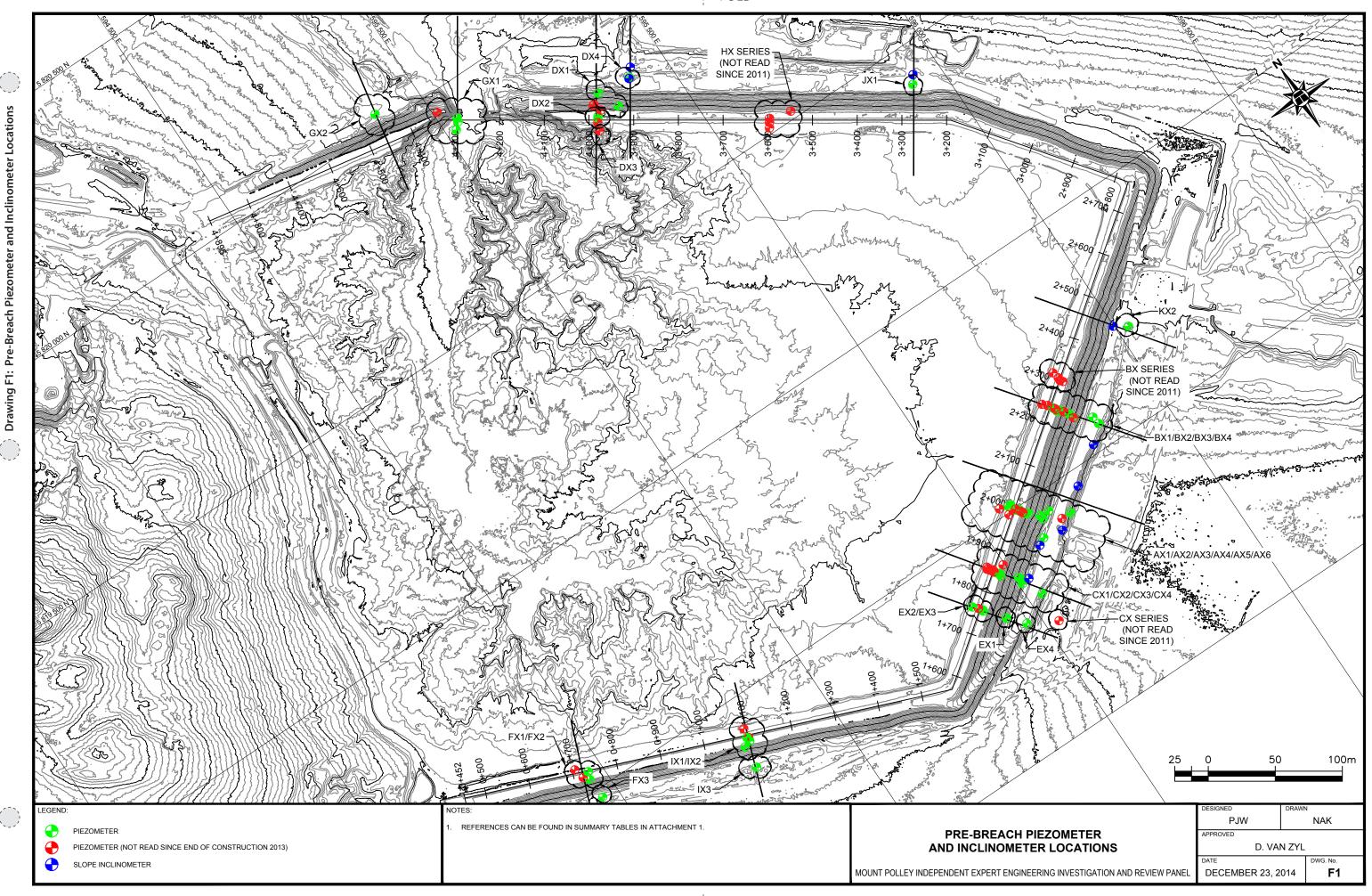
Drawing F3: Instrumentation Sections Near Breach Area

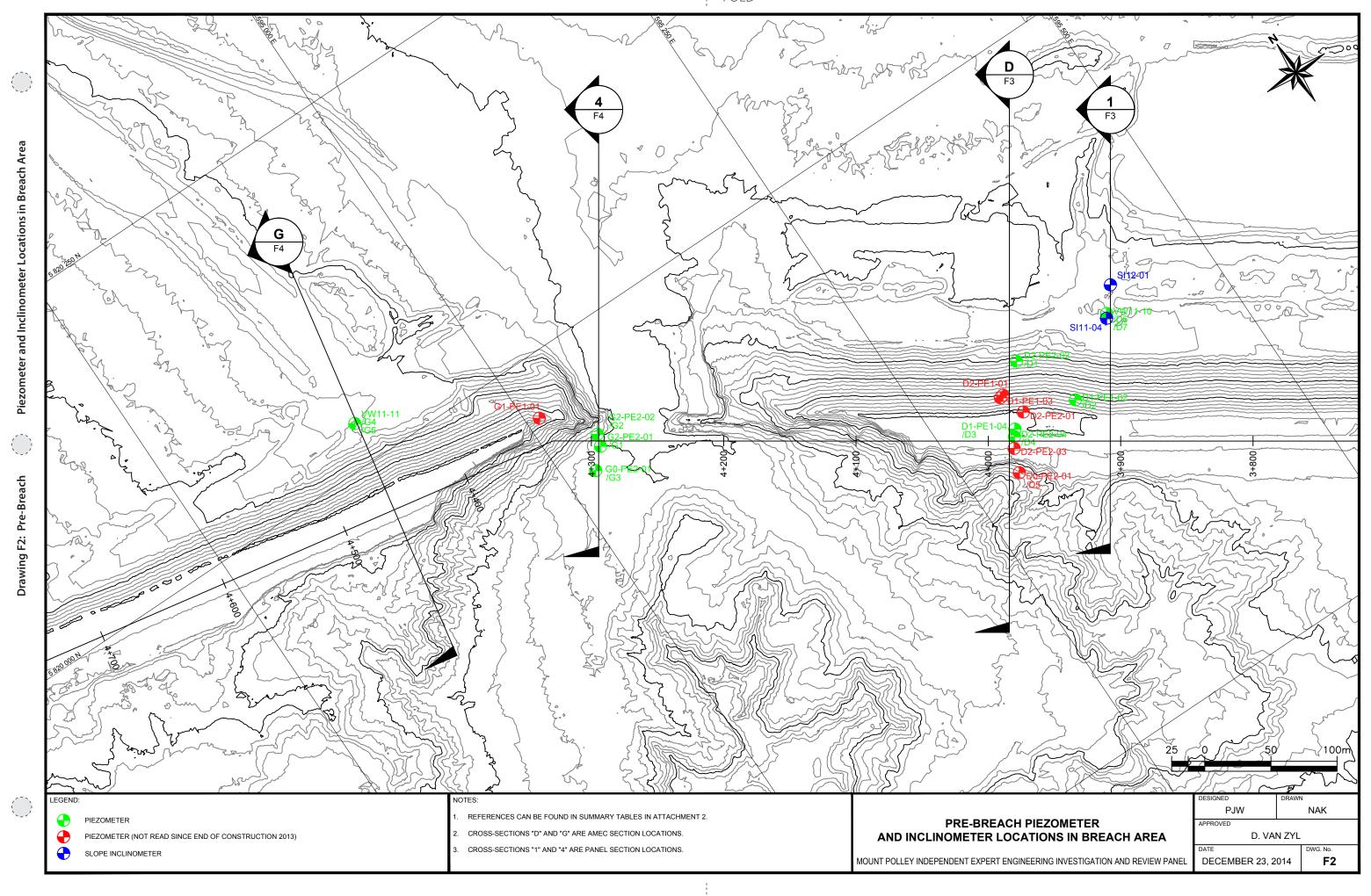
Drawing F4: Instrumentation Sections Near Breach Area

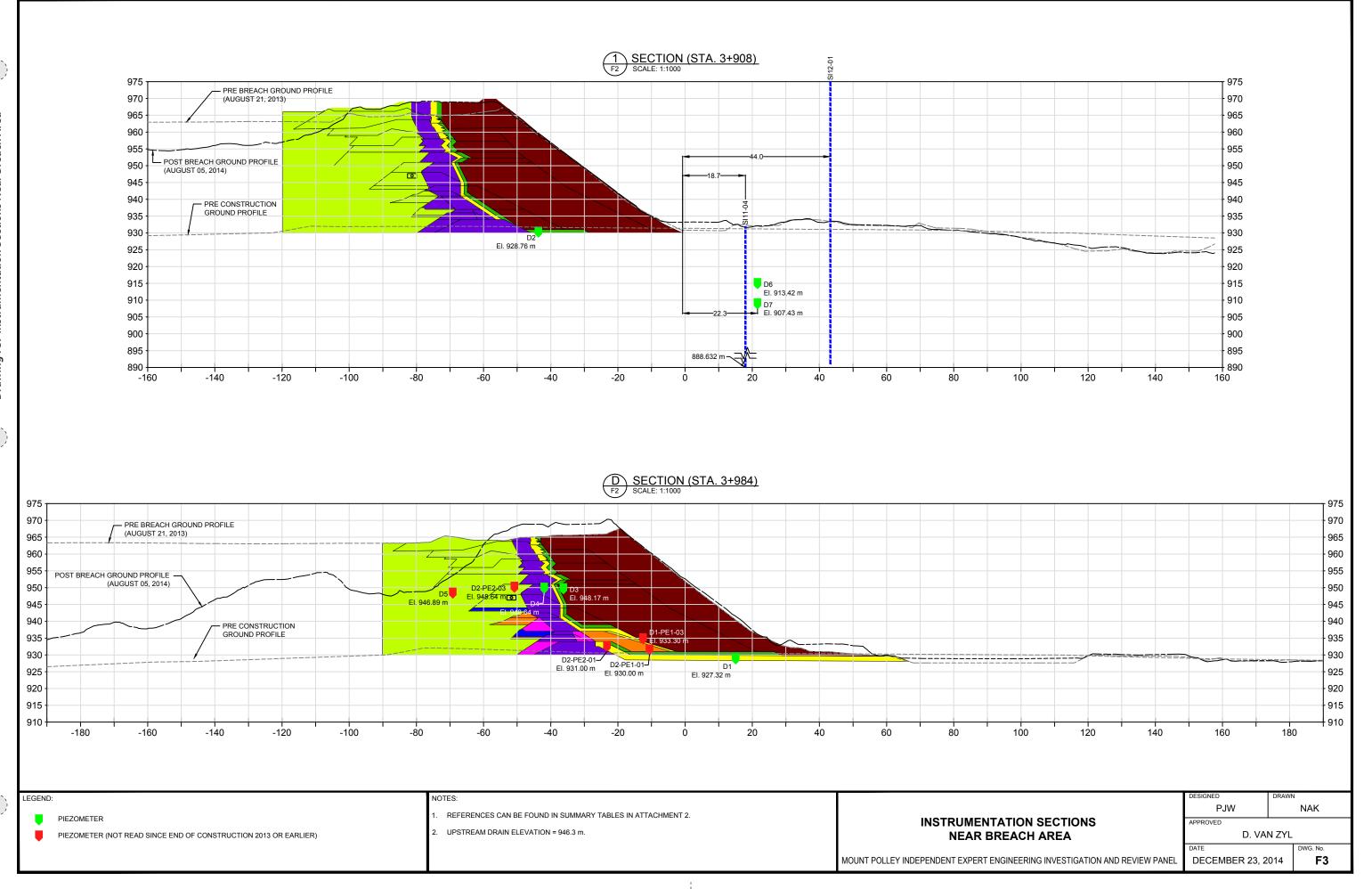
Drawing F5: Seepage Collection Elements Near Breach Area

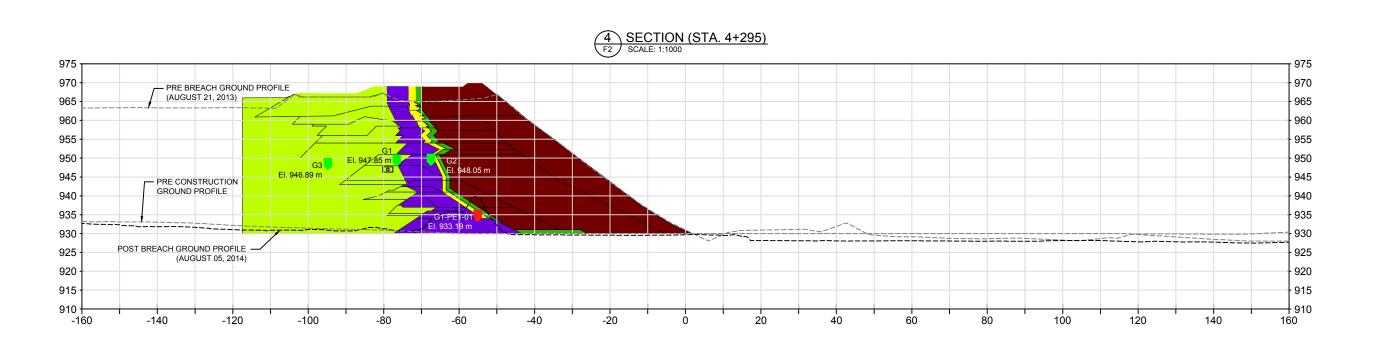
Drawing F6: Inclinometer SI01-02 Log and Notes

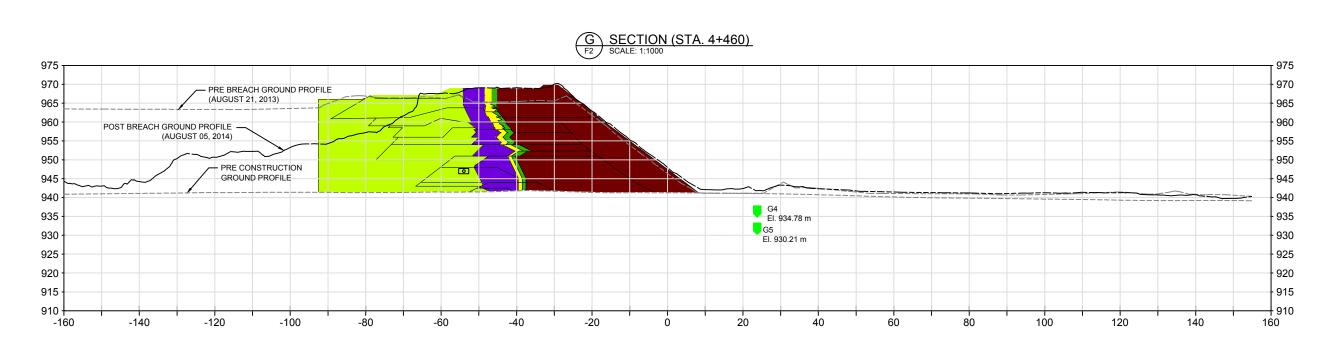
Drawing F7: Inclinometer SI01-02 Monitoring Results



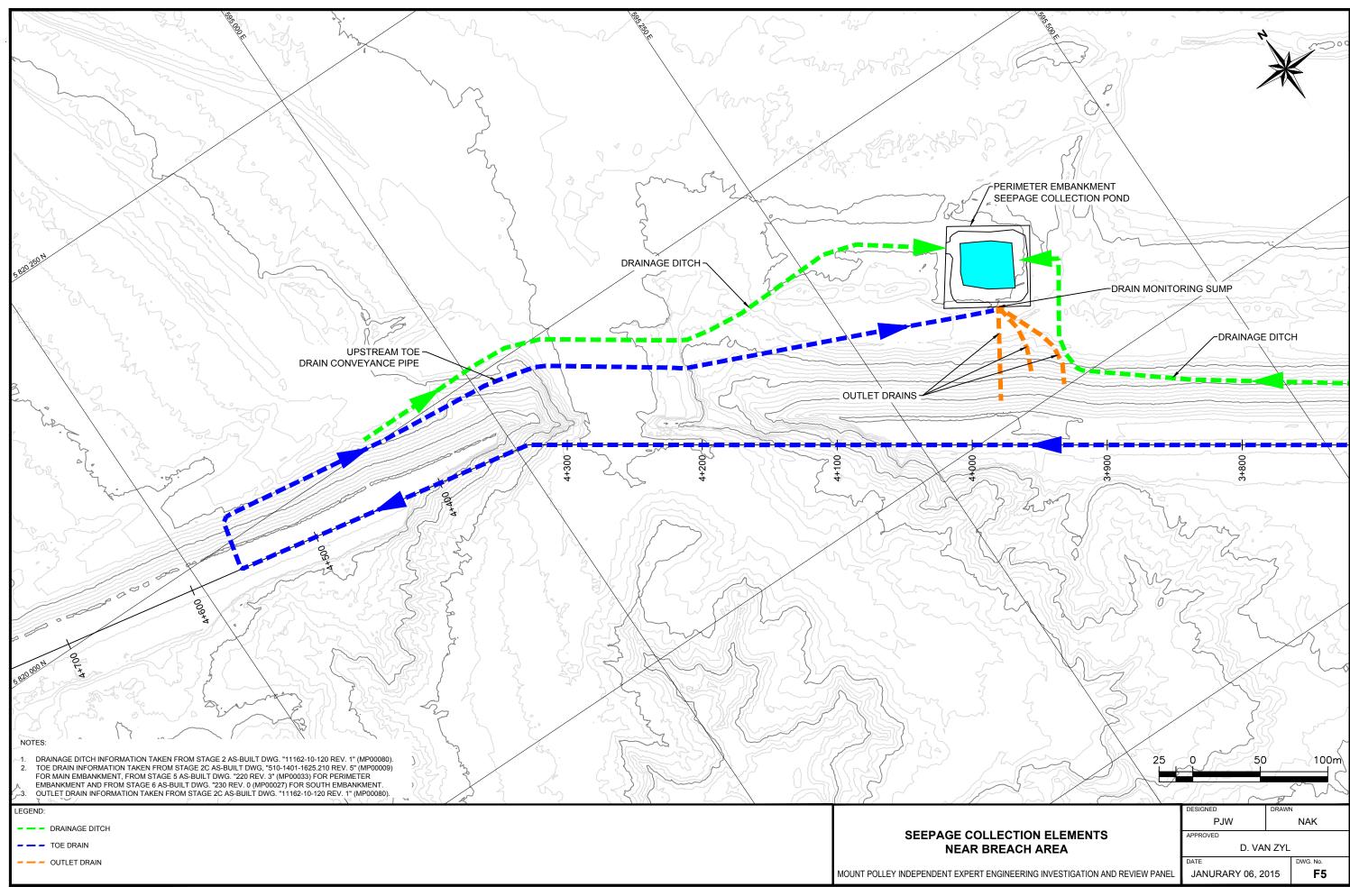






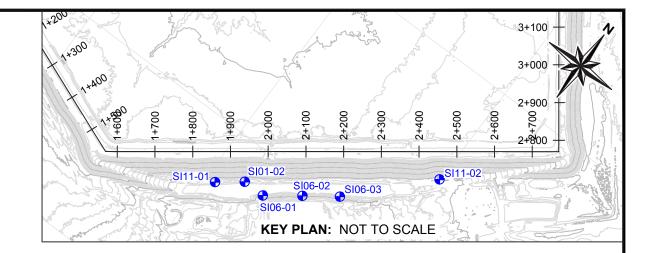


LEGEND: PJW NAK REFERENCES CAN BE FOUND IN SUMMARY TABLES IN ATTACHMENT 2. **INSTRUMENTATION SECTIONS** APPROVED UPSTREAM DRAIN ELEVATION = 946.3 m. PIEZOMETER (NOT READ SINCE END OF CONSTRUCTION 2013 OR EARLIER) **NEAR BREACH AREA** D. VAN ZYL MOUNT POLLEY INDEPENDENT EXPERT ENGINEERING INVESTIGATION AND REVIEW PANEL **DECEMBER 23, 2014**



P	roie	ct:	Mt. Polley Mine - TSF Stage 3 Co	onstructio	n		Drill !	Hole	No.			101-2	Pg1_ of _
-						Drill Hole No ODEX with D/H Hammer						Date Started:	
•			Main Embankment Ch. 19+40	•							Dat	e Completed:	05-Jul-01
			N 5818401.0 m , E 595589.0 m	Total De		30.33 m					Logged by:	cwm	
Surface Elev.:			917.30 m	Inclination:			-90				Reviewed by: cwr		
					8	Ī		 -	ш	SPT TES			
۵	2					,,	Š.	5	ALD.	Uncorre values v	s. dept	h	
H (f	Ę) VE	Ę	当	Ş	ż	20 40		-	
DEPTH (ft)	DEPTH (m)	GRAPHIC LOG	DESCRIPTION		RECOVERY	SAMPLES	SAMPLE NO.	BLOW COUNT	SPT 'N' VALUE				NOTES
		XXX	DESCRIPTION Zone C Fill		IL.	0)	0)	Ш.	0,	 	Ш		NOTES
1	0.5— 1.0—	₩								lilil	lil.		
-	1.5 2.0	₩											
10—	2.5— 3.0—	₩											
٦,,	3.5-	₩											
-	4.0— 4.5—	₩	Till - Stiff		-								
1	5.0 		iii - 3uii										
20-	6.0 6.5												
1	7.0-												
Ⅎ	8.0-		Glaciolacustrine Clayey Silt, Moist, blue gre trace clay and some fine sand lenses 3 mm	ey, plastic;			SI-01-2A	13	29				
	8.5 — 9.0 —		thick; stiff to hard	110 5 6111			2B	_	28				
J	9.5 — 10.0 —							_13_	-	ΙΨΗ			
1	10.5 11.0					<u> </u>	2C	A	16	411			
-1	11.5-									[Very Wet	
	12.0 — 12.5 —					_	2D	\$	9	1 1		Very Wet	
	13.0 — 13.5 —									VI I I			
-	14.0— 14.5—						2E	-8	0 '	Mili		Artesian Pre	essure
]	15.0-		Glaciofluvial, gravelly sand?							lıl Nu			
1	15.5 16.0										M	Water level	comes right to
	16.5 — 17.0 —		Till			_	2F	95	95	hhli		surface of or	uter casing, at the of Zone C fill;
+	17.5 18.0								1		lili	Refusal on 3	
i0	18.5		Very dense gravelly, sandy till with trace cla	ay and silt;			2G	>980	>100	ااااا	lili		
4	19.0 — 19.5 —		reddish grey; moist to very moist				2H	L	105	lilili	Hili		
1	20.0 — 20.5 —						211	#8	100	lilili		Ĭ	
	21.0 — 21.5 —						21	44	79	اااااا	li¥i		
+	22.0 — 22.5 —		Glaciofluvial sand and gravel					-38-	1		$\ \cdot\ $	Approx. 4" ti at 71'	nick gravel seam
4	23.0										$\ \cdot\ $	Zone is water heaving obs	
_ 7	23.5 — 24.0 —										$\ \cdot\ $	No sample t	aken at 75' due to
	24.5 25.0											heaving	
- ‡	25.5 — 26.0 —												
7	26.5	ΔΔ	Conglomerate, Clasts are volcanic in origin										
ᅄᆉ	27.0— 27.5—	ΔΔ											
	28.0 28.5	ΔΔ											
J	29.0—	ΔΔ									[[]]		
. 7	29.5	Δ.4											
<u>°</u>	30,5											EOH	
		_					Mount F	Polle	y M	ning	Cor	poration	
Ì	K_{1}	ni	ght Piésold		Overburden Log of SI01-2								
.11	L XL	uug	SOUR LUCSUUM	Project Learning						15	Ref. No. 3 Rev. No. 0		
			COMSCLING	Project Location						Pr	oject No.	Fig.	

Mount Polley Mine



NOTES:

11162/14 A - 15

- 1. "HOWEVER, INCLINOMETER SI01-02 IS SHOWING SLIGHT DEVIATIONS (LESS THAN 3 mm) AT AN APPROXIMATE DEPTH OF 10 m BELOW GROUND IN THE LACUSTRINE SILTS. THIS IS BEING CLOSELY MONITORED BY MPMC WHO HAVE INCREASED THE MONITORING FREQUENCY OF THE INCLINOMETERS TO WEEKLY. MPMC HAS ALSO EXPANDED THE BUTTRESS AT THE MAIN EMBANKMENT AS A RESULT OF THE MEASURED DISPLACEMENTS IN SI01-02. THE EXPANSION OF THE BUTTRESS APPEARS TO HAVE BEEN EFFECTIVE AS NO ADDITIONAL DISPLACEMENTS HAVE BEEN MEASURED IN INCLINOMETER SI01-02". (MP00034, 2009 ANNUAL INSPECTION REPORT - FOR STAGE 6A, KP).
- 2. STAGE 6A BUTTRESS TO EL. 918 m, TOP OF STAGE 6A EL. 954 m. ORIGINAL SURFACE ELEVATION OF BORING FOR INCLINOMETER INSTALLATION EL. 917.3 m. EMBANKMENT HEIGHT ABOUT 37 m WHEN FIRST MOVEMENT OBSERVED.
- 3. SI01-02 WAS RE-INITIALIZED JUNE 29, 2013 AFTER EXTENDING THE CASING 2.9 m. "PRIOR TO THE EXTENSION, DISPLACEMENT WAS NOTED TO BE 5 mm OVER 6 MONTHS. AFTER THE EXTENSION THROUGH THE REST OF 2013, DISPLACEMENT WAS NOTED TO BE ABOUT 4 mm". (MP00044, 2013) AS-BUILT AND ANNUAL REVIEW REPORT, AMEC).
- 4. TOP ELEVATION OF EMBANKMENT EL. 967 m ACCORDING TO PAGE 5 OF REPORT MP00044. ON DRAWING 2013AB.03 - MAIN EMBANKMENT AS-BUILT SECTION A 92+060 TOP ELEVATION IS SHOWN AS 966 m. ON DRAWING 2013AB.04 - PERIMETER EMBANKMENT SECTION D (3+990) TOP ELEVATION IS SHOWN AS 967 m WITH THE NOTE "2013 AS-BUILT CREST ELEVATION VARIES". A SIMILAR NOTE IS INCLUDED ON THE DRAWING FOR THE SOUTH EMBANKMENT.
- 5. TOP OF BUTTRESS SEEMS TO BE AT ABOUT EL. 926 m IN MINE EMBANKMENT SECTION A. EMBANKMENT HEIGHT ABOUT 41 m ABOVE BUTTRESS WHEN THE MOVEMENT OCCURRED.

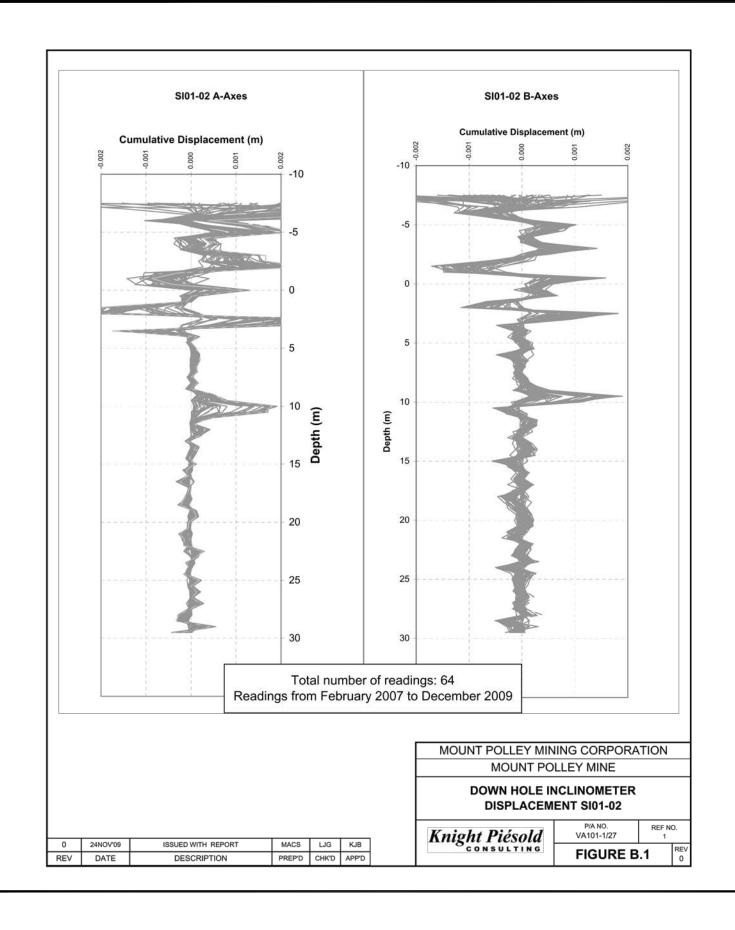
LEGEND:

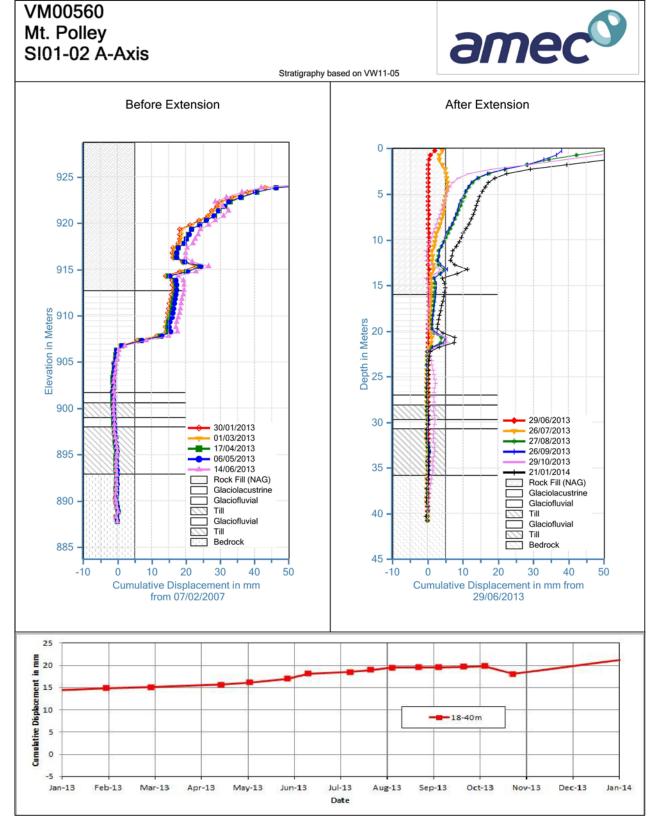
SLOPE INCLINOMETER

MOUNT POLLEY INDEPENDENT EXPERT ENGINEERING INVESTIGATION AND REVIEW PANEL

APPROVED D. VAN ZYL JANURARY 23, 2015 F6







INCLINOMETER SI01-02 MONITORING RESULTS

MOUNT POLLEY INDEPENDENT EXPERT ENGINEERING INVESTIGATION AND REVIEW PANEL

DESIGNED CHS NAK

APPROVED

D. VAN ZYL

DATE

JANURARY 06, 2015

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