

# **Mount Polley Mining Corporation**

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November 28, 2014

Ministry of Environment Mining Operations Environmental Protection 2080 Labieux Rd. Nanaimo, BC V9T 6J9

## WEEKLY POST-TSF BREACH REPORT – WEEK OF NOVEMBER 19 – 25, 2014

#### Water Management and TSF Works

Polley Lake Dewatering	Polley Lake water elevation = 921.59 m (November 25 <sup>th</sup> )
	To maintain the lake water level within its natural range and reduce the level prior to removal of the pumps for winter, pumping from Polley Lake to Hazeltine Creek continued all week at a reduced rate. It is anticipated that the pumps will be removed next week.
	Design work for a weir structure at the outlet of Polley Lake is in the final stages.
Breaches	No breaches of the water management system containing water flow from the Tailings Storage Facility (TSF) occurred this week.
TSF and Water Management Structures	<ul> <li>The following projects are underway (refer to Figure 1 for a map of all works):</li> <li>The first 3 metre buttress lift along the Perimeter Embankment has started over the area prepared in 2013.</li> <li>The foundation preparation for additional buttressing along the Perimeter Embankment is 15% complete.</li> <li>A ditch has been excavated along a section of the Plug Access Road (PAR) for the proposed Polley Lake outflow channel. Excavation of the channel from the very south end of the PAR has started. Tailings are being sent to the TSF and organics are being stockpiled.</li> <li>Breach stabilization commenced on November 24<sup>th</sup> with excavation of the North Abutment (the embankment to the north of the breach). Material was placed upstream of the embankment for stabilization purposes.</li> </ul>
	All water from TSF water collection systems is currently transferred to Springer Pit via the Central Collection Sump. Water from the Breach Pump is transferred via the Breach Sump and Ditch to the Till Borrow Pit to allow settling of suspended solids prior to being transferred to the Central Collection Sump.



Figure 1. Tailings Storage Facility construction works

# **Sediment and Erosion Control Measures**

Silt Curtain	The silt curtain attached to the log boom at the mouth of Hazeltine Creek continues to remove sediment from the water column. The curtain is in good condition.	
Sediment Control Works	<ul> <li>Current sediment and erosion control works underway on lower Hazeltine Creek (below the Ditch Road) include:</li> <li>Construction of the Upper and Lower Sedimentation Ponds (see Section 5 of the Lower Hazeltine Creek Erosion and Sediment Control Plan [the Plan]). Excavation and construction of berms for the Upper and Lower Ponds is approximately 95 to 98 % complete. Completion of inlet and outlet structures and final touches (geotextile, rip rap, etc.) are still outstanding. If no delays are encountered, it is anticipated these ponds will be commissioned in approximately 1 to 2 weeks.</li> <li>Screening of material for creek restoration (Design Drawings in the Plan).</li> </ul>	
	<ul> <li>Upgrading of access roads (Section 4 of the Plan).</li> <li>Re-grading and landscaping of select areas (Sections 4 and 9 of the Plan).</li> <li>Installation and maintenance of sediment control measures including silt fences and straw bales (see Section 5 of the Plan).</li> </ul>	
	Rehabilitation work in the lower 100 m of Edney Creek has commenced. The pump around system is in operation and the energy dissipation structure at the outlet is working effectively. A spill kit is in place and pumping is being supervised by two environmental monitors. The fish exclusion barrier is also in place. Construction of the new channel is underway, with material being removed. Construction of a temporary access road, which will require culverts, is planned. A memorandum summarizing the fish salvage work completed will be submitted to MOE.	
	Environmental construction monitoring is occurring continuously during all activities. No change in turbidity in the creek water has been detected as a result of the construction	
	Plans to complete sediment and erosion control works in middle and upper Hazeltine Creek are in progress. Steps are being taken to work with the appropriate regulatory bodies to confirm the procedure for carrying out these works.	

#### Water Quality Monitoring Program

The maps on pages 1 - 8 of Figure 5 (attached) show locations that have been sampled as part of the water quality monitoring program. The following table is a summary of the current water quality monitoring program. Changes to the monitoring program this week include:

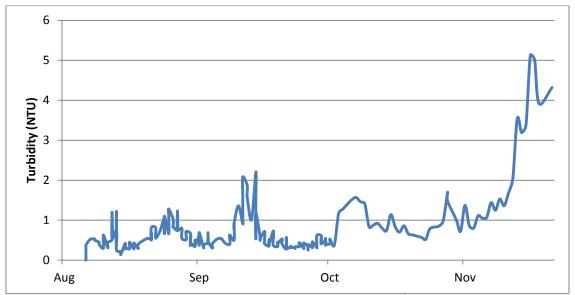
- Weekly sampling at a reference site on the Cariboo River (CAR-01) and a sample location downstream of the confluence of the Cariboo and Quesnel Rivers (QUR-7) has been added to the monitoring program, until snowfall restricts access to these sites.
- Polley Lake has been removed from the monitoring program because it is partially frozen and cannot be accessed by boat. Provided conditions are safe, sampling of Polley Lake through the ice is planned for the winter.
- The Quesnel Lake monitoring program has been streamlined due to weather and daylight constraints. This revised program includes a "cast day", in which profiles of field parameters are collected from a number of sample locations to provide an overview of lake conditions.

All scheduled samples were completed this week except for QUL-112/112a, which was missed because of unsafe weather conditions. Due to equipment challenges, data from the "cast day" was not collected as planned. Sites QUL-18 and QUL-66a were sample twice this week.

Frequency	Area	Sample Locations
Daily	Quesnel River	QUR-1
Dally	Hazeltine Creek	HAC-01a
Mookly	Quesnel Lake	Samples and profiles: QUL-18, QUL-66a, QUL-79, QUL-112/QUL-112a <u>Profiles only:</u> QUL-22, QUL-21a, QUL-18, QUL-66a, QUL-66, QUL-2a, QUL-79, QUL-40a, QUL-120
Weekly	Hazeltine Creek	HAD-1 (when pumping), HAC-05
	Quesnel River	QUR-7
	Cariboo River	CAR-01

The monitoring program also includes a continuously monitoring sonde that is at deployed in the Quesnel River at the Quesnel River Research Centre (site QUR-1). The sonde measures field parameters which include pH, specific conductance, dissolved oxygen, temperature, and turbidity. Due to equipment challenges no data was collected this week. The sonde has now been replaced.

Figure 2 shows a time series graph of turbidity results from sample location QUR-1 on Quesnel River (at the Quesnel River Research Centre).



**Figure 2.** Turbidity time series at sample location QUR-1 (August 6<sup>th</sup> – November 21<sup>st</sup>)

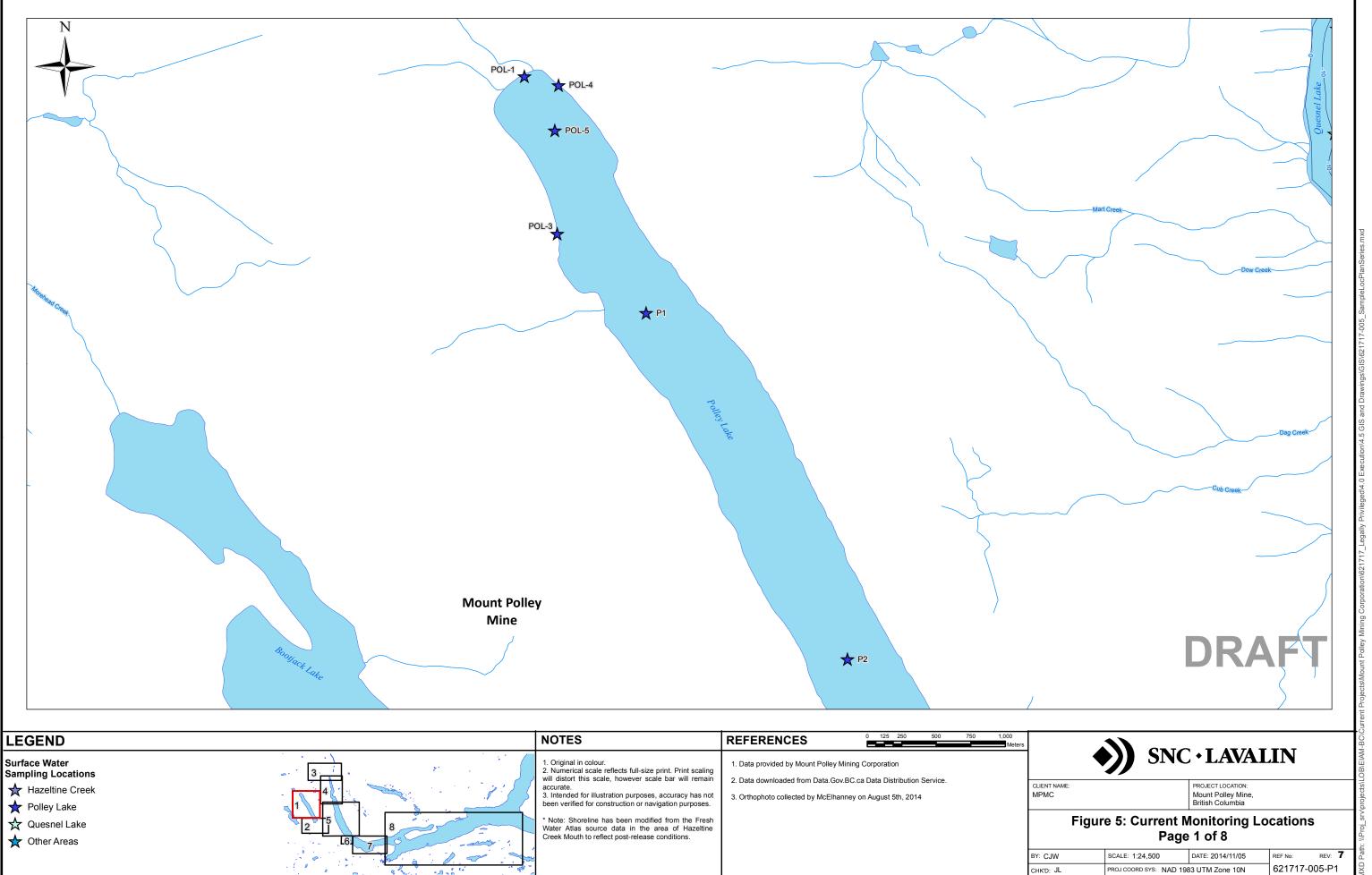
## Publication of Environmental Monitoring Results & Remediation Updates

Mount Polley will continue to present interpreted data and updates on remediation works on the <u>Mount Polley Updates</u> page of the Imperial Metals website. No information notices were published this week, however, a link to the MOE November 24<sup>th</sup> <u>Progress Report on Mount</u> <u>Polley Remediation</u> was posted.

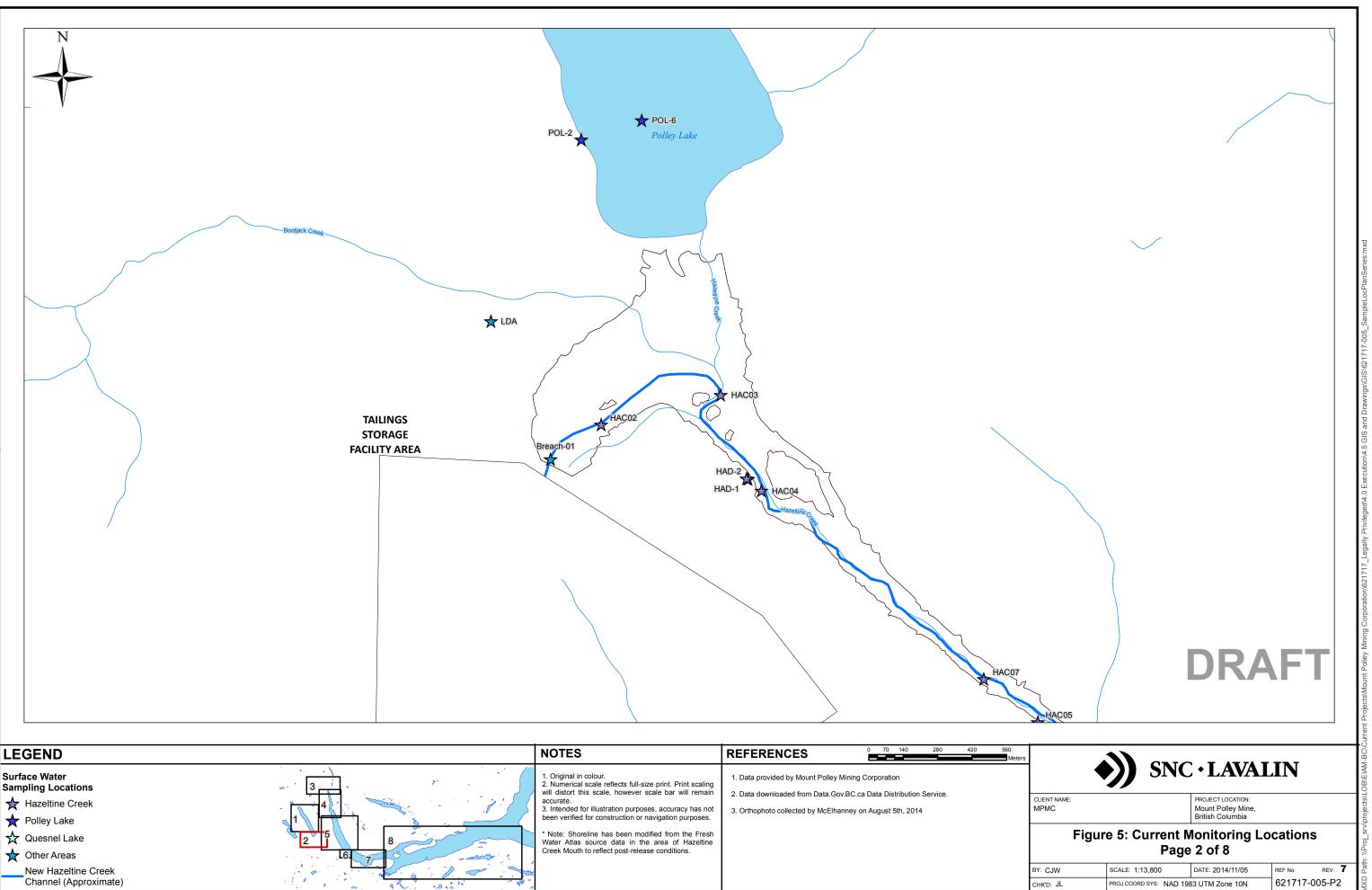
# ATTACHMENTS

Drawings:

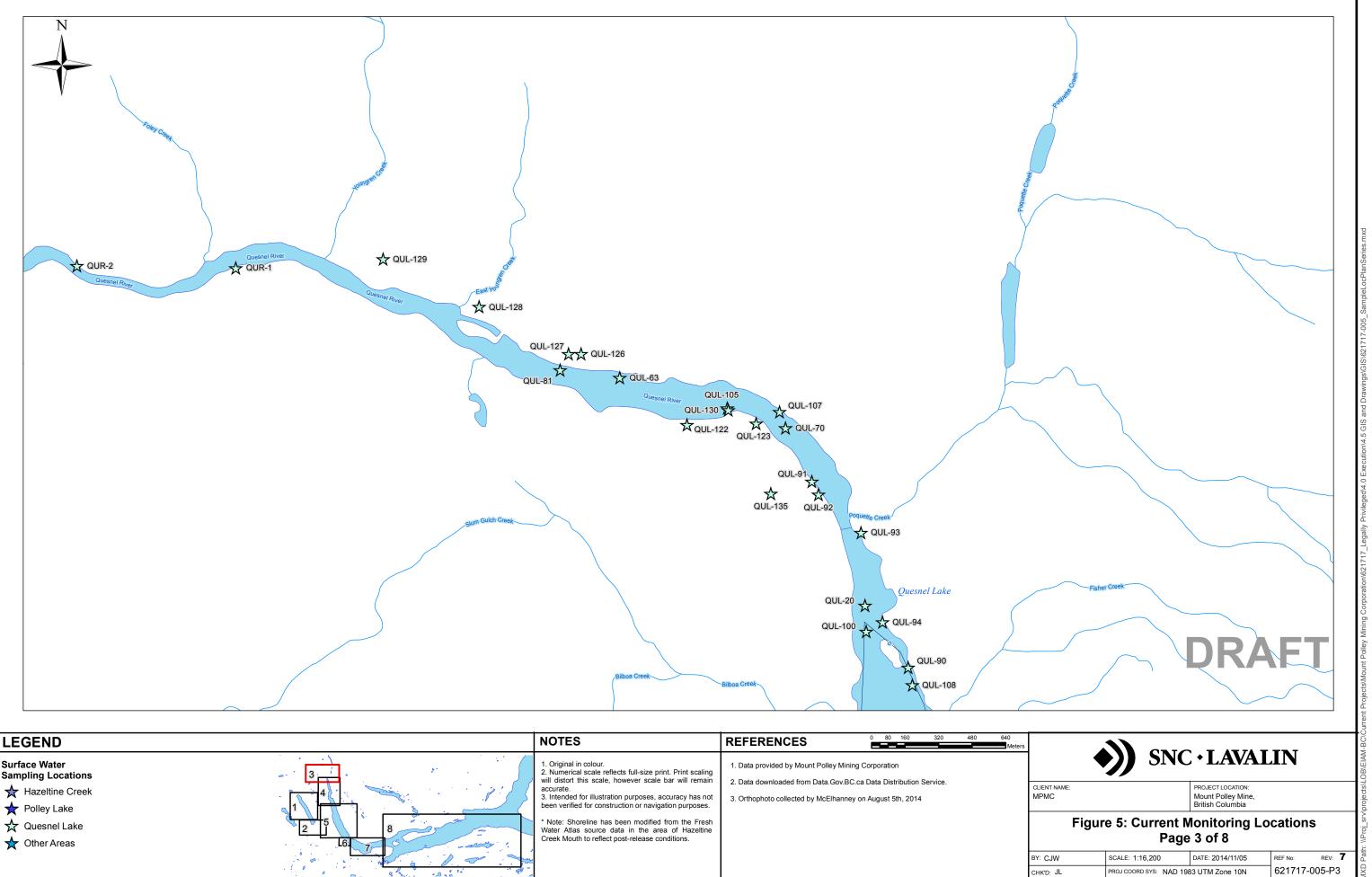
612717-005-P1 through 612717-005-P8: Current Monitoring Locations (Figure 5)



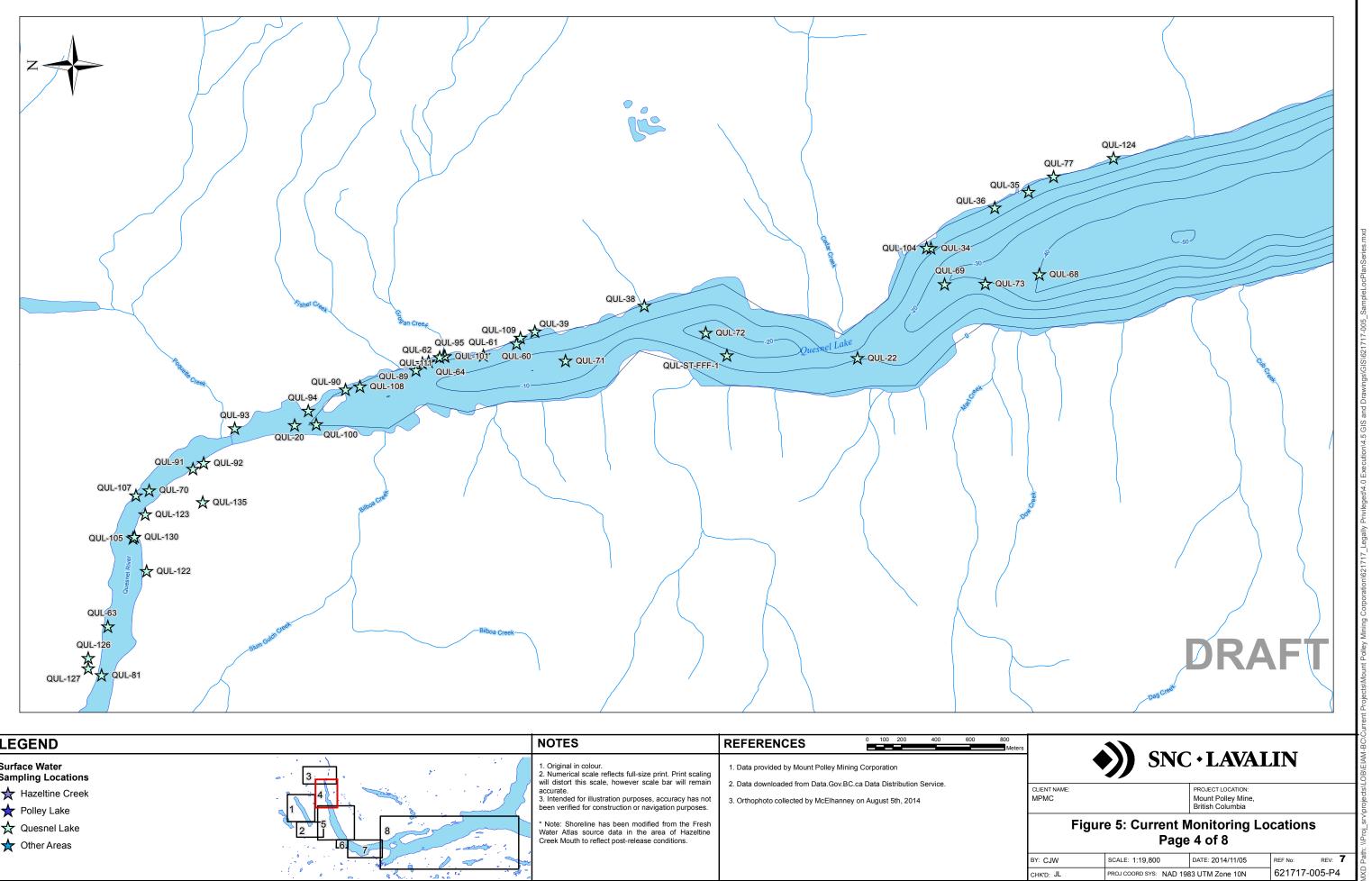
ر ۱	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> </ol>	<ol> <li>Data provided by Mount Poll</li> <li>Data downloaded from Data.</li> <li>Orthophoto collected by McE</li> </ol>
-	* Note: Shoreline has been modified from the Fresh	



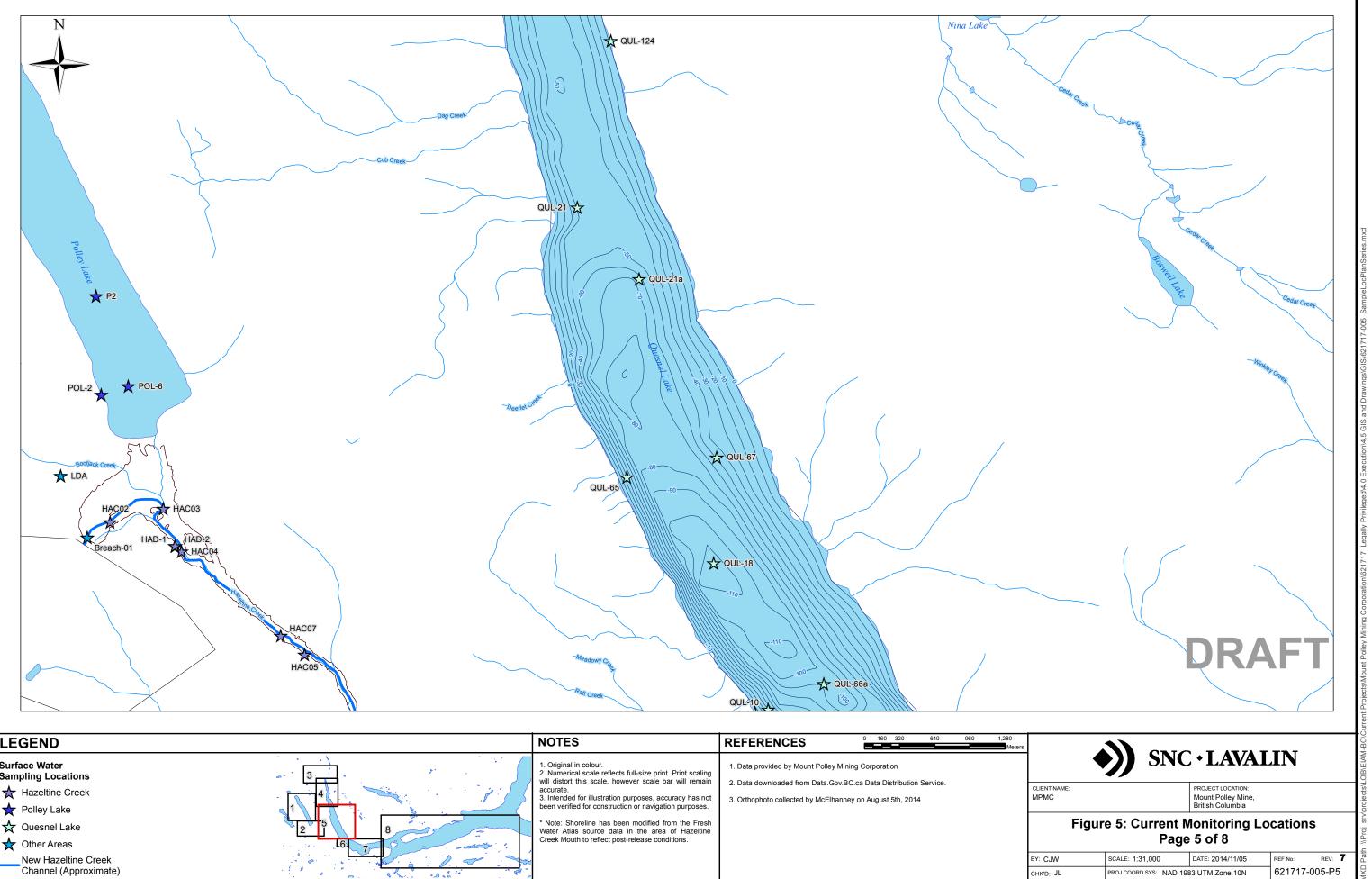
LEGEND	NOTES	REFERENCES 0 70 140 280 420 560 Mete	ns
Surface Water         Sampling Locations         ☆         Hazeltine Creek         ☆         Polley Lake         ☆         Quesnel Lake         ☆         Other Areas         New Hazeltine Creek         Channel (Approximate)	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> <li>* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.</li> </ol>	<ol> <li>Data provided by Mount Polley Mining Corporation</li> <li>Data downloaded from Data.Gov.BC.ca Data Distribution Service.</li> <li>Orthophoto collected by McElhanney on August 5th, 2014</li> </ol>	



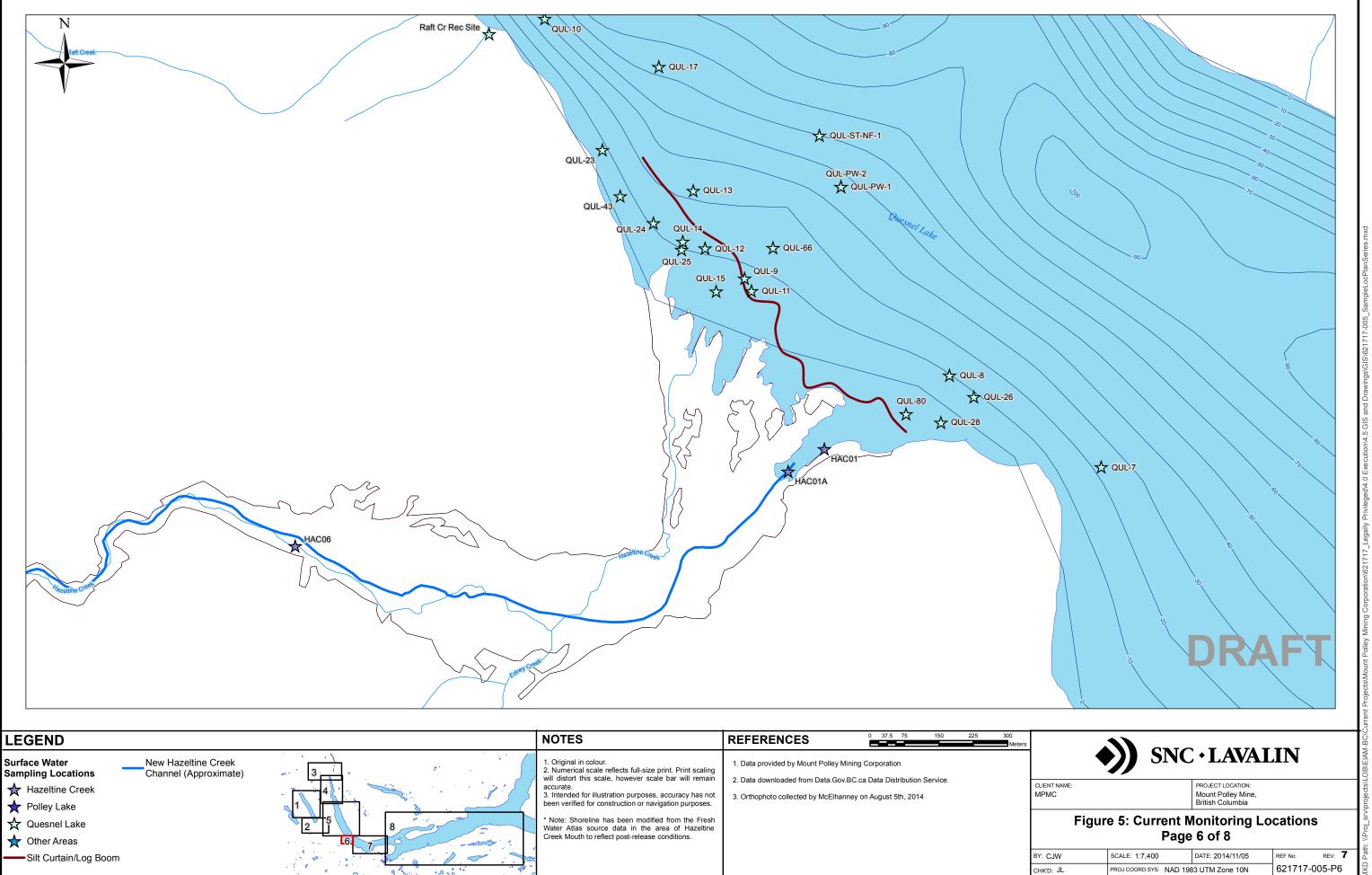
LEGEND	NOTES	REFERENCES 0 80 160 320 480 640 Meters
Surface Water Sampling Locations ★ Hazeltine Creek ★ Polley Lake ★ Quesnel Lake ★ Other Areas	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> <li>* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.</li> </ol>	<ol> <li>Data provided by Mount Polley Mining Corporation</li> <li>Data downloaded from Data.Gov.BC.ca Data Distribution Service.</li> <li>Orthophoto collected by McElhanney on August 5th, 2014</li> </ol>



LEGEND	NOTES	REFERENCES         0         100         200         400         600         800           Meters         Mete
Surface Water         Sampling Locations         ☆         Hazeltine Creek         ☆         Polley Lake         ☆         Quesnel Lake         ☆         Other Areas	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> <li>* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.</li> </ol>	<ol> <li>Data provided by Mount Polley Mining Corporation</li> <li>Data downloaded from Data.Gov.BC.ca Data Distribution Service.</li> <li>Orthophoto collected by McElhanney on August 5th, 2014</li> </ol>

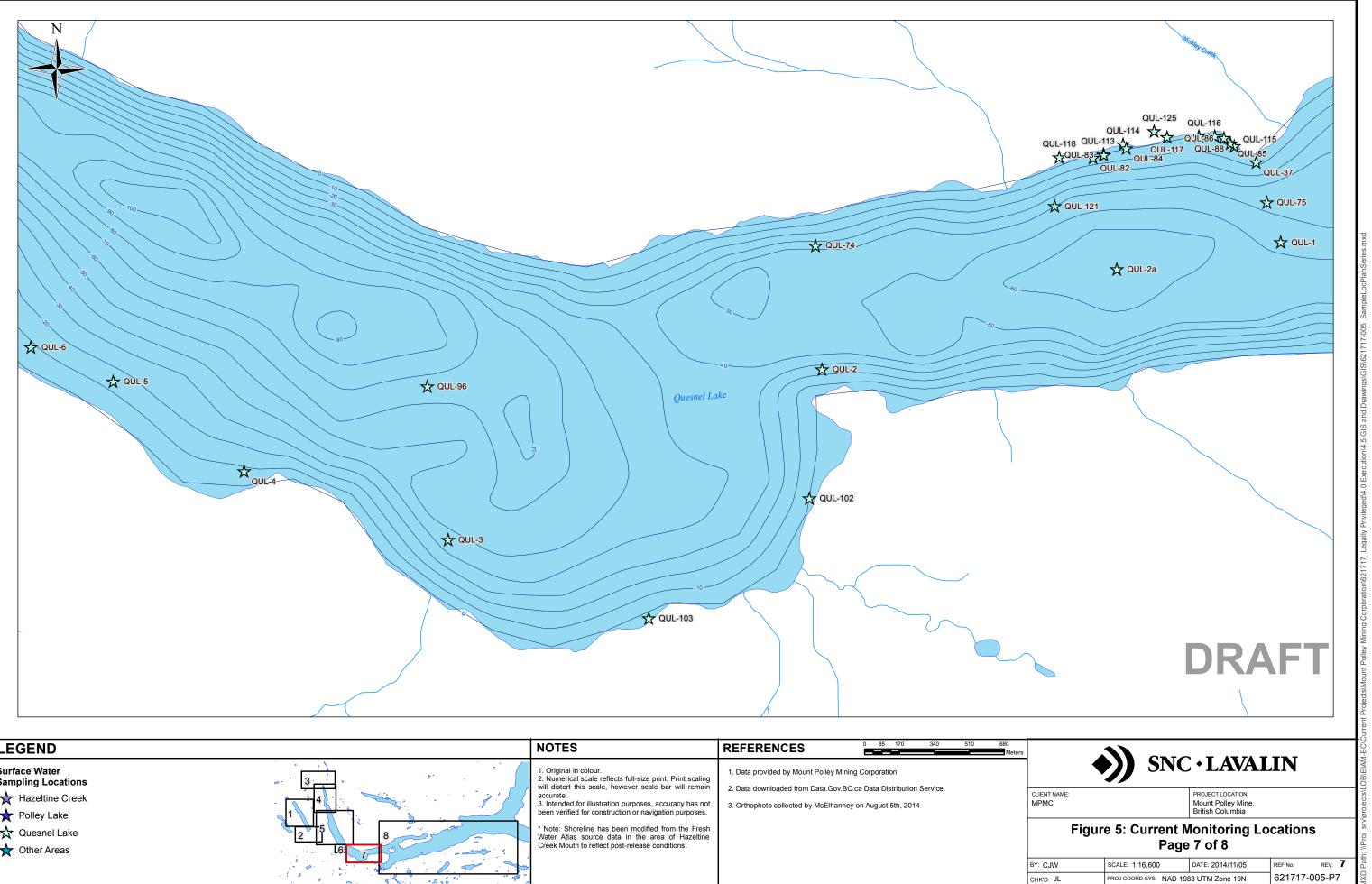


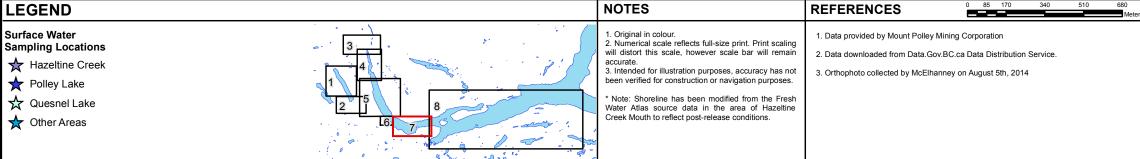
LEGEND	NOTES		160 320 640	960	1,280 Meters
Surface Water Sampling Locations ★ Hazeltine Creek ★ Polley Lake ★ Quesnel Lake ★ Other Areas New Hazeltine Creek Channel (Approximate)	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> <li>* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.</li> </ol>	<ol> <li>Data provided by Mount Polley Mining Col</li> <li>Data downloaded from Data.Gov.BC.ca D</li> <li>Orthophoto collected by McElhanney on A</li> </ol>	Data Distribution Service.		

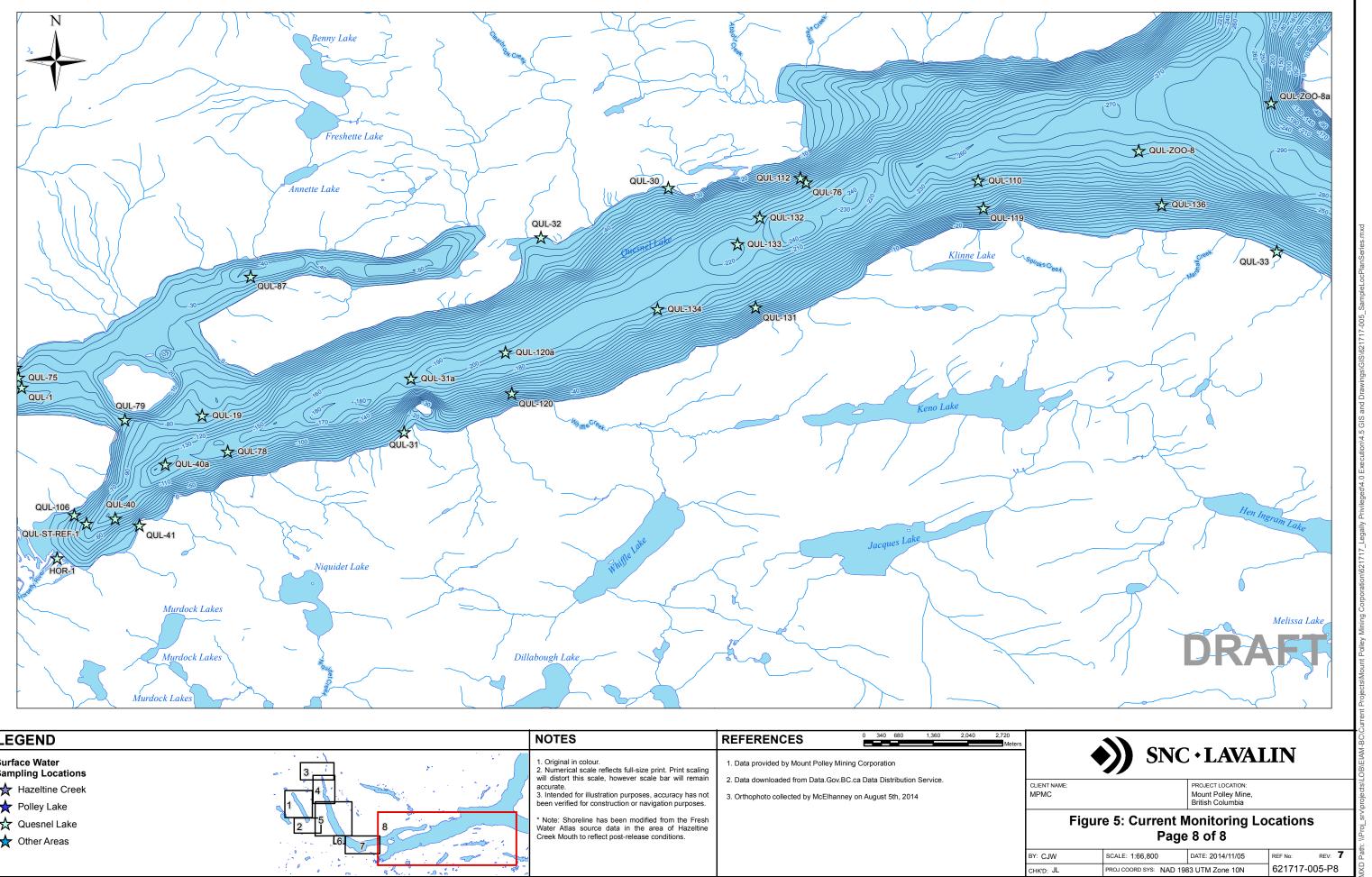


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<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling</li> </ol>	1. Data
will distort this scale, however scale bar will remain accurate.	2. Data
3. Intended for illustration purposes, accuracy has not	3. Orth







LEGEND	NOTES	REFERENCES 0 340 680 1,360 2,040 2,720 Meters
Surface Water         Sampling Locations         ☆ Hazeltine Creek         ☆ Polley Lake         ☆ Quesnel Lake         ☆ Other Areas	<ol> <li>Original in colour.</li> <li>Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.</li> <li>Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.</li> <li>* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.</li> </ol>	<ol> <li>Data provided by Mount Polley Mining Corporation</li> <li>Data downloaded from Data.Gov.BC.ca Data Distribution Service.</li> <li>Orthophoto collected by McElhanney on August 5th, 2014</li> </ol>