# Mount Polley Mining Corporation

an Imperial Metals company

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**December 23, 2014**

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

## WEEKLY POST-TSF BREACH REPORT – WEEK OF DECEMBER 17 – 22, 2014

### Water Management and TSF Works

| | |
|---|---|
| **Polley Lake Dewatering** | Polley Lake water elevation = 921.75 m (December 22nd)<br>Water levels are currently within the typical range. Polley Lake is partially frozen and all pumping infrastructure was removed in late November. |
| **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** | The amendment to permit M-200 approving repair of the TSF breach to manage 2015 freshet was received from the Ministry of Mines on December 17th. Ongoing work being completed under this approval includes:<br>• Bulk excavation of the North and South Abutments (the embankments to the north and south of the breach)<br>• Foundation preparation for additional buttressing along the Perimeter Embankment is ongoing, in addition to subsequent placement of buttressing materials. Material placed is a combination of mine waste rock and material excavated from the abutment stabilization work.<br><br>Refer to Figure 1 for a map of the TSF area and associated works.<br><br>All water from TSF water collection systems is currently transferred to the Springer Pit via the Central Collection Sump. Water flow from the breach location is transferred via the Breach Sump and a gravity feed ditch to the Till Borrow Pit to allow settling of suspended solids prior to the water being transferred to the Central Collection Sump. The red line on Figure 1 showing transport of water from the Till Borrow Pit to the TSF is contingency infrastructure that is being considered, but is not currently in place. |

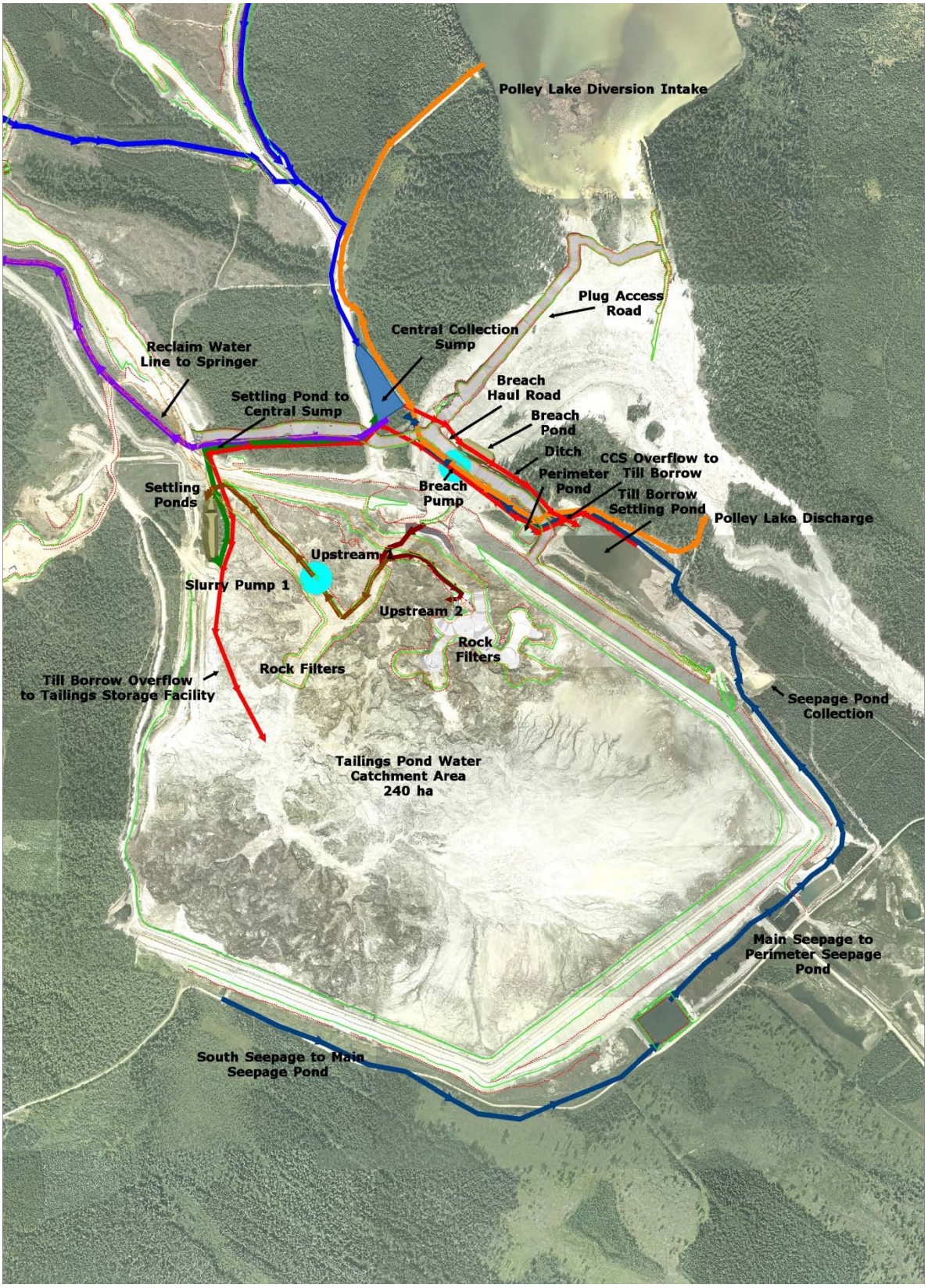



**Figure 1.** Tailings Storage Facility construction works

## Sediment and Erosion Control Measures

| | |
|---|---|
| **Silt Curtain** | The new Hazeltine Creek outflow channel from the sedimentation ponds into Quesnel Lake bypasses the silt curtain which is attached to the log boom at the mouth of Hazeltine Creek. It is anticipated that the sedimentation ponds will now carry out the role of removing suspended solids from the water column. The curtain is in good condition and will remain in place for the time being. |
| **Sediment Control Works (Lower Hazeltine)** | Current sediment and erosion control works underway at lower Hazeltine Creek (below the Ditch Road) include:<br>• Demobilization of the screener (Design Drawings in the Plan).<br>• Re-grading and landscaping of select areas (Sections 4 and 9 of the Plan).<br>• Installation and maintenance of sediment control measures including silt fences and straw bales (see Section 5 of the Plan).<br><br>Seepage from the lower sedimentation has been observed, and actions are being taken to mitigate this.<br><br>The temporary Edney Creek crossing has been removed. The pumps for the pump around system have been shut off and are being serviced. All flow from Edney is running through the new stabilized channel and is being collected in the sedimentation ponds. The fish exclusion fence is intact and functioning effectively. The Edney Creek work will re-commence after the holidays.<br><br>Environmental construction monitoring is occurring continuously during all activities. Elevated turbidity levels were detected during the removal of the temporary crossing in Edney Creek; however, all flows were diverted into the sedimentation ponds and the turbidity has since decreased. |
| **Sediment Control Works (Middle and Upper Hazeltine)** | Design work for a weir structure at the outlet of Polley Lake is in the final stages.<br><br>The proposed Polley Lake outflow channel continues to be excavated along the south end of the Plug Access Road. Tailings are being sent to the TSF and organic material is being stockpiled.<br><br>Plans for erosion control and restoration works are currently being discussed with Fisheries and Oceans and First Nations prior to implementation. |

**Water Quality Monitoring Program**

The maps on pages 1 – 9 of Figure 5 (attached) show locations that have been sampled as part of the water quality monitoring program. The table below is a summary of the current water quality monitoring program. The monitoring program also includes a sonde (datalogger) that is deployed in the Quesnel River at the Quesnel River Research Centre (site QUR-1). The sonde measures field parameters (pH, specific conductance, dissolved oxygen, and temperature) every 15 minutes.

Sampling on Quesnel Lake has been suspended due to winter conditions as of December 18th. This is consistent with previous plans communicated to the MOE. For this reason only one day of Quesnel Lake monitoring was completed this week (profiles at all sites except for QUL-112 were completed). All scheduled monitoring of the Quesnel River and Hazeltine Creek was completed this week.

Planned changes to the monitoring program:

- Sample results from QUR-1 have remained constant since mid-November. With consideration of this the sampling frequency at site QUR-1 will be reduced from daily to weekly starting the week of December 22nd, with supplemental sampling to be completed as required based on daily turbidity readings.

| Frequency | Area | Sample Locations |
|---|---|---|
| Daily | Quesnel River | QUR-1 |
| Weekly | Quesnel River | Samples and profiles: QUL-18, QUL-66a, QUL-79, QUL-112/QUL-112a<br>Profiles only: QUL-22, QUL-21a, QUL-18, QUL-66a, QUL-66, QUL-2a, QUL-79, QUL-40a, QUL-120/QUL-120a, QUL-112/112a |
| | Hazeltine Creek | HAC-01b, HAC-05 |

Figure 2 shows a time series graph of turbidity results from sample location QUR-1 on Quesnel River (at the Quesnel River Research Centre). All turbidity data is from laboratory analysis completed by ALS Environmental, except for data from December 20th to 22nd, which is from the continuous monitoring sonde.

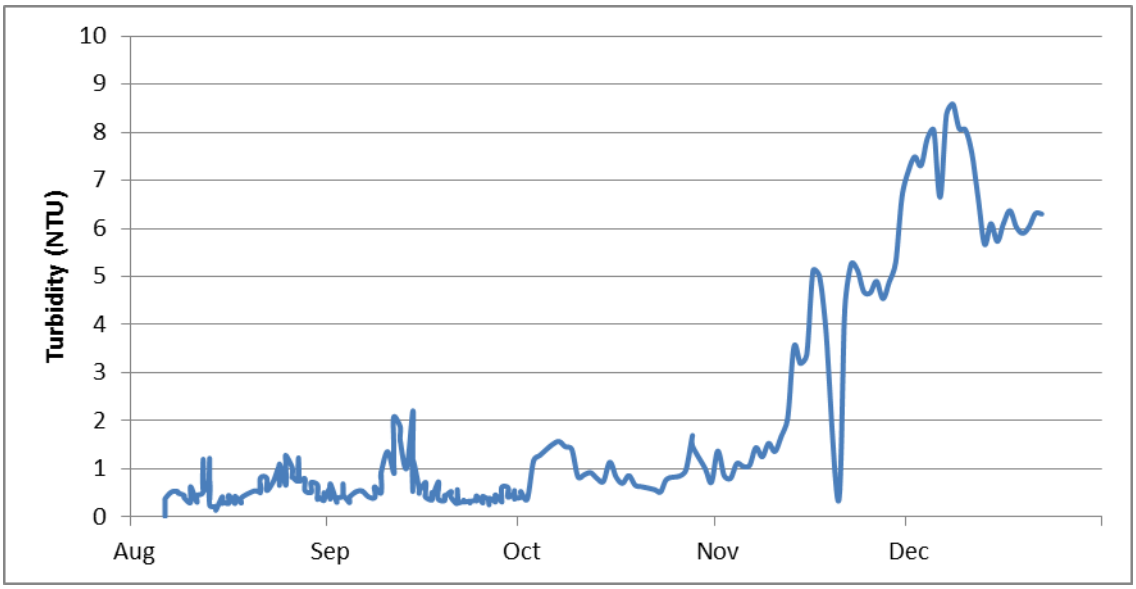



**Figure 2.** Turbidity time series at sample location QUR-1 (August 6th – December 22nd)

## Publication of Environmental Monitoring Results & Remediation Updates

Mount Polley will continue to present interpreted environmental monitoring results and updates on remediation work on the Mount Polley Updates page of the Imperial Metals website (www.imperialmetals.com). Recent updates include:

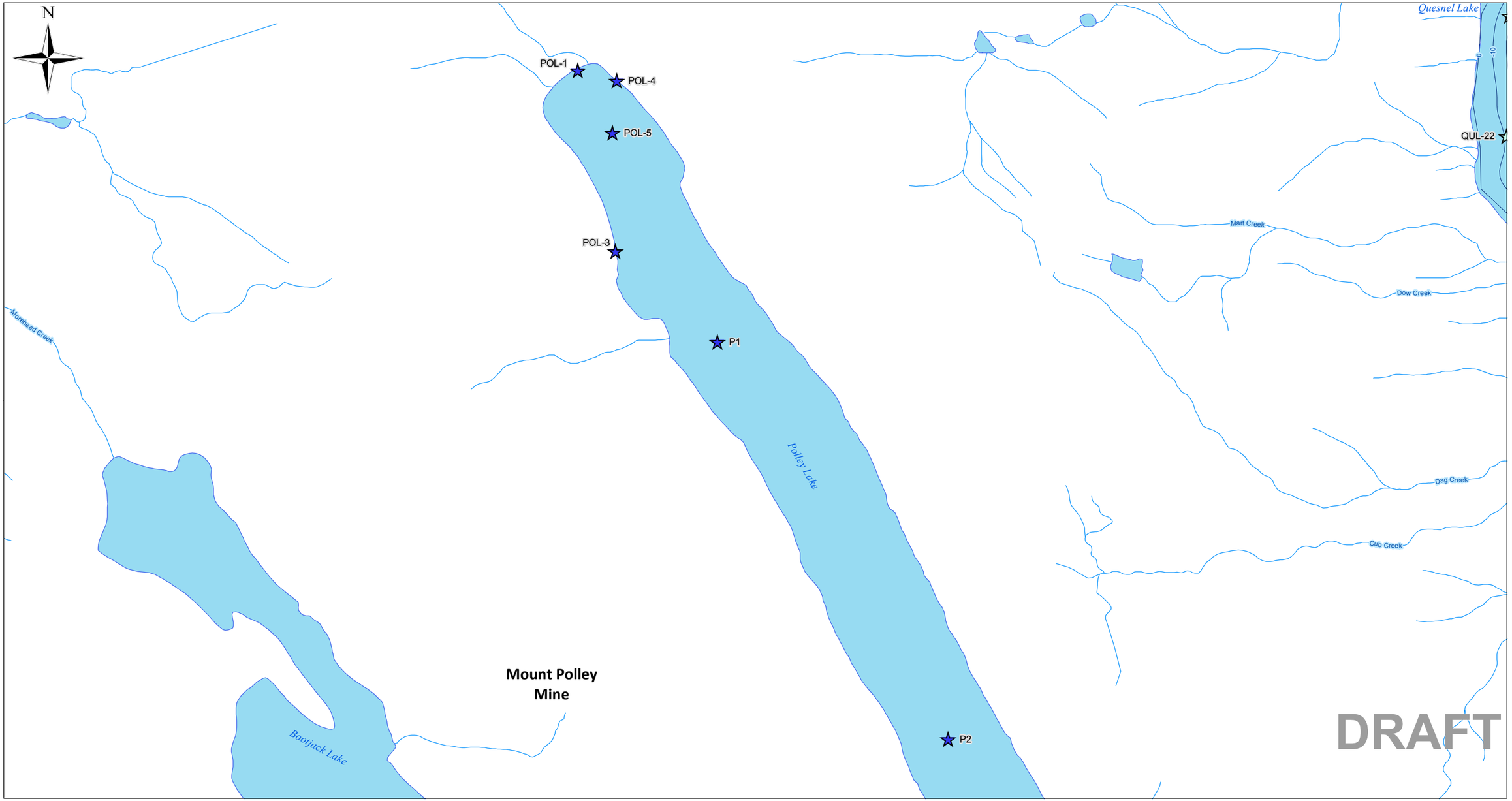
- A Community Update Bulletin providing information on recent water quality results and Hazeltine Creek restoration work (published December 17th)
- Preliminary Results of the Geochemistry of Exposed Tailings Along Hazeltine Creek (published December 17th)
- The news release Mount Polley Mine Supports Quesnel Lake Research, which provides information on a joint research project which involves the Ministry of Environment, Fisheries and Oceans Canada, and the research community (published December 12th)

It is anticipated that a report on aquatic toxicity findings from the water toxicity testing program will be published in the upcoming weeks.

## ATTACHMENTS

Drawings:

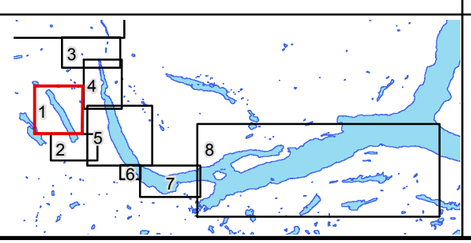
612717-005-P1 through 612717-005-P9: Current Monitoring Locations (Figure 5)




## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas




## NOTES

1. Original in colour.
2. Numerical scale reflects full-size print. Print scaling will distort this scale, however scale bar will remain accurate.
3. Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.

* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.

## REFERENCES

0 125 250 500 750 1,000 Meters

1. Data provided by Mount Polley Mining Corporation
2. Data downloaded from Data.Gov.BC.ca Data Distribution Service.
3. Orthophoto collected by McElhanney on August 5th, 2014

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| CLIENT NAME: | PROJECT LOCATION: |
|---|---|
| MPMC | Mount Polley Mine, British Columbia |

**Figure 5: Current Monitoring Locations**
**Page 1 of 9**

| BY: CJW | SCALE: 1:24,600 | DATE: 2014/12/03 | REF No: | REV: 7 |
|---|---|---|---|---|
| CHK'D: JL | PROJ COORD SYS: NAD 1983 UTM Zone 10N | | 621717-005-P1 | |

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MXD Path: P:\LOB\EIAM-BC\Current Projects\Mount Polley Mining Corporation\621717_Legally Privileged\4.0 Execution\4.5 GIS and Drawings\GIS\621717-005_SampleLocPlanSeries.mxd

N

POL-6

*Polley Lake*

POL-2

Booljack Creek

LDA

Hazeltine Creek

HAC03

HAC02

TAILINGS
STORAGE
FACILITY AREA

Breach-01

HAD-1

HAD-2

HAC04

Hazeltine Creek

HAC07

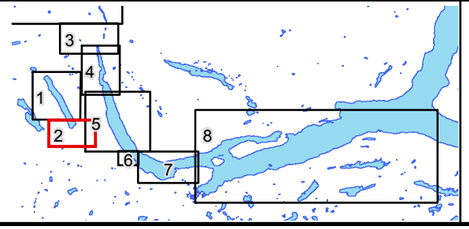
HAC05



## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas
- New Hazeltine Creek Channel (Approximate)

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## REFERENCES

0 70 140 280 420 560 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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| | |
|---|---|
| CLIENT NAME: MPMC | PROJECT LOCATION: Mount Polley Mine, British Columbia |

# Figure 5: Current Monitoring Locations
## Page 2 of 9

| | | | |
|---|---|---|---|
| BY: CJW | SCALE: 1:13,800 | DATE: 2014/12/03 | REF No: 621717-005-P2 REV: 7 |
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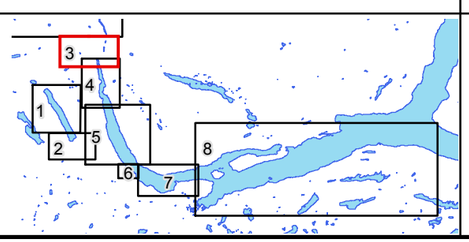
## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas

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## REFERENCES

0 80 160 320 480 640 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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| CLIENT NAME: | PROJECT LOCATION: |
|---|---|
| MPMC | Mount Polley Mine, British Columbia |

**Figure 5: Current Monitoring Locations**
**Page 3 of 9**

| BY: CJW | SCALE: 1:16,200 | DATE: 2014/12/03 | REF No: 621717-005-P3 REV: 7 |
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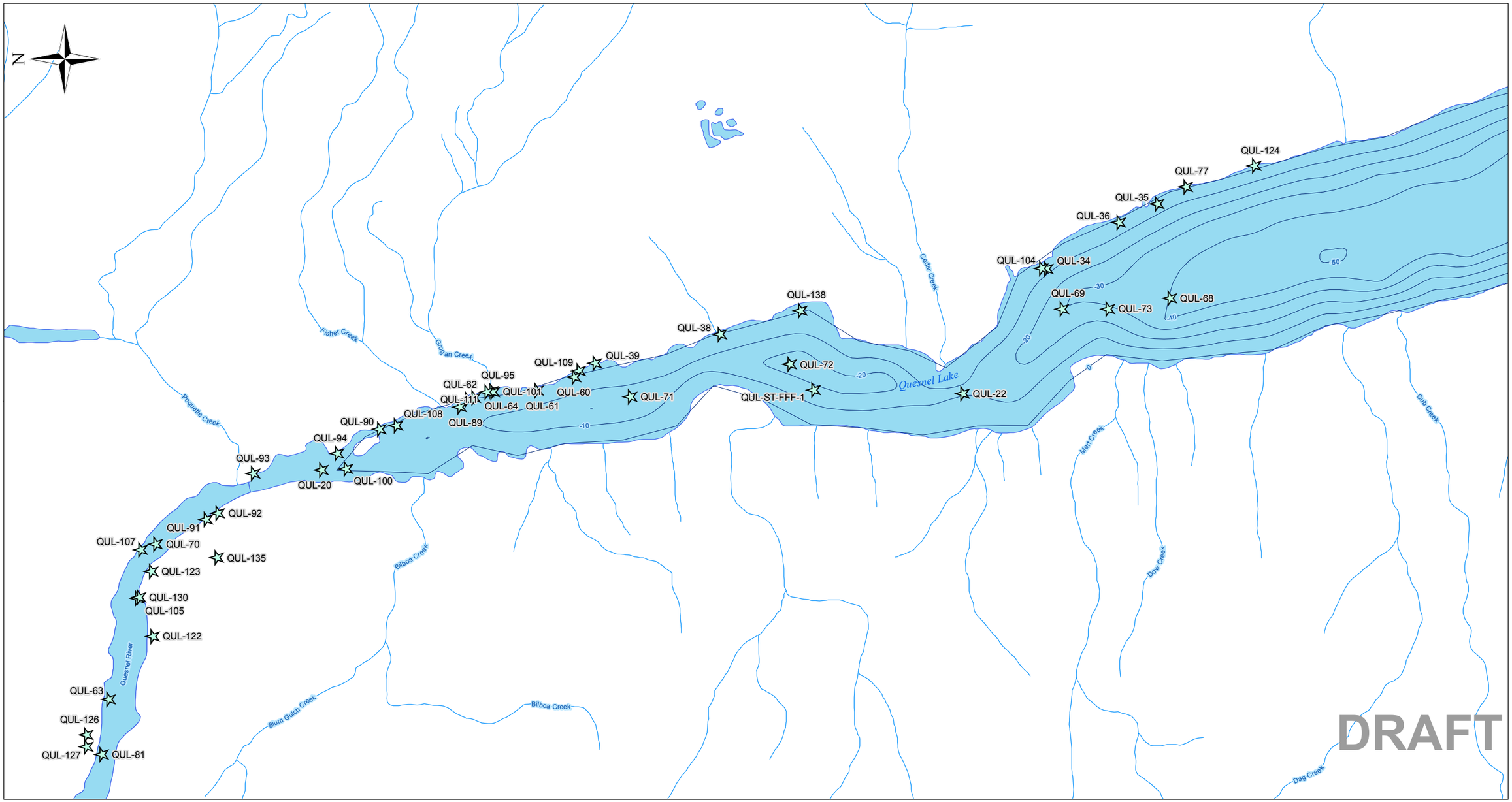
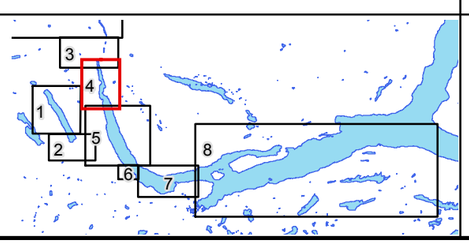



## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas

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## REFERENCES

0 100 200 400 600 800 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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**Figure 5: Current Monitoring Locations**
**Page 4 of 9**

| BY: CJW | SCALE: 1:19,900 | DATE: 2014/12/03 | REF No: | REV: 7 |
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N

QUL-124

Nina Lake

Dag Creek

Cub Creek

Cedar Creek

Cedar Creek

Cedar Creek

Boswell Lake

Cedar Creek

QUL-21

Polley Lake

P2

QUL-21a

Quesnel Lake

Deerlet Creek

Wickley Creek

POL-2

POL-6

QUL-67

QUL-65

Boojack Creek

LDA

HAC02

HAC03

HAD-1

HAD-2

HAC04

Breach-01

QUL-18

Hazeltine Creek

HAC07

HAC05

Meadowy Creek

Raft Creek

QUL-66a

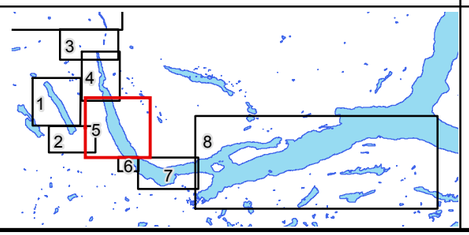
QUL-10

DRAFT

## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas
- New Hazeltine Creek Channel (Approximate)

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## REFERENCES

0 160 320 640 960 1,280 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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|---|---|
| CLIENT NAME: MPMC | PROJECT LOCATION: Mount Polley Mine, British Columbia |

# Figure 5: Current Monitoring Locations
## Page 5 of 9

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|---|---|---|---|
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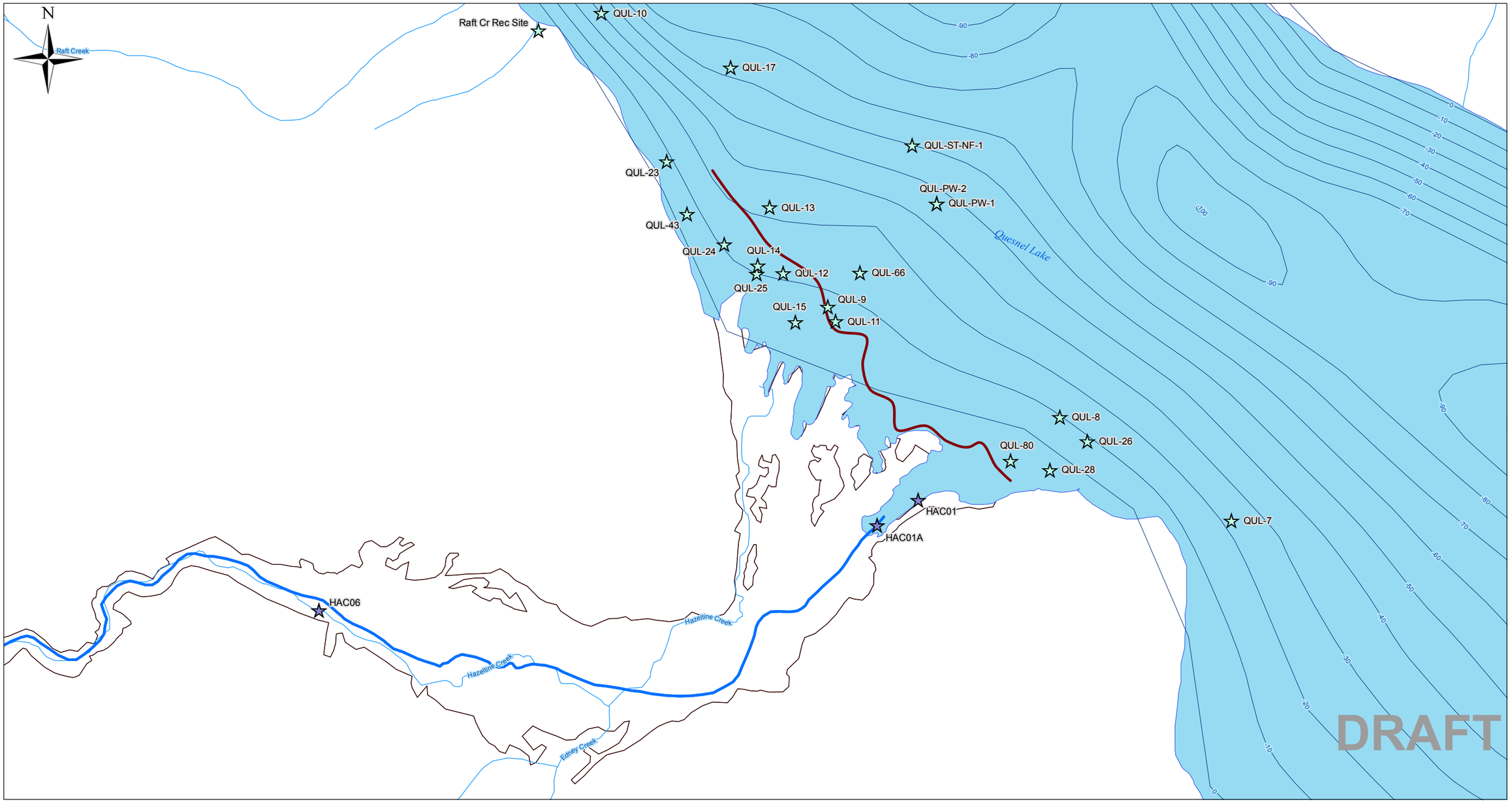
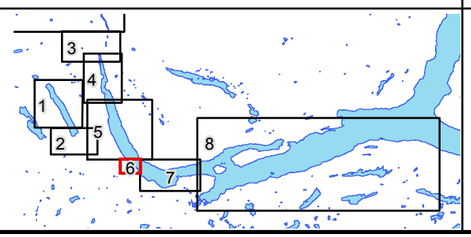



## LEGEND

**Surface Water Sampling Locations**

- Hazeltine Creek
- Polley Lake
- Quesnel Lake
- Other Areas
- Silt Curtain/Log Boom

New Hazeltine Creek Channel (Approximate)

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## REFERENCES

0 37.5 75 150 225 300 Meters

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2. Data downloaded from Data.Gov.BC.ca Data Distribution Service.
3. Orthophoto collected by McElhanney on August 5th, 2014

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| | |
|---|---|
| CLIENT NAME: MPMC | PROJECT LOCATION: Mount Polley Mine, British Columbia |

**Figure 5: Current Monitoring Locations**
**Page 6 of 9**

| | | | |
|---|---|---|---|
| BY: CJW | SCALE: 1:7,500 | DATE: 2014/12/03 | REF No: REV: 7 |
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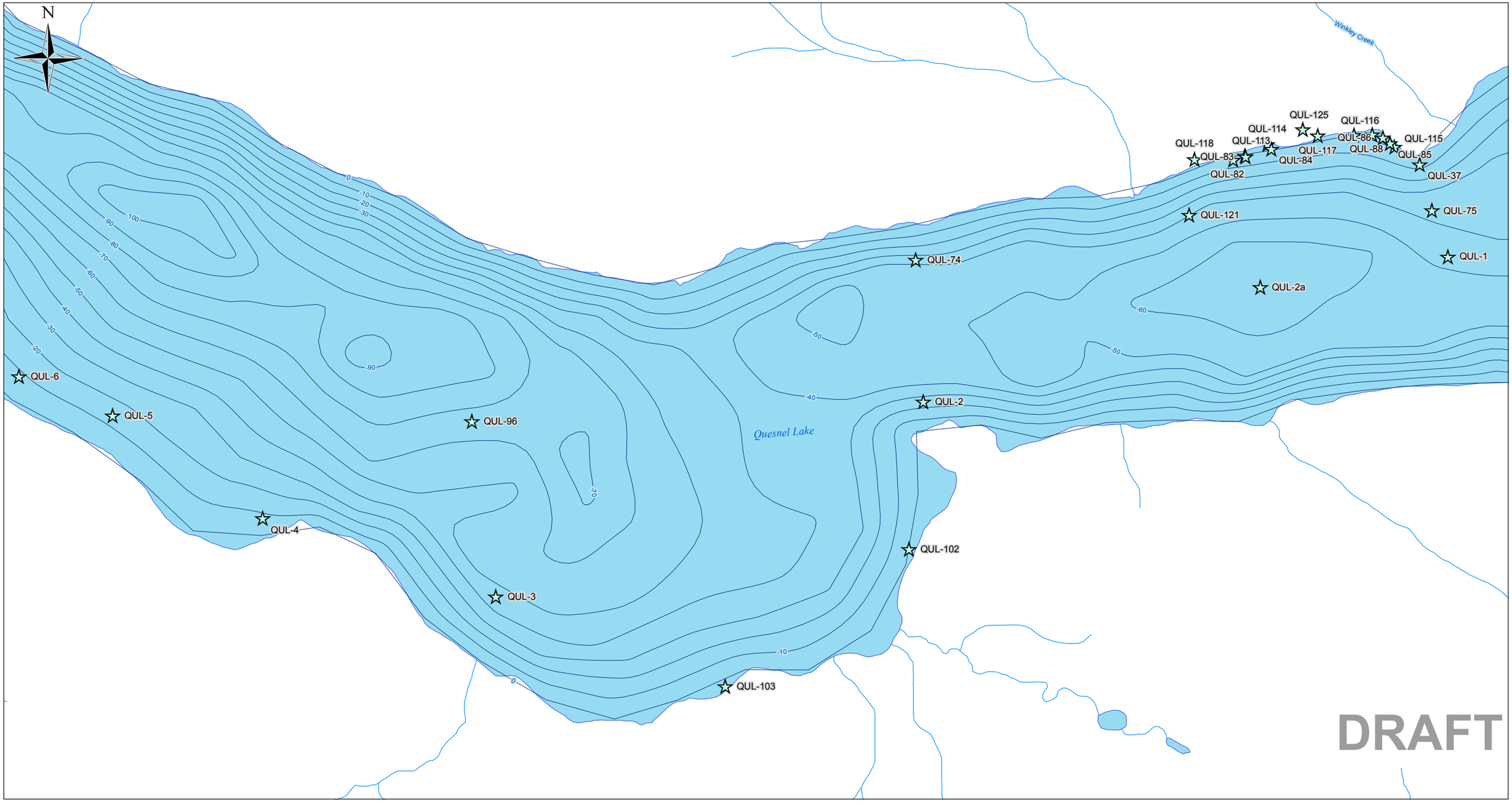


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**Surface Water Sampling Locations**

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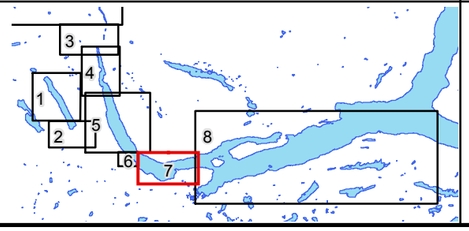


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0 85 170 340 510 680 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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| CLIENT NAME: | PROJECT LOCATION: |
|---|---|
| MPMC | Mount Polley Mine, British Columbia |

**Figure 5: Current Monitoring Locations**
**Page 7 of 9**

| BY: CJW | SCALE: 1:16,600 | DATE: 2014/12/03 | REF No: REV: 7 |
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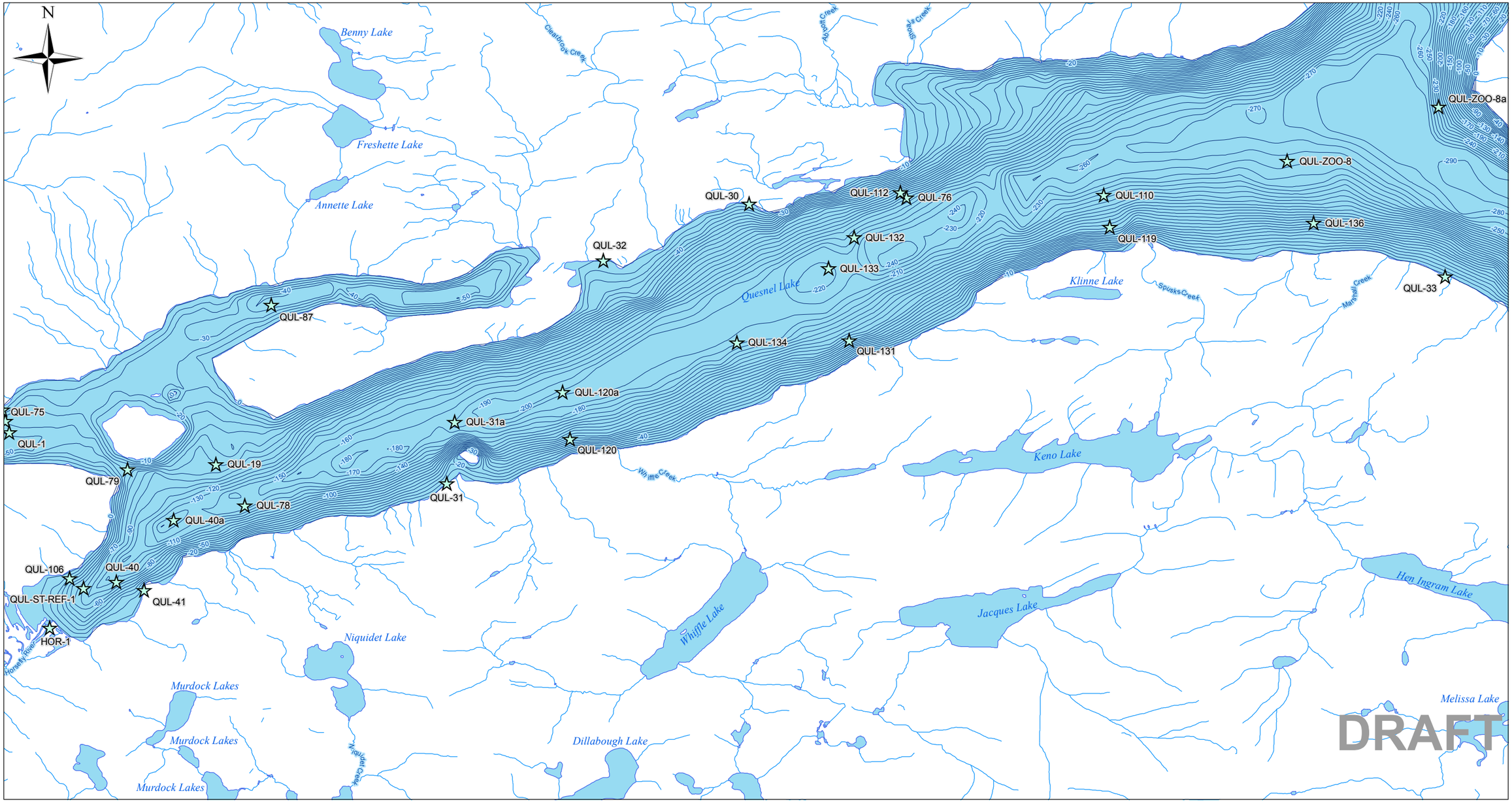


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**Surface Water Sampling Locations**

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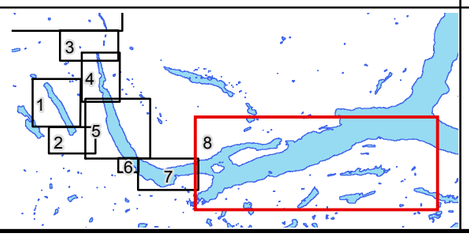


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## REFERENCES

0 340 680 1,360 2,040 2,720 Meters

1. Data provided by Mount Polley Mining Corporation
2. Data downloaded from Data.Gov.BC.ca Data Distribution Service.
3. Orthophoto collected by McElhanney on August 5th, 2014

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| CLIENT NAME: | PROJECT LOCATION: |
|---|---|
| MPMC | Mount Polley Mine, British Columbia |

# Figure 5: Current Monitoring Locations
## Page 8 of 9

| BY: CJW | SCALE: 1:66,800 | DATE: 2014/12/03 | REF No: | REV: 7 |
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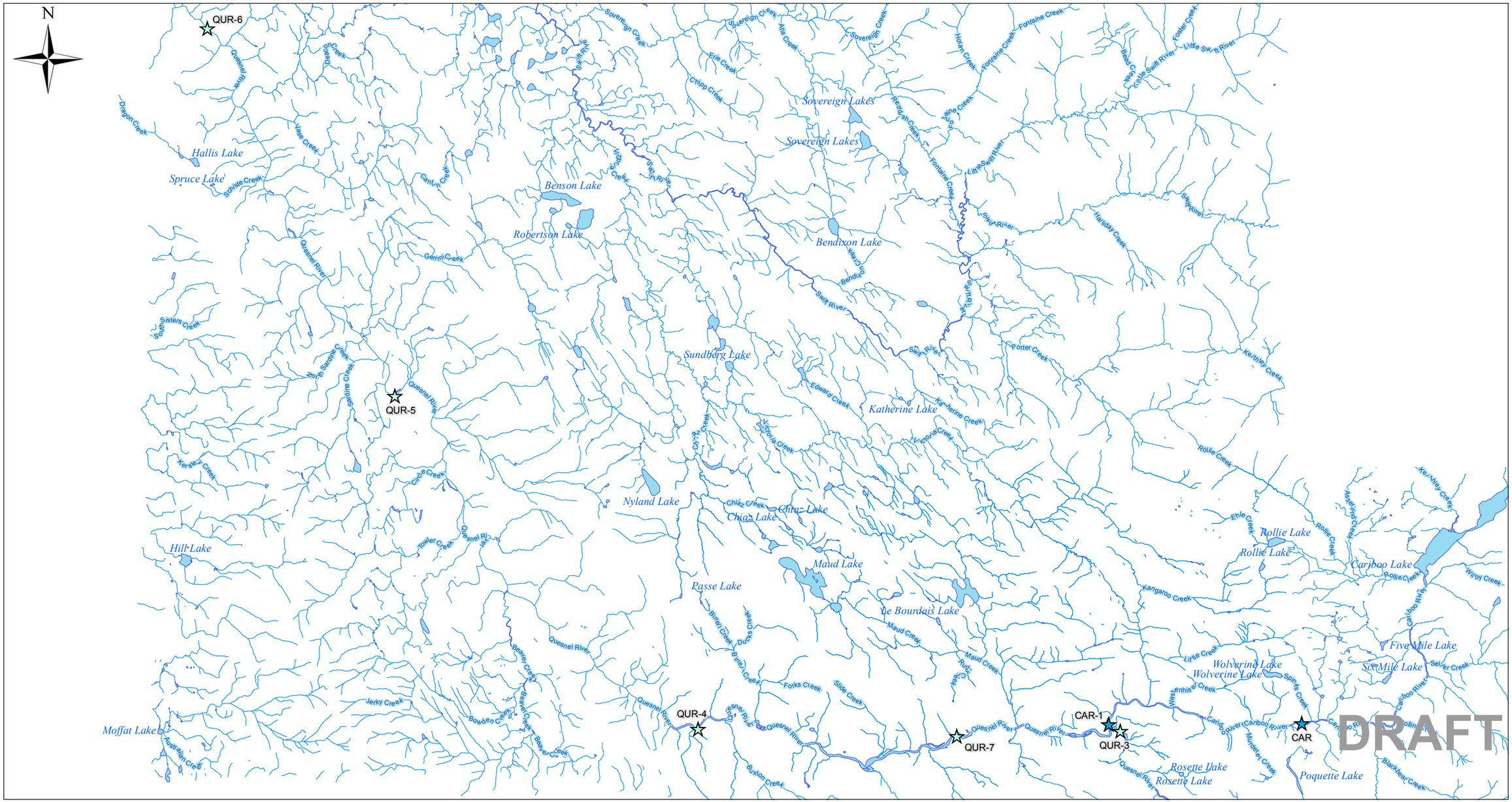


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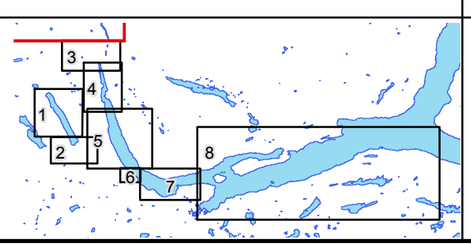


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0 1,000 2,000 4,000 6,000 8,000 Meters

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3. Orthophoto collected by McElhanney on August 5th, 2014

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| CLIENT NAME: | PROJECT LOCATION: |
|---|---|
| MPMC | Mount Polley Mine, British Columbia |

# Figure 5: Current Monitoring Locations
## Page 9 of 9

| BY: CJW | SCALE: 1:195,400 | DATE: 2014/12/03 | REF No: 621717-005-P9 REV: 7 |
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