



FINAL REPORT

**A REVIEW OF ONTARIO'S WATER QUANTITY  
MANAGEMENT FRAMEWORK:  
WATER QUANTITY STUDY AREA REPORT**

**Appendix A – Part 4**

Prepared for:

**Government of Ontario**  
**Ministry of the Environment, Conservation and Parks**  
Standards Development Branch  
7<sup>th</sup> Floor, 40 St Clair Avenue West  
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**BluMetric Environmental Inc.**  
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Project Number: 180107-06  
Submission Date: 28 March 2019

**This report has been separated in 5 sections for internet posting.**

## **REPORT BODY AND APPENDIX C**

### **APPENDIX A - PART 1**

- FIGURES for Guelph – Centre Wellington, Orangeville and Norfolk Sand Plain Water Quantity Study Areas

### **APPENDIX A - PART 2**

- FIGURES for Innisfil And Whitemans Creek Water Quantity Study Areas

### **APPENDIX A - PART 3**

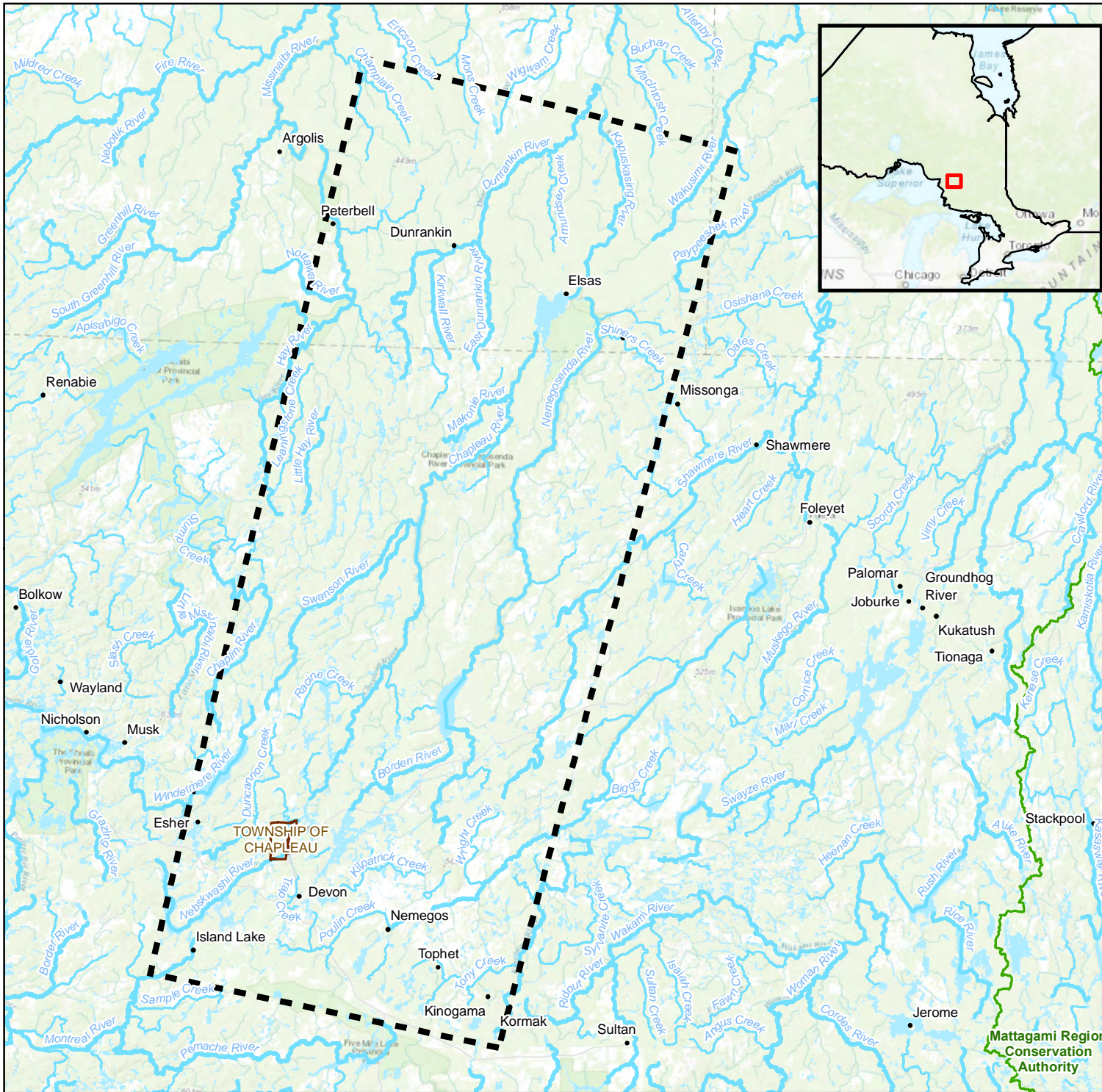
- FIGURES for Quinte Water Quantity Study Area

### **APPENDIX A - PART 4**

- FIGURES for Chapleau Water Quantity Study Area

Appendix B has been removed from the posted report in accordance with privacy requirements.

**(Inserted by the Ministry of the Environment, Conservation and Parks, June 2020)**



**LEGEND**

- Preliminary Water Quantity Study Area (WQSA)
- Municipalities
- Conservation Authority
- Major Watercourse
- Watercourse

1				
REV	DESCRIPTION	YY/MM/DD	BY	CHK

**REFERENCES**  
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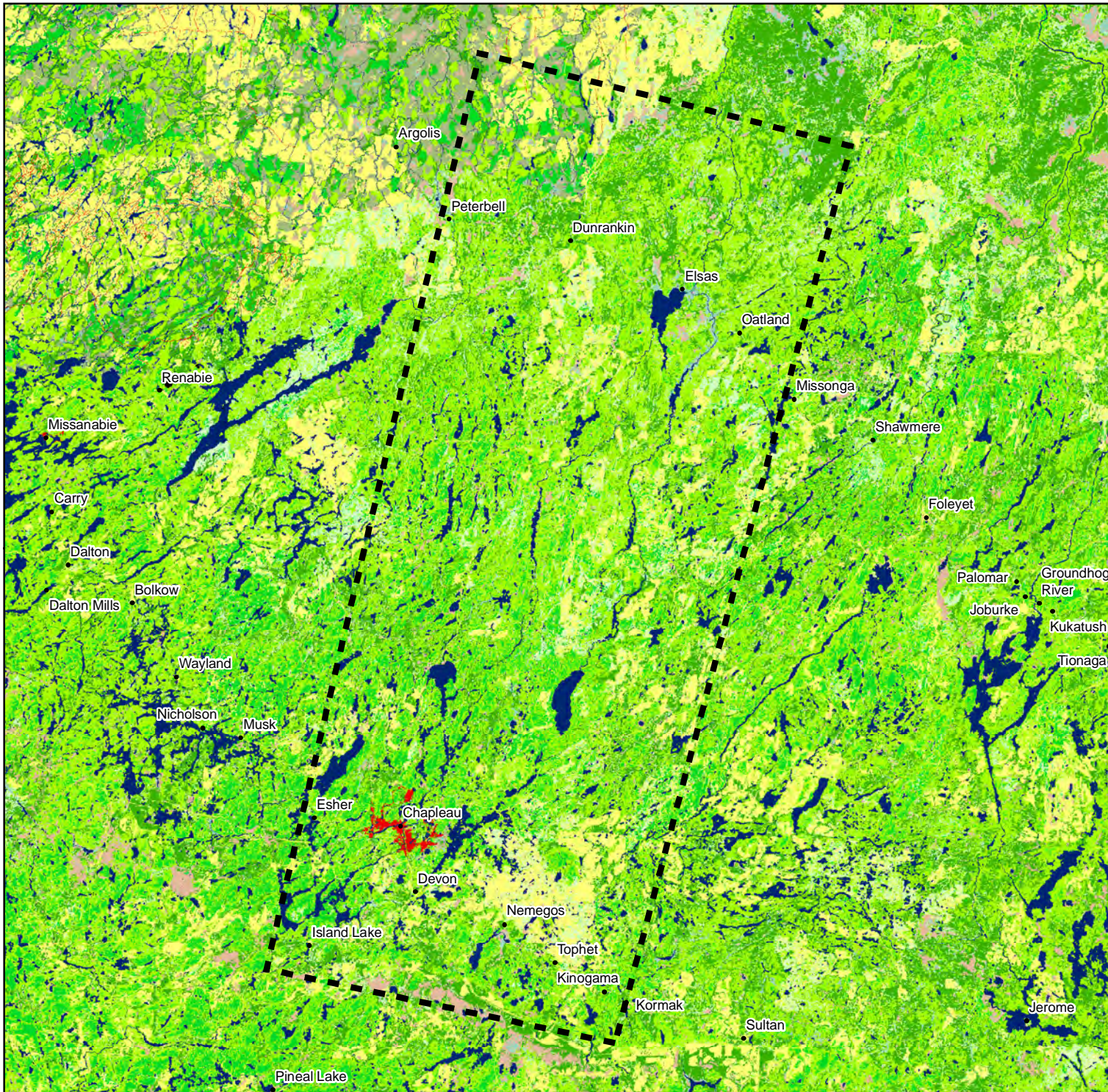
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapeau Water Quantity Study Area Boundary

171 Victoria St. N.,  
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<b>PROJECT #</b> 180107-06	<b>DATE</b> January 11, 2019		
<b>DRAWN</b> KH	<b>CHECKED</b> HH/FAR	<b>FIG NO.</b> 10-1	<b>REV</b> 0



**LEGEND**

- Preliminary Water Quantity Study Area (WQSA)
- 99 - Other
- 9 - Cloud/Shadow
- 1 - Clear Open Water
- 5 - Marsh
- 6 - Swamp
- 7 - Fen
- 8 - Bog
- 11 - Sparse Treed
- 13 - Deciduous Treed
- 14 - Mixed Treed
- 15 - Coniferous Treed
- 18 - Disturbance
- 25 - Sand/Gravel/Mine Tailings/Extraction
- 26 - Bedrock
- 27 - Community/Infrastructure

1				
REV	DESCRIPTION	YY/MM/DD	BY	CHK

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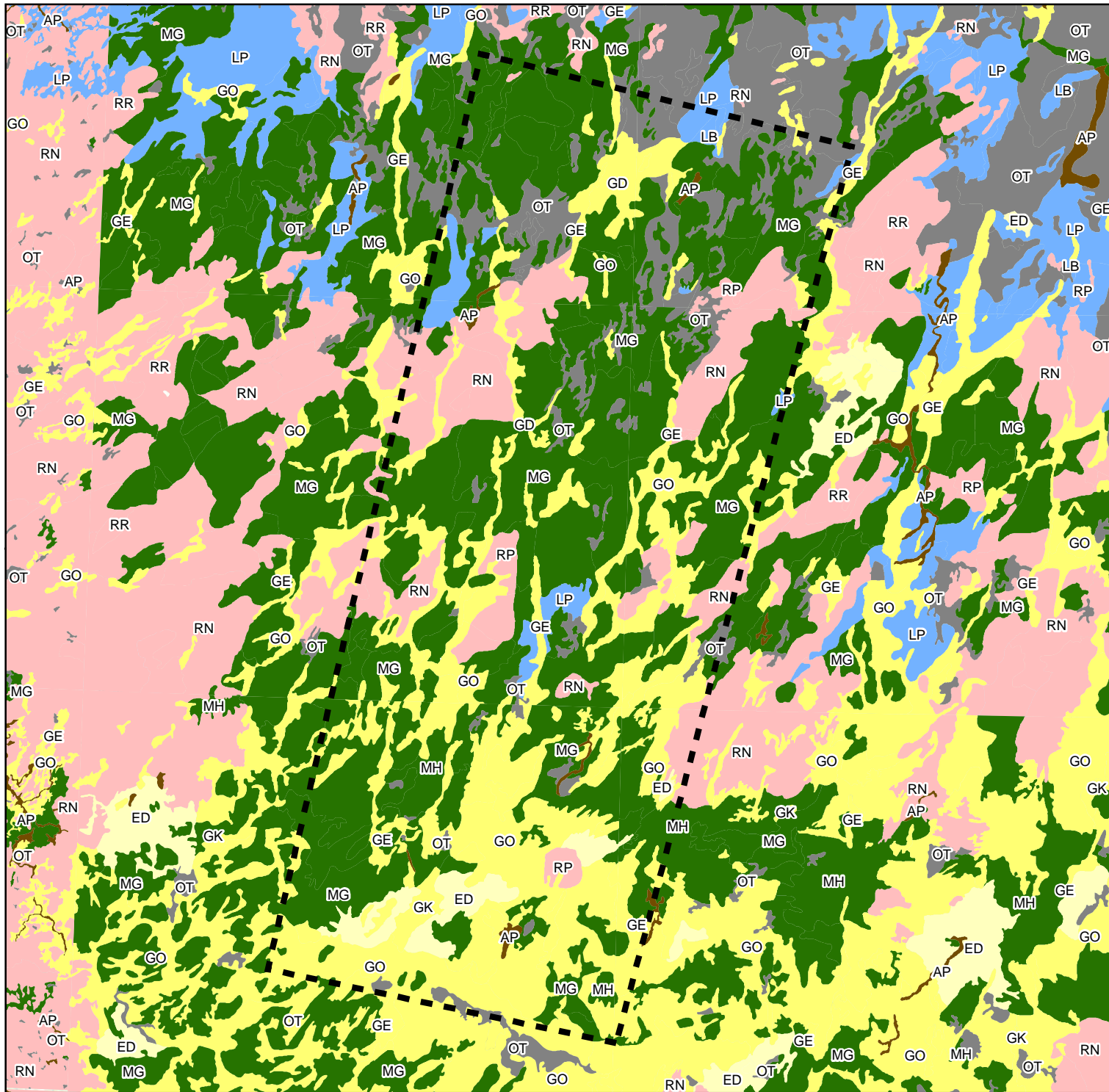
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapleau Land Cover

171 Victoria St. N.,  
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**LEGEND**

▬ Preliminary Water Quantity Study Area (WQSA)

**Physiography (MNDM File - MRD160)**

- MG: Ground moraine
- MH: Hummocky moraine
- GD: Ice contact delta
- GE: Esker
- GK: Kame
- GO: Outwash plain
- LB: Raised beach
- LP: Glaciolacustrine plain
- AP: Alluvial
- ED: Sand dunes
- OT: Organics
- RN: Bedrock knob
- RP: Bedrock plain
- RR: Bedrock ridge

1				
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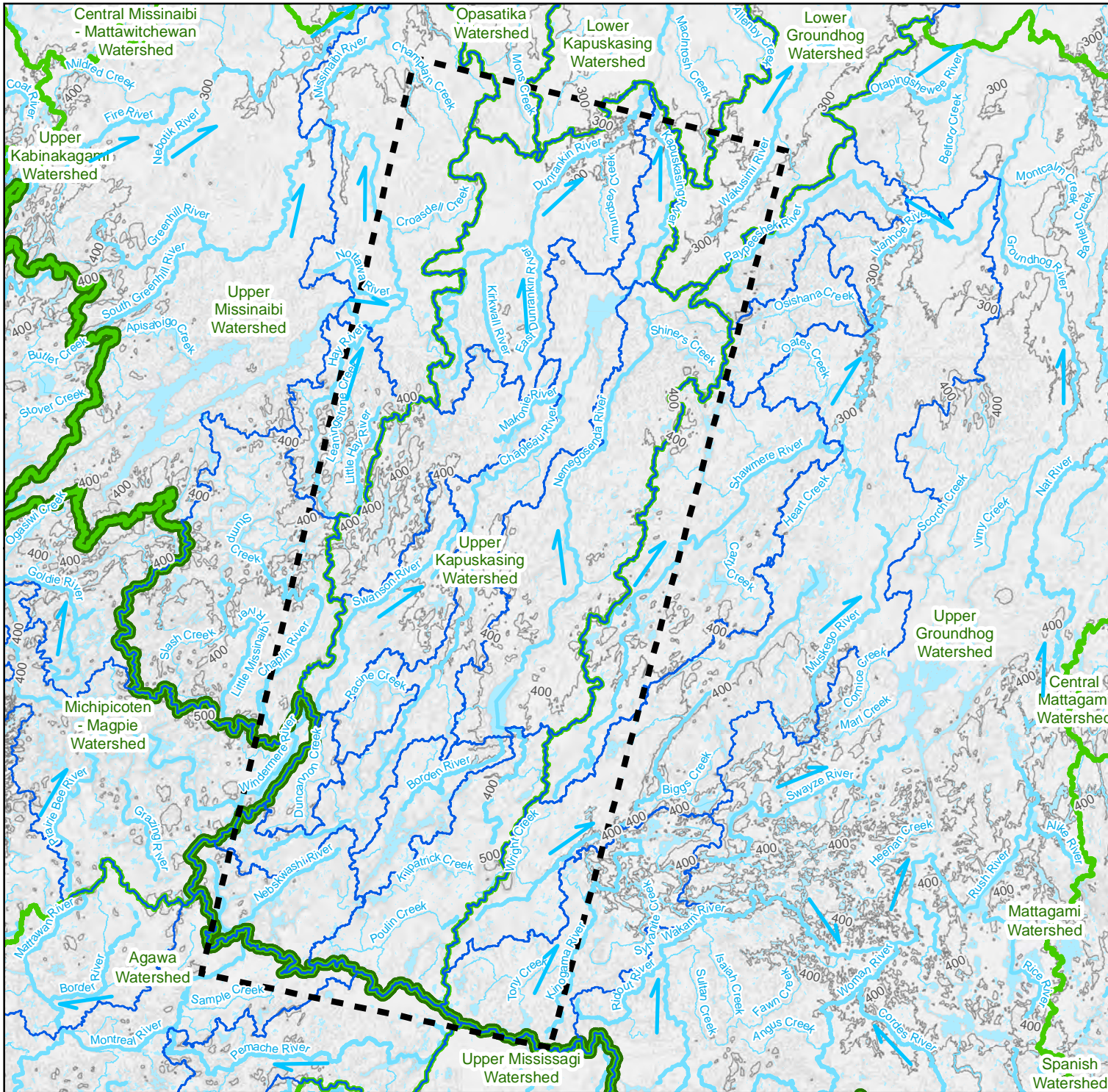
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapeau Regional Physiography

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**LEGEND**

- Preliminary Water Quantity Study Area (WQSA)
- Watershed Boundaries
- Tertiary Watershed
- Primary Watershed
- Major Water Course and Flow Direction
- Watercourse

**Elevation Contours**

- 20 m
- 100 m

1					
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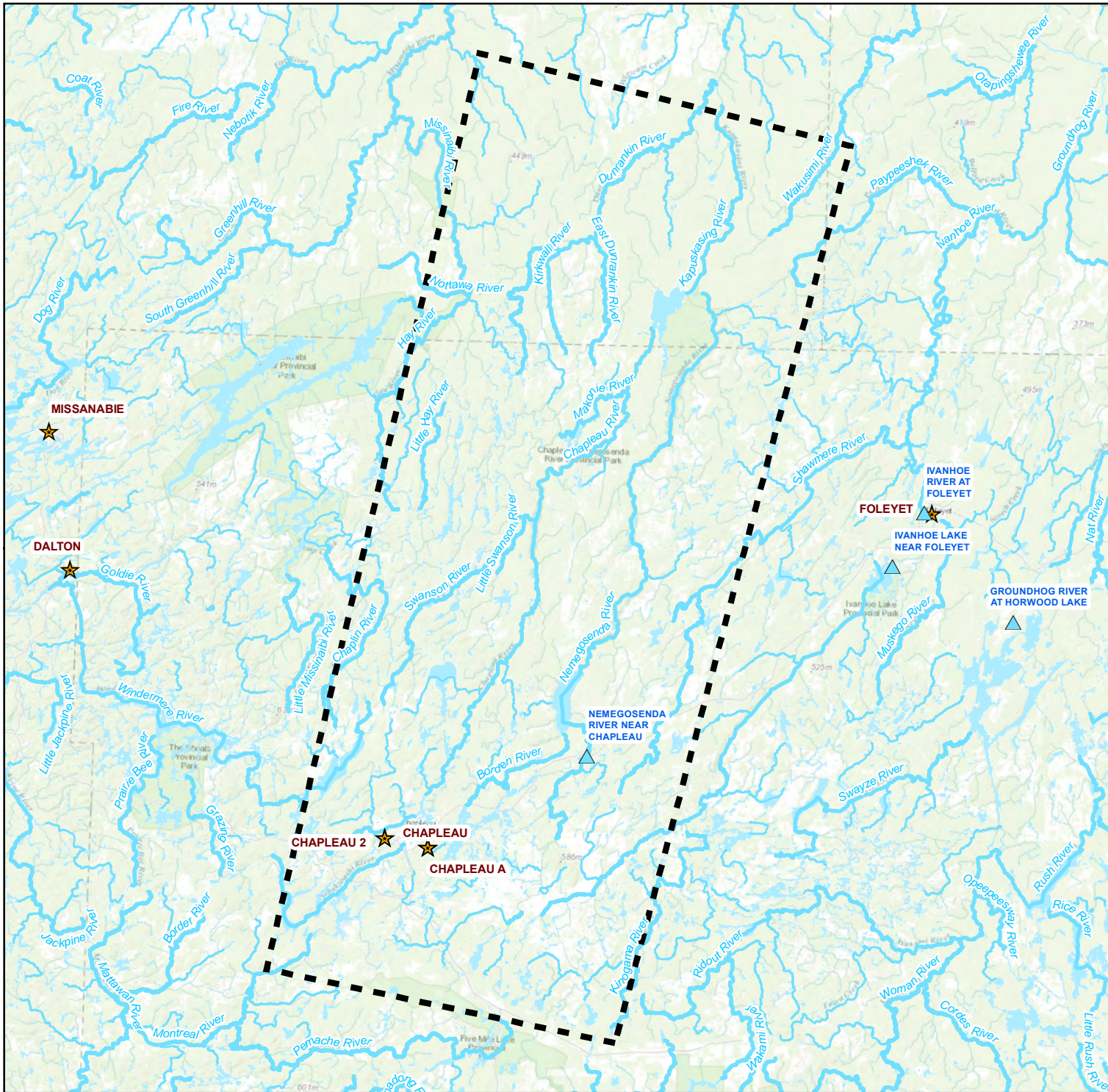
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapeau Regional Topography and Hydrology

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<b>DRAWN</b> KH	<b>CHECKED</b> HH/FAR	<b>FIG NO.</b> 10-4	<b>REV</b> 0



**LEGEND**

- Preliminary Water Quantity Study Area (WQA)
- Provincial Groundwater Monitoring Network Wells
- HYDAT Stations
- Weather Stations
- Major Watercourse
- Watercourse

1				
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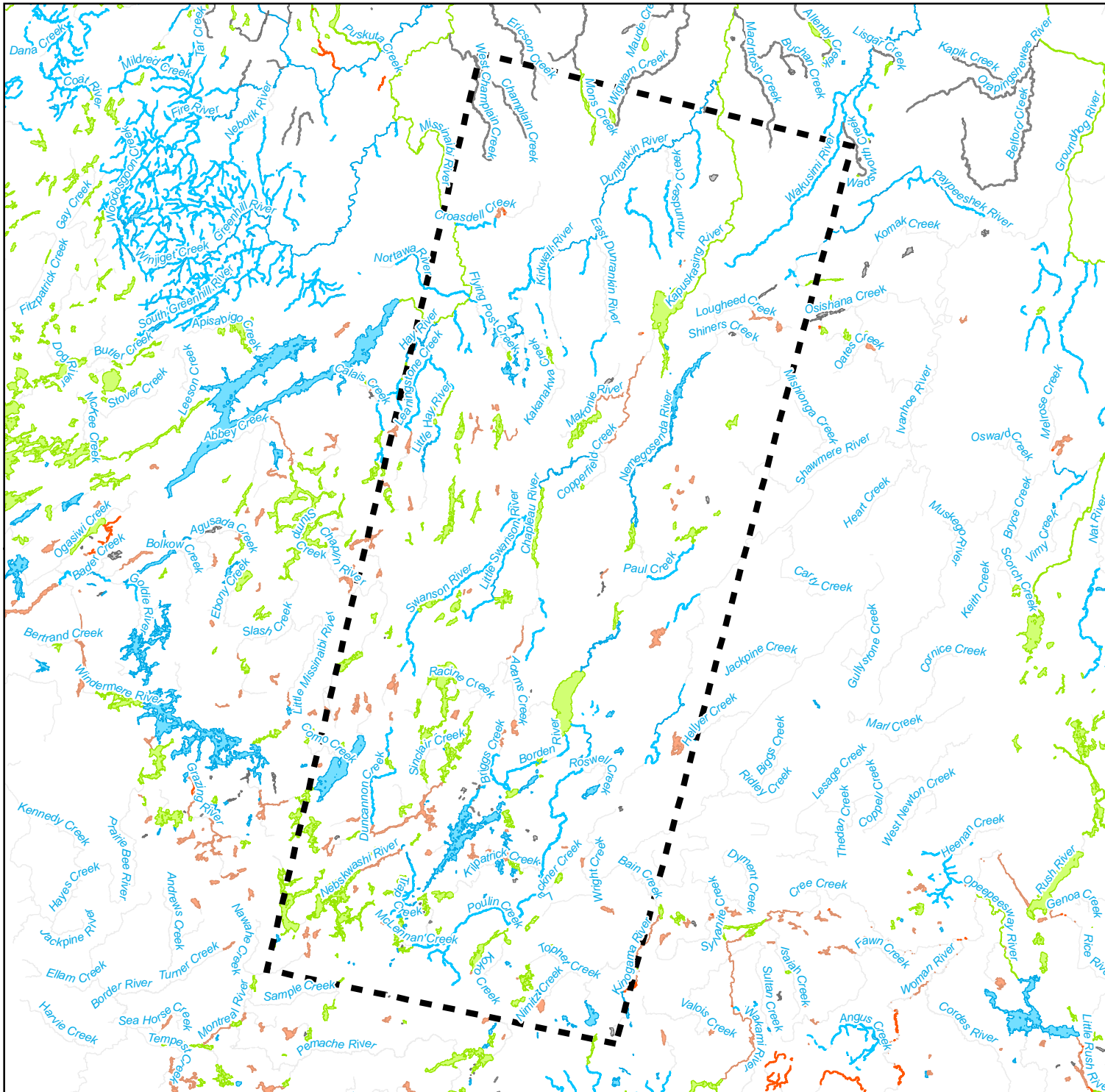
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapeau Meteorological Stations

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<b>DRAWN</b> KH	<b>CHECKED</b> RH	<b>FIG NO.</b> 10-5	<b>REV</b> 0



**LEGEND**

Preliminary Water Quantity Study Area

**Thermal Regime**

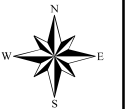
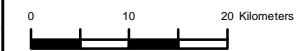
Unknown  
 Cold  
 Cool  
 Warm

**Thermal Regime**

Unknown  
 Cold  
 Cool  
 Warm

1				
REV	DESCRIPTION	YY/MM/DD	BY	CHK

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**PROJECT**

Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**

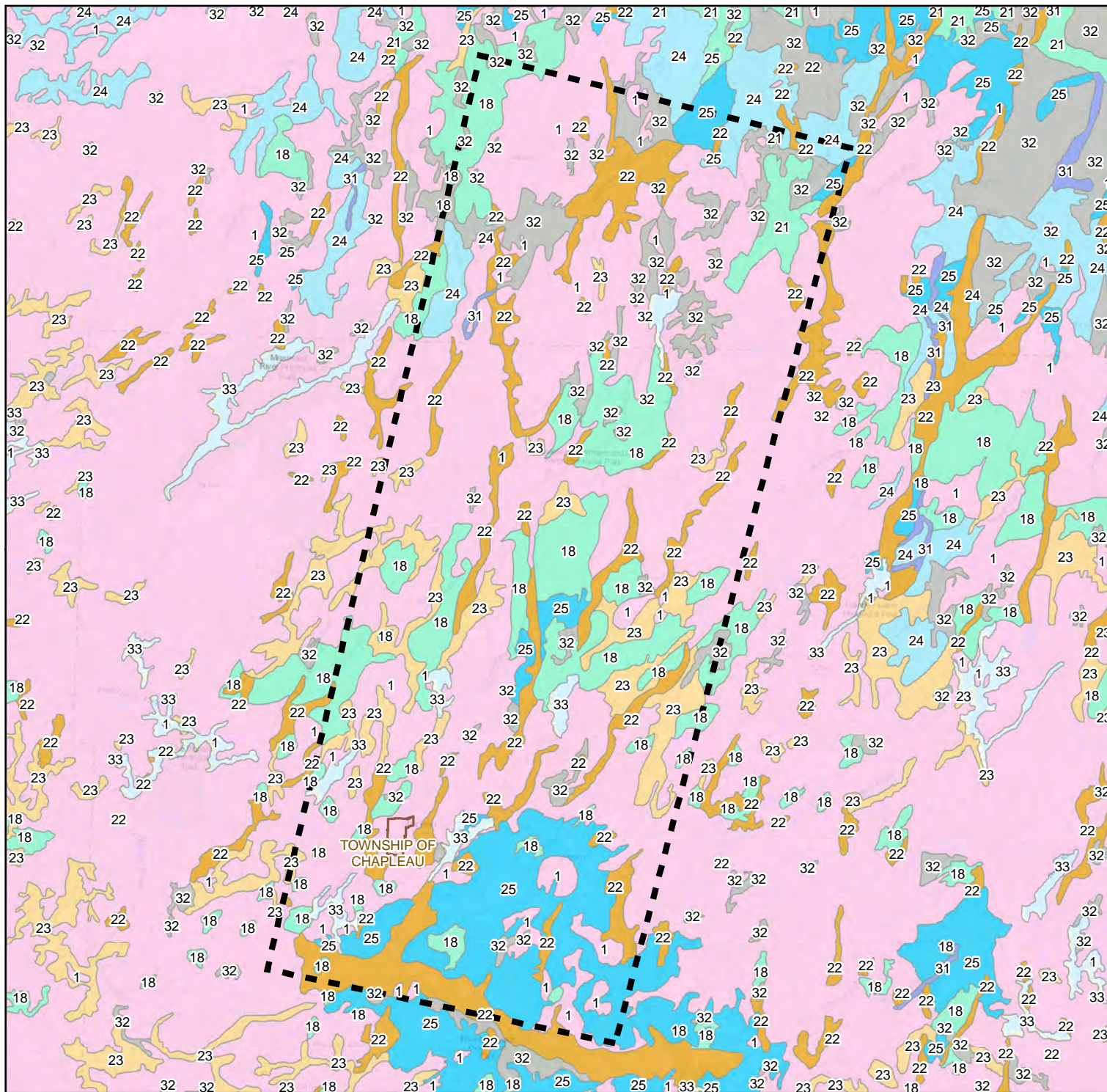
Chapeau Aquatic Thermal Regions



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<b>DRAWN</b> KH	<b>CHECKED</b> HH/FAR	<b>FIG NO.</b> 10-6	<b>REV</b> 0





**LEGEND**

Preliminary Water Quantity Study Area (WQSA)

**Surficial Geology (MNDM OGSEarth Quaternary Geology)**

- 1: Precambrian bedrock - undifferentiated igneous and metamorphic rock, exposed at surface or covered by discontinuous, thin layer of drift
- 18: Till - undifferentiated, predominantly sand to silty to silt matrix, commonly rich in clasts, often low in matrix carbonate content
- 21: Till - undifferentiated, fine grained, predominantly silty clay to silt matrix, commonly clast poor, high matrix carbonated content
- 22: Glaciofluvial ice-contact deposits - gravel and sand minor till includes esker, kame, end moraine, ice-marginal delta and subaqueous fan deposits
- 23: Glaciofluvial outwash deposits - gravel and sand includes proglacial river and deltaic deposits
- 24: Glaciomarine deposits - silt and clay, minor sand basin and quiet water deposits
- 25: Glaciomarine deposits - sand, gravelly sand and gravel nearshore and beach deposits
- 31: Fluvial deposits - gravel, sand, silt and clay deposited on modern flood plains
- 32: Organic deposits - peat, muck and marl

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1				

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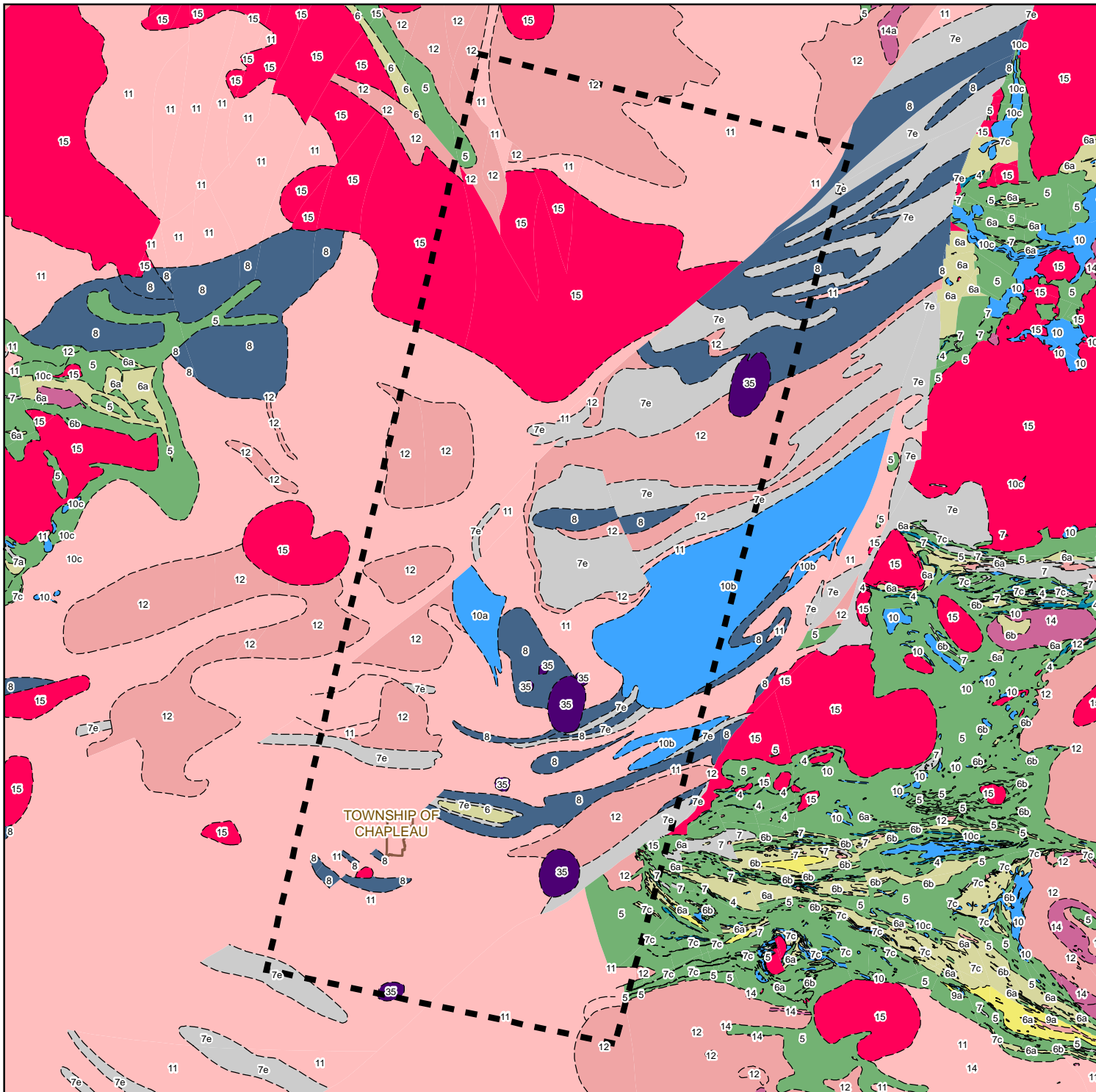
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapleau Surficial Geology

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- LEGEND**
- Preliminary Water Quantity Study Area (WOSA)
  - Contact, Sharp, Trend, Interpreted
  - 4 - Mafic metavolcanic and basaltic rocks with minor komatiitic flows, metasedimentary and gneissic rocks
  - 5 - Basaltic and andesitic flows, tufts and breccias, chert, iron formation, minor metasedimentary and intrusive rocks, related migmatites
  - 5b - Basaltic and andesitic flows, tufts and breccias
  - 6 - Rhyolitic, rhyodacitic, dacitic and andesitic flows, tufts and breccias, chert, iron formation, minor metasedimentary and intrusive rocks; related migmatites
  - 6a - Dacitic and andesitic flows, tufts and breccias
  - 6b - Rhyolitic, rhyodacitic, tufts and breccias
  - 7 - Wacke, siltstone, arkose, argillite, slate, mudstone, marble, chert, iron formation, minor metavolcanic rocks, conglomerate, arenite, paragneiss, migmatites
  - 7a - Wacke, siltstone, arkose
  - 7c - Marble, chert, iron formation, minor metavolcanic rocks
  - 7e - Paragneiss and migmatites
  - 8 - Metavolcanic rocks, minor metasedimentary rocks, mafic gneisses of uncertain protolith, granitic gneisses
  - 9a - Metasedimentary rocks: conglomerate, arkose, arenite, wacke, sandstone, siltstone, argillite
  - 9b - Alkaline metavolcanic rocks: mafic to felsic metavolcanic flows, tufts and breccias
  - 10 - Gabbro, anorthosite, ultramafic rocks
  - 10a - Gabbro
  - 10b - Anorthosite
  - 10c - Ultramafic rocks
  - 11 - Tonalite to granodiorite - foliated to gneissic - with minor supracrustal inclusions
  - 12 - Tonalite to granodiorite - foliated to massive
  - 14 - Diorite, quartz diorite, minor tonalite, monzonite, granodiorite, syenite and hypabyssal equivalents
  - 14a - Diorite, monzonite, quartz monzonite
  - 14b - Granodiorite, granite
  - 15 - Massive to foliated granodiorite to granite
  - 35 - Alkaline syenite, ijolite, nepheline syenite, fenite, associated mafic and ultramafic rocks, and minor carbonite

REV	DESCRIPTION	YY/MM/DD	BY	CHK
1				

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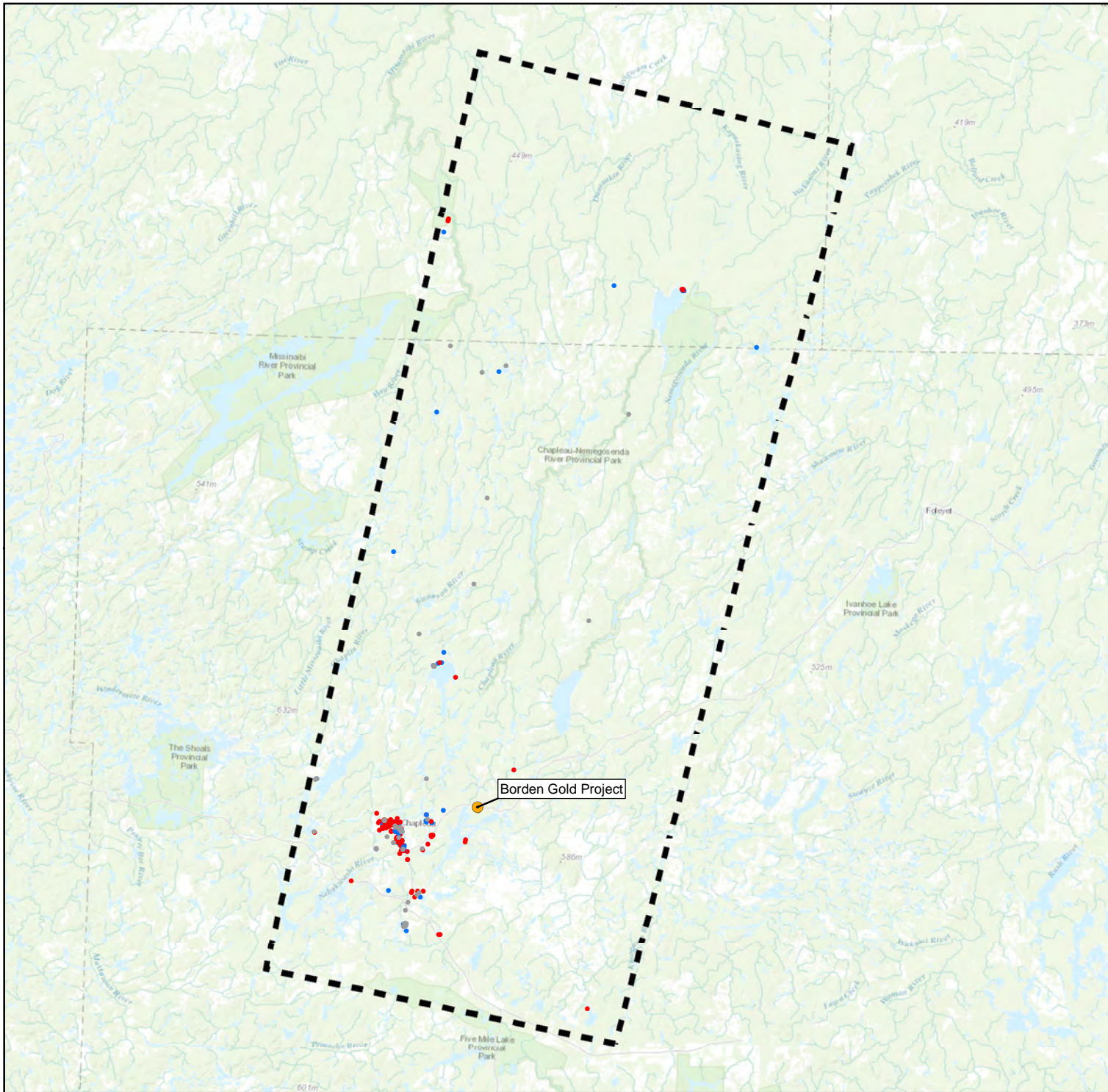
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapleau Bedrock Geology

171 Victoria St. N.,  
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<b>PROJECT #</b> 180107-06		<b>DATE</b> January 11, 2019	
<b>DRAWN</b> KH	<b>CHECKED</b> HH/FAR	<b>FIG NO.</b> 10-8	<b>REV</b> 0



**LEGEND**

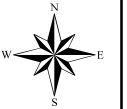
- Bedrock Well
- Overburden Well
- Unknown Well Type
- ◆ Provincial Groundwater Monitoring Network Wells

**Wellhead Protection**

- A
- B
- C
- C1
- D
- F
- Preliminary Water Quantity Study Area

1				
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**CLIENT**

Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**

Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

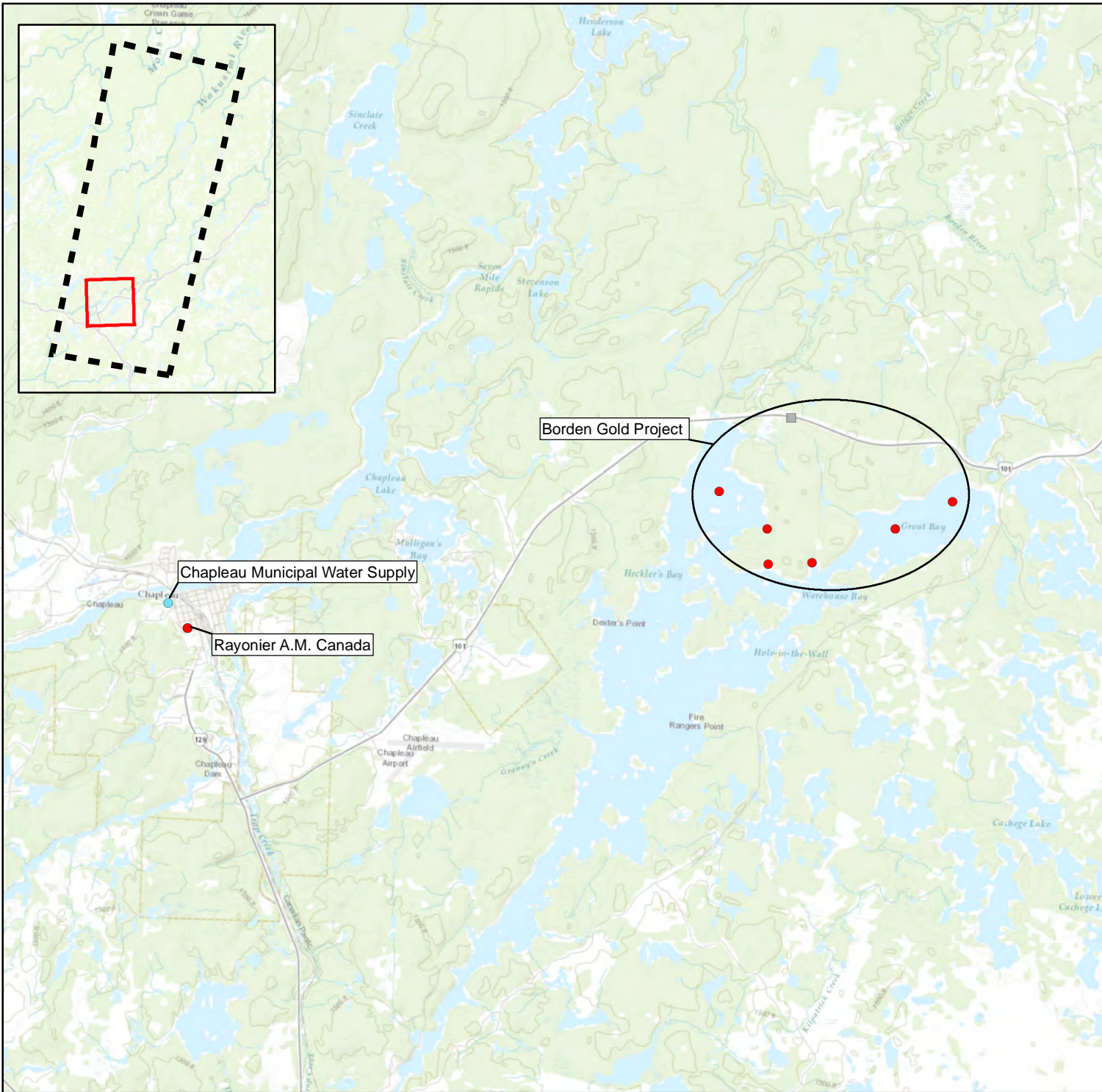
**TITLE**

Chapeau Water Well I information System and Provincial Groundwater Monitoring Network Wells



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 Kitchener, Ontario, N2H 5C5  
 TEL: (519) 742-6685  
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<b>DRAWN</b> KH	<b>CHECKED</b> HH/FAR	<b>FIG NO.</b> 10-9	<b>REV</b> 0



**LEGEND**

**Water Taking Permit by Type and Purpose**

- Yellow square: Agricultural
- Brown square: Commercial
- Grey square: Dewatering
- Red square: Industrial
- Brown square: Institutional
- Green square: Miscellaneous
- Purple square: Recreational
- Pink square: Remediation
- Blue circle: Surface Water
- Light blue square: Groundwater
- Light blue diamond: Both

1					
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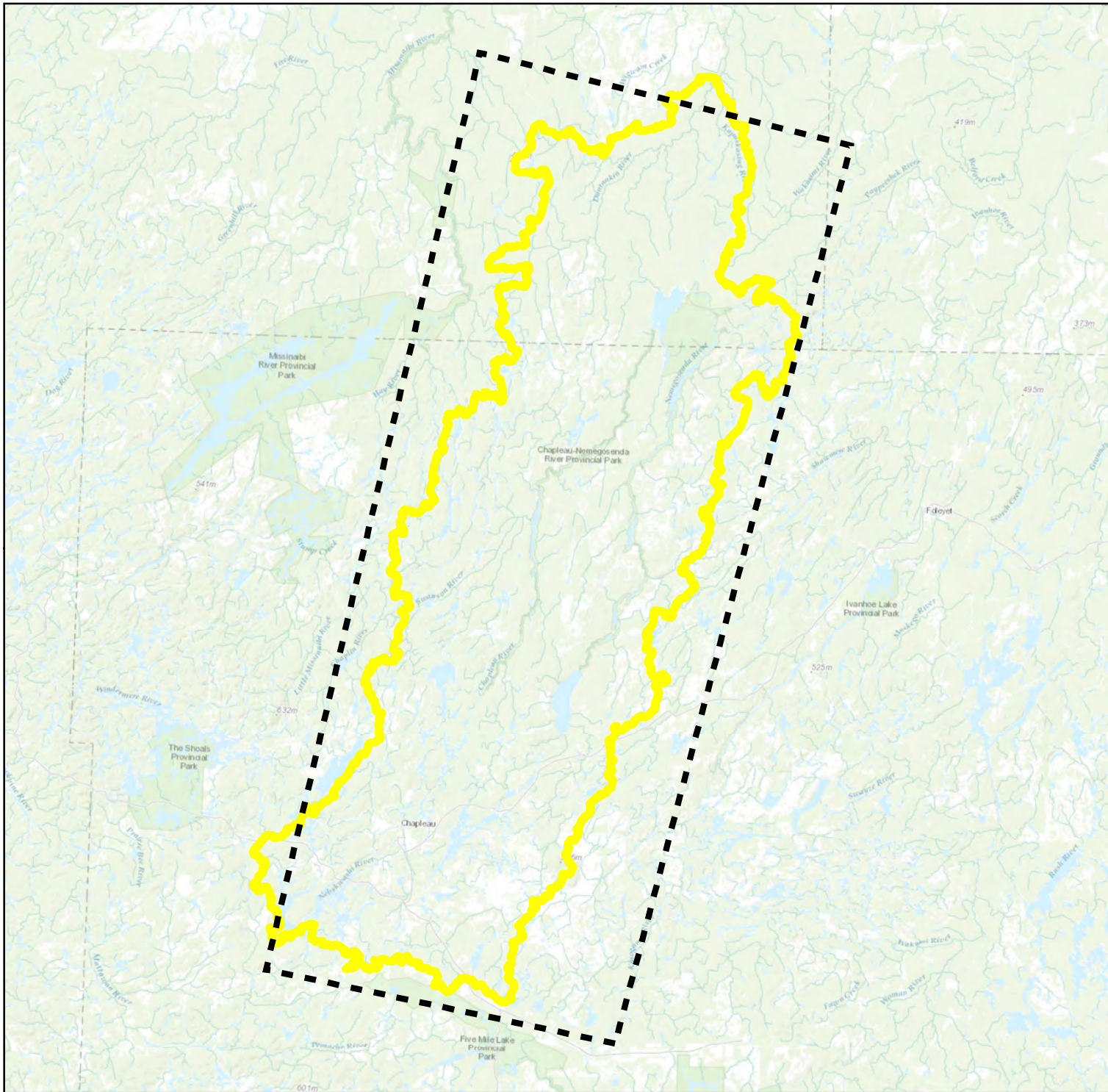
**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework



**TITLE**  
 Chapleau Permitted Water Takings

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<b>DRAWN</b> KH	<b>CHECKED</b> HH/PAR	<b>FIG NO.</b> 10-10	<b>REV</b> 0

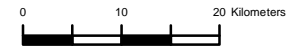


**LEGEND**

-  Preliminary Water Quantity Study Area (WQSA)
-  Revised Chapleau WQSA

1				
REV	DESCRIPTION	YY/MM/DD	BY	CHK

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**CLIENT**  
 Ministry of the Environment, Conservation and Parks (MECP)

**PROJECT**  
 Assessment of Water Resources to Support a Review of Ontario's Water Quantity Management Framework

**TITLE**  
 Chapleau Revised Water Quantity Study Area Boundary

 171 Victoria St. N.,  
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