



# **Environmental and Social Impact Assessment for the Troilus Mine Project**



**Troilus Gold Corp.**

Ref. BluMetric: 240433

Ref. Stantec:167040485-110-800-110-EN-R-0001-0-EN

June 2025



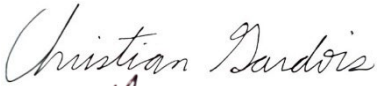




# Environmental and Social Impact Assessment for the Troilus Mine Project

## APPROVAL REGISTER

The conclusions in the Report entitled *Environmental and Social Impact Assessment for the Troilus Mine Project* are BluMetric's and Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on the condition and information existing at the time the scope of work was conducted and do not consider any subsequent changes. The Report relates solely to the specific project for which BluMetric and Stantec were retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

BluMetric and Stantec have assumed all information received from Troilus Gold Corp. (the "Client") and third parties in the preparation of the Report to be correct. While BluMetric and Stantec have exercised a customary level of judgment or due diligence in the use of such information, BluMetric and Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with BluMetric's and Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, BluMetric and Stantec do not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of BluMetric and Stantec, which may be withheld at BluMetric's and Stantec's discretion.

<b>BluMetric</b>	Christian Gardois, ing., M. Sc. Project Manager, Technical aspects	
	Curtis Lee, CD, P.Eng, PMP Project Manager	
	François Richard, geo., Ph.D. Project Director	
<b>Stantec</b>	Julie Massicotte, biol., M. Sc. Project Manager	
	Martin Chevrier, geogr., M. Sc. Project Director	
	Mathieu Cyr, geogr., M.Env., MBA Director, Environmental Assessment	



## Table of contents

1. PROJECT INTRODUCTION AND JUSTIFICATION
2. ALTERNATIVES ASSESSMENT
3. PROJECT DESCRIPTION
4. INFORMATION AND CONSULTATION PROCESS
5. ENVIRONMENTAL DESCRIPTION
6. ISSUES
7. METHODOLOGY
8. ATMOSPHERIC CONDITIONS
9. ACOUSTIC ENVIRONMENT
10. CLIMATE (GREENHOUSE GAS EMISSIONS)
11. HYDROLOGICAL REGIME
12. SURFACE WATER QUALITY
13. HYDROGEOLOGY
14. GROUNDWATER QUALITY
15. SOILS AND SEDIMENTS
16. VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS
17. TERRESTRIAL AND AVIAN FAUNA
18. FISH AND FISH HABITAT
19. LAND AND RESOURCES USE
20. INFRASTRUCTURE AND SERVICES
21. ECONOMIC CONDITIONS
22. HEALTH CONDITIONS
23. LANDSCAPE
24. RIGHTS AND INTERESTS OF THE CREE
25. CUMULATIVE IMPACTS ASSESSMENT
26. OFFSETTING PLAN
27. SUMMARY OF RESIDUAL IMPACTS
28. TECHNOLOGICAL RISK MANAGEMENT
29. CONTRIBUTION TO SUSTAINABILITY
30. ENVIRONMENTAL, SOCIAL MONITORING

# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT INTRODUCTION AND JUSTIFICATION

<b>1.</b>	<b>BACKGROUND</b> .....	<b>1.1</b>
1.1	PROPONENT PRESENTATION .....	1.5
1.1.1	Proponent.....	1.5
1.1.2	ESIA team .....	1.7
1.2	PROJECT CONTEXT .....	1.8
1.2.1	Site history.....	1.8
1.2.2	Troilus project overview .....	1.10
1.2.3	Project location .....	1.12
1.3	PROJECT JUSTIFICATION.....	1.15
1.3.1	Project rationale.....	1.15
1.3.2	Analysis of alternatives .....	1.20
1.4	REGULATORY FRAMEWORK.....	1.21
1.4.1	James Bay and Northern Quebec Agreement.....	1.21
1.4.2	Provincial requirements .....	1.21
1.4.3	Federal requirements .....	1.24
1.4.4	Other environmental requirements .....	1.26
1.5	REFERENCES.....	1.28

### LIST OF TABLES

Table 1.1	Names and contact details of the promoter.....	1.7
Table 1.2	Summary of Troilus mine history .....	1.8
Table 1.3	Summary of projected Troilus mine production .....	1.11
Table 1.4	Summary of mineral rights for the Troilus property .....	1.13
Table 1.5	List of approvals and permits potentially required at provincial level.....	1.21
Table 1.6	List of potentially required federal authorizations and permits .....	1.25
Table 1.7	List of permits and authorizations potentially required at municipal level.....	1.27

### LIST OF FIGURES

Figure 1.1	Troilus organization chart .....	1.6
Figure 1.2	Production profile - Payable gold, silver and copper (AGP Mining Consultants Inc. [AGP], 2024).....	1.11
Figure 1.3	Troilus mining rights .....	1.14
Figure 1.4	Traplines in the project area .....	1.15
Figure 1.5	Gold supply and demand statistics.....	1.16
Figure 1.6	Canadian gold production by region, 2022 (Source: NRC, 2024).....	1.16

### LIST OF MAPS

Map 1.1	Troilus project location .....	1.3
---------	--------------------------------	-----

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ALTERNATIVES ASSESSMENT

<b>2.</b>	<b>ALTERNATIVES ASSESSMENT .....</b>	<b>2.1</b>
2.1	LOCATION AND ROUTE ALTERNATIVES.....	2.1
2.1.1	Infrastructure .....	2.1
2.1.2	Access Road and Power Supply Line .....	2.10
2.1.3	Worker Accommodations .....	2.21
2.1.4	Bibou Creek Diversion.....	2.22
2.1.5	Off-Site Transport.....	2.29
2.2	TECHNOLOGICAL ALTERNATIVES .....	2.39
2.2.1	Mining Method (Open Pit VS. Underground).....	2.39
2.2.2	Ore processing .....	2.40
2.2.3	Mine Waste Management.....	2.42
2.2.4	Water management (supply and discharge).....	2.44
2.2.5	Energy Sources .....	2.53
2.3	REFERENCES.....	2.55

### LIST OF TABLES

Table 2.1	Existing infrastructure on the Troilus site.....	2.1
Table 2.2	Evaluation of mining infrastructure alternatives.....	2.5
Table 2.3	Comparison of Alternatives Evaluated According to Criteria.....	2.15
Table 2.4	Comparison of advantages/disadvantages of different Bibou Creek diversion scenarios .....	2.25
Table 2.5	Analysis of Transshipment Site Advantages and Disadvantages .....	2.31
Table 2.6	Analysis of Port Advantages and Disadvantages.....	2.32
Table 2.7	Comparative Table of Transportation Options.....	2.33
Table 2.8	Comparative Analysis of Wastewater Treatment Types - Sedimentation Technologies .....	2.47
Table 2.9	Comparative Analysis of Wastewater Treatment Types - Technologies Using Filtration.....	2.48
Table 2.10	Summary of Water Treatment Technology Analysis .....	2.49
Table 2.11	Summary of Technology and Cost Analysis with Recommendations .....	2.49
Table 2.12	Domestic Wastewater Treatment Technology and Operation Examined.....	2.51
Table 2.13	Evaluation of Different Treatment Technologies .....	2.52

### LIST OF FIGURES

Figure 2.1	Infrastructures considered outside the main impacted watershed (Troilus) .....	2.3
Figure 2.2	Infrastructures considered within the impacted watershed (Troilus) .....	2.4
Figure 2.3	Original and Modified Location-Low-Grade Ore Stockpile .....	2.9
Figure 2.4	Location of the Camp Area on the Troilus Site.....	2.21
Figure 2.5	Current Layout of the Site and Bibou Creek.....	2.22
Figure 2.6	Scenario 1 - Diversion of Bibou Creek to the west using a dam built on Bibou Creek.....	2.23
Figure 2.7	Scenario 2 - Maintain current route of Bibou Creek, pump water collected in pits to environment.....	2.24
Figure 2.8	Scenario 3 - Bibou Creek diversion, Diversion to another watershed .....	2.25
Figure 2.9	Bibou Creek Diversion Layout - Scenario without dam development.....	2.28
Figure 2.10	Scenario - Post-closure Without Dam Development .....	2.29
Figure 2.11	Lamella Clarifier Technology .....	2.45

# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT DESCRIPTION

<b>3.</b>	<b>PROJECT DESCRIPTION</b>	<b>3.1</b>
3.1	DEPOSIT	3.1
3.1.1	Deposit characteristics	3.1
3.1.2	Mineral Reserves	3.5
3.1.3	Mining Titles	3.5
3.2	MINING INFRASTRUCTURE	3.9
3.2.1	Mine Infrastructure	3.9
3.2.2	Operations Support infrastructure	3.15
3.2.3	Project Related Infrastructure	3.15
3.3	ORE EXTRACTION	3.17
3.3.1	Pit Mining	3.17
3.3.2	Drilling and Blasting	3.18
3.4	ORE PROCESSING	3.19
3.4.1	Infrastructure	3.19
3.4.2	Treatment Process	3.24
3.4.3	Use of Reagents	3.26
3.5	MANAGEMENT OF TAILINGS, MINE WASTE ROCK AND OVERBURDEN	3.26
3.5.1	Mine Tailings	3.26
3.5.2	Mine Waste Rock	3.29
3.5.3	Overburden	3.31
3.6	WATER MANAGEMENT	3.33
3.6.1	Water Collection	3.37
3.6.2	Water Treatment	3.41
3.6.3	Final Effluent	3.42
3.7	WATER BALANCE	3.43
3.8	RESIDUAL MATERIALS MANAGEMENT	3.45
3.8.1	3RV-E Policy	3.46
3.8.2	Composting	3.46
3.8.3	Recyclable Material	3.46
3.9	TRANSPORT AND STORAGE SITE FOR FUEL OR HAZARDOUS MATERIALS	3.47
3.10	INFRASTRUCTURE AND RELATED PROJECT	3.47
3.10.1	Temporary Concrete Plant	3.47
3.10.2	Bibou Creek Diversion	3.47
3.10.3	Access Road Deviation	3.48
3.10.4	Operational Support Road	3.49
3.10.5	Power Supply	3.49
3.10.6	Accommodation Infrastructure	3.51
3.10.7	Transportation	3.52
3.10.8	Sand Pit	3.53
3.11	MINE RESTORATION	3.55
3.12	PROJECT PHASE	3.55
3.12.1	Construction	3.55
3.12.2	Operations	3.56
3.12.3	Decommissioning and Closure	3.56
3.13	LABOUR REQUIREMENTS AND TRAINING	3.59
3.14	POLICIES	3.61
3.14.1	Diversity and inclusion	3.61

# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT DESCRIPTION

3.14.2	Code of Conduct.....	3.62
3.14.3	Workplace safety .....	3.63
3.15	SCHEDULE.....	3.63
3.16	POTENTIAL EFFECTS OF THE ENVIRONMENT ON THE PROJECT .....	3.66
3.16.1	Study Area Characteristics and Natural Hazards .....	3.67
3.17	TAKING CLIMATE CHANGE INTO ACCOUNT.....	3.72
3.18	REFERENCES.....	3.74

## LIST OF TABLES

Table 3.1	Probable Mineral Reserves for the Troilus Project.....	3.5
Table 3.2	Surface Area of Mine Infrastructures.....	3.9
Table 3.3	Bionest System Treatment Performance by Manufacturer.....	3.17
Table 3.4	Troilus Pit Mining Sequence.....	3.18
Table 3.5	Description of Reagents and their Use.....	3.26
Table 3.6	Design Criteria for Slope Stability Analysis .....	3.28
Table 3.7	Volume of Tailings Stored in Various Structures .....	3.29
Table 3.8	Waste Rock Stockpile Storage Capacity.....	3.31
Table 3.9	Overburden Storage Capacity .....	3.32
Table 3.10	Estimated Exfiltration Rates .....	3.37
Table 3.11	Groundwater infiltration in final pit configuration (m <sup>3</sup> /d).....	3.39
Table 3.12	Sedimentation Basin Design Details .....	3.40
Table 3.13	Sump Design Details .....	3.40
Table 3.14	Average Volume of Water Discharged by Effluent .....	3.42
Table 3.15	Estimated Quantities and Types of Residual Materials Generated .....	3.46
Table 3.16	Power Demand Based on Updated List of Electrical Loads .....	3.50
Table 3.17	Propane Consumption and Tank Volume.....	3.50
Table 3.18	Estimated Transport Requirements.....	3.52
Table 3.19	List of Active Sand Pit .....	3.54
Table 3.20	Anticipated Workforce for the Troilus Project During the Operation Phase.....	3.59
Table 3.21	Sequence of Project Milestones .....	3.63
Table 3.22	Project Schedule .....	3.65

## LIST OF FIGURES

Figure 3.1	Regional-Scale Geology of the Project .....	3.3
Figure 3.2	Geology at Local Project Scale .....	3.4
Figure 3.3	General Layout of the Primary and Secondary Crushers.....	3.21
Figure 3.4	Recovery and High-Pressure Crushing Area .....	3.22
Figure 3.5	General Layout of the Ore Processing Plant.....	3.23
Figure 3.6	Diagram of Ore Treatment Process.....	3.25
Figure 3.7	Example of a Waste Rock Stockpile Configuration .....	3.30
Figure 3.8	Example of an Overburden Stockpile Configuration.....	3.32
Figure 3.9	Tailing Storage Facility Water Treatment Process .....	3.42
Figure 3.10	Troilus Water Balance at Year 9 of Operation (Appendix C.14).....	3.44
Figure 3.11	Location of Available Non-Exclusive Leases in the Vicinity of the Troilus Site .....	3.54
Figure 3.12	Forest fires within a 100 km radius of the Troilus mine site.....	3.71

# Environmental and Social Impact Assessment for the Troilus Mine Project

## PROJECT DESCRIPTION

### LIST OF MAPS

Map 3.1	Troilus Mining Titles .....	3.7
Map 3.2	Projected Mine Infrastructures .....	3.13
Map 3.3	Surface Water Management .....	3.35
Map 3.4	Mine Infrastructures at Closure .....	3.57

### LIST OF APPENDICES

APPENDIX 3.1	ASSESSMENT OF THE POTENTIAL EFFECTS OF CLIMATE CHANGE ON THE PROJECT	
--------------	--	--

# Environmental and Social Impact Assessment for the Troilus Mine Project

## INFORMATION AND CONSULTATION PROCESS

<b>4.</b>	<b>INFORMATION AND CONSULTATION PROCESS .....</b>	<b>4.1</b>
4.1	CREE COMMUNITIES.....	4.1
4.1.1	Summary of engagement activities .....	4.2
4.1.2	Questions, comments and issues raised .....	4.12
4.1.3	Future engagement activities .....	4.17
4.2	JAMESIAN COMMUNITIES.....	4.17
4.2.1	Summary of consultation activities .....	4.17
4.2.2	Questions, observations and issues raised .....	4.23
4.2.3	Future engagement activities .....	4.26
4.3	REFERENCES.....	4.27

### LIST OF TABLES

Table 4.1	List of indigenous project stakeholders .....	4.4
Table 4.2	Summary of comments from land users, stakeholders and Cree Nation members .....	4.13
Table 4.3	List of project stakeholders.....	4.18
Table 4.4	Summary of comments from stakeholders and members of the Jamesian community .....	4.24

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ENVIRONMENTAL DESCRIPTION

<b>5.</b>	<b>ENVIRONMENTAL DESCRIPTION .....</b>	<b>5.1</b>
5.1	STUDY AREAS.....	5.1
5.2	PHYSICAL ENVIRONMENT .....	5.1
5.2.1	Climate .....	5.1
5.2.2	Geology and Geological Hazards.....	5.12
5.2.3	Environmental Geochemistry .....	5.20
5.2.4	Topography, Soil and Sediments .....	5.23
5.2.5	Surface Water.....	5.24
5.2.6	Groundwater.....	5.26
5.2.7	Atmospheric Environment .....	5.28
5.2.8	Noise climate .....	5.29
5.3	BIOLOGICAL ENVIRONMENT .....	5.31
5.3.1	Vegetation, riparian environments and wetlands.....	5.31
5.3.2	Mammals and their habitats .....	5.33
5.3.3	Birds, migratory birds and their habitat.....	5.36
5.3.4	Herpetofauna and habitat .....	5.37
5.3.5	Fish and fish habitat .....	5.37
5.4	SOCIO-ECONOMIC ENVIRONMENT .....	5.38
5.4.1	Economic conditions.....	5.38
5.4.2	Archaeological and cultural heritage .....	5.55
5.5	REFERENCES.....	5.59

### LIST OF TABLES

Table 5.1	1961-1990 climate normals .....	5.2
Table 5.2	Precipitation in the form of rain and snow (1961-1990).....	5.2
Table 5.3	Wind speeds and directions (1995).....	5.3
Table 5.4	Minimum, maximum and mean temperatures (1991-2020).....	5.5
Table 5.5	Minimum, maximum and mean temperatures (2019-2023) from the station at the Troilus site .....	5.6
Table 5.6	Precipitation in the form of rain and snow (1991-2020).....	5.7
Table 5.7	Wind speeds and directions (monthly summary for 2023) .....	5.8
Table 5.8	Categories of ground stability in the study area .....	5.17
Table 5.9	Average mineralogy of Troilus waste rock (NRC, 2023) .....	5.22

### LIST OF FIGURES

Figure 5.1	Wind direction (1995) .....	5.4
Figure 5.2	Wind direction in different seasons (1995).....	5.5
Figure 5.3	Average wind directions from January to December 2023.....	5.8
Figure 5.4	Wind direction (source: Troilus weather station, 2019-2023) .....	5.9
Figure 5.5	Average relative humidity, Troilus site weather station 2019-2023).....	5.10
Figure 5.6	Annual evapotranspiration, climate normal 1991-2020 (MELCCFP).....	5.10
Figure 5.7	Location of the Frotet-Evans greenstone belt and the Troilus project, with the position of the company's claims (yellow). .....	5.13
Figure 5.8	Geology of the Frotet-Troilus segment of the Frotet-Evans belt, with location of the main mineralized showings.....	5.13
Figure 5.9	Local geology of the Troilus deposit.....	5.15
Figure 5.10	Geology of the Troilus deposit with main mineralized zones.....	5.16
Figure 5.11	Loose deposits in the Project Development Area.....	5.17

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ENVIRONMENTAL DESCRIPTION

Figure 5.12	Ground stability zones in the Project Development Area .....	5.19
Figure 5.13	Seismic hazard, Geological Survey of Canada .....	5.20
Figure 5.14	Location of receptor points for sound climate assessment.....	5.30

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ISSUES

<b>6.</b>	<b>ISSUES</b> .....	<b>6.1</b>
6.1	SUMMARY OF ISSUES OBSERVED DURING PAST OPERATIONS.....	6.1
6.1.1	Environmental issues .....	6.1
6.1.2	Working conditions .....	6.9
6.2	CURRENT ISSUES .....	6.13
6.2.1	Preserving the integrity of the hydrographic network and its processes ....	6.13
6.2.2	Conservation and protection of soil and water resources.....	6.14
6.2.3	Protecting the climate and air quality.....	6.14
6.2.4	Maintaining the quantity and quality of vegetation and wildlife habitats .....	6.14
6.2.5	Maintaining quality of life .....	6.15
6.2.6	Community vitality .....	6.15
6.2.7	Protecting human health and ecosystems.....	6.16
6.3	REFERENCES.....	6.17

## LIST OF FIGURES

Figure 6.1	Pourbaix diagram for iron .....	6.5
Figure 6.2	Current layout of the tailings pond.....	6.8

# Environmental and Social Impact Assessment for the Troilus Mine Project

## METHODOLOGY

<b>7.</b>	<b>METHODOLOGY</b> .....	<b>7.1</b>
7.1	SCOPE OF ASSESSMENT .....	7.1
7.2	PROJECT SCOPE.....	7.1
7.3	ASSESSMENT FRAMEWORK.....	7.1
7.3.1	Influence of Consultation and Engagement on the Assessment.....	7.2
7.3.2	Gender-based Analysis Plus .....	7.2
7.4	SELECTION OF VALUED COMPONENTS.....	7.3
7.4.1	Definition of a Valued Component.....	7.3
7.4.2	Using Valued Components in the Impact Assessment Process.....	7.3
7.4.3	Factors Considered when Selecting Valued Components .....	7.3
7.4.4	Valued Component Selection Process .....	7.4
7.4.5	Selected Valued Components .....	7.4
7.5	BOUNDARIES .....	7.5
7.5.1	Spatial Boundaries .....	7.5
7.5.2	Temporal Boundaries .....	7.6
7.6	DESCRIPTION OF EXISTING CONDITIONS .....	7.6
7.7	IMPACT ASSESSMENT METHODOLOGY.....	7.6
7.7.1	Identification of Potential Impacts and Measurable Parameters .....	7.6
7.7.2	Potential Project Interactions with Valued Components.....	7.7
7.7.3	Pathway Assessment .....	7.8
7.7.4	Mitigation and Enhancement Measures .....	7.8
7.7.5	Characterization of Residual Impacts associated with the Project.....	7.8
7.7.6	Characterization of the Extent of Adverse Impacts .....	7.11
7.7.7	Confidence in Predictions.....	7.12
7.8	CUMULATIVE IMPACTS .....	7.12
7.9	FOLLOW-UP PROGRAMS.....	7.13
7.10	REFERENCES.....	7.14

## LIST OF TABLES

Table 7.1	Example of Potential Impacts and Measurable Parameters table.....	7.7
Table 7.2	Example of a Project Interactions table .....	7.7
Table 7.3	Example of a Residual Impacts table .....	7.10

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ATMOSPHERIC CONDITIONS

<b>8.</b>	<b>ATMOSPHERIC CONDITIONS</b> .....	<b>8.1</b>
8.1	SCOPE OF ASSESSMENT .....	8.1
8.1.1	Regulatory and Policy Setting .....	8.2
8.1.2	Influence of Consultation and Engagement.....	8.10
8.1.3	Potential Impacts, Pathways and Measurable Parameters .....	8.12
8.1.4	Boundaries .....	8.13
8.1.5	Residual Impacts Characterization.....	8.17
8.1.6	Significance Definition .....	8.18
8.2	EXISTING CONDITIONS .....	8.19
8.2.1	Methods.....	8.19
8.3	PROJECT INTERACTIONS WITH ATMOSPHERIC CONDITIONS.....	8.27
8.4	ASSESSMENT OF RESIDUAL IMPACT ON ATMOSPHERIC CONDITIONS.....	8.29
8.4.1	Analytical Assessment Techniques .....	8.29
8.4.2	Change in Ambient Air Quality .....	8.37
8.4.3	Change in Ambient Light .....	8.43
8.4.4	Summary of Project Residual Impacts .....	8.44
8.5	SUMMARY OF ADVERSE RESIDUAL IMPACTS.....	8.45
8.5.1	Change in Ambient Air Quality .....	8.45
8.5.2	Lighting.....	8.45
8.6	PREDICTION CONFIDENCE .....	8.46
8.7	REFERENCES.....	8.47

### LIST OF TABLES

Table 8.1	Summary of Provincial Air Quality Criteria for PM, Metals and Metallic Compounds .....	8.3
Table 8.2	Summary of Provincial Air Quality Criteria for Criteria Air Contaminants (CACs).....	8.6
Table 8.3	Summary of Provincial Air Quality Criteria for VOCs.....	8.7
Table 8.4	Summary of Provincial Air Quality Criteria for Selected PAHs .....	8.7
Table 8.5	Summary of Provincial Air Quality Criteria for Other CoPCs.....	8.8
Table 8.6	Summary of Canadian Ambient Air Quality Standards.....	8.8
Table 8.7	CIE 150:2017 Environmental Zones.....	8.9
Table 8.8	CIE 150:2017 Maximum Values for Light Trespass .....	8.9
Table 8.9	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Air Quality Conditions .....	8.11
Table 8.10	Potential impacts, impacts pathways and measurable parameters for atmospheric conditions.....	8.12
Table 8.11	Characterization of Residual Impacts on Atmospheric Conditions.....	8.17
Table 8.12	Summary of Average Temperature Data.....	8.20
Table 8.13	Monthly Mean Precipitation .....	8.20
Table 8.14	Summary of Average Relative Humidity Data .....	8.21
Table 8.15	Monthly Average Wind Speed and Direction Data .....	8.21
Table 8.16	Background Concentrations Used in the Dispersion Modeling Assessment.....	8.22
Table 8.17	Project Interactions with Atmospheric Conditions .....	8.28
Table 8.18	Summary of Dispersion Modelling Scenarios Assessed .....	8.31
Table 8.19	Project Residual Impacts on Atmospheric Conditions.....	8.45

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ATMOSPHERIC CONDITIONS

### LIST OF MAPS

Map 8.1	Atmospheric Conditions Study Areas .....	8.15
Map 8.2	Special Receptor Locations.....	8.33
Map 8.3	Extended Receptor Grid .....	8.35

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ACOUSTIC ENVIRONMENT

<b>9.</b>	<b>ACOUSTIC ENVIRONMENT</b> .....	<b>9.1</b>
9.1	SCOPE OF ASSESSMENT .....	9.2
9.1.1	Regulatory and Policy Setting .....	9.2
9.1.2	Impact of Consultation and Engagement .....	9.5
9.1.3	Potential Impacts, Pathways and Measurable Parameters .....	9.6
9.1.4	Boundaries .....	9.6
9.1.5	Residual Impact Characterization.....	9.11
9.2	EXISTING CONDITIONS .....	9.12
9.2.1	Methods.....	9.13
9.2.2	Overview.....	9.13
9.3	PROJECT INTERACTIONS WITH THE VALUED COMPONENT.....	9.13
9.4	ASSESSMENT OF RESIDUAL IMPACT ON ACOUSTIC ENVIRONMENT.....	9.15
9.4.1	Noise Impact.....	9.15
9.4.2	Vibration Impacts.....	9.23
9.4.3	Summary of Project Residual Impacts .....	9.24
9.5	CONFIDENCE IN PREDICTIONS .....	9.25
9.6	REFERENCES.....	9.26

### LIST OF TABLES

Table 9.1	Scale of Sound Levels and Human Reactions (INSPQ, 2018).....	9.1
Table 9.2	Directive 019 on Noise Criteria (from NI 98-01) .....	9.2
Table 9.3	Maximum Authorized Speeds for Ground Vibration Frequencies .....	9.3
Table 9.4	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Acoustic Environment .....	9.5
Table 9.5	Potential Impacts, Impacts Pathways and Measurable Parameters for Acoustic Environment.....	9.6
Table 9.6	Characterization of Residual Impacts on acoustic environment.....	9.11
Table 9.7	Project Interaction with Acoustic Environment .....	9.13
Table 9.8	Results of Simulated Noise Levels for Year -1 (provincial) .....	9.19
Table 9.9	Results of Simulated Noise Level for Year -1 (federal) .....	9.19
Table 9.10	Results of Simulated Noise Levels for Year 6 (provincial).....	9.20
Table 9.11	Results of Simulated Noise Levels for Year 6 (federal).....	9.20
Table 9.12	Relative Noise Impact of Transport Activities: Years -1 (access road).....	9.21
Table 9.13	Relative Noise Impact of Transport Activities: Year 6 (access road).....	9.21
Table 9.14	Relative Noise Impact of Transport Activities: Years -1 and 6 (Route du Nord) .....	9.21
Table 9.15	Comparison Results with maximum impact criterion 24 h period.....	9.22

### LIST OF MAPS

Map 9.1	Study areas .....	9.9
---------	-------------------	-----

# Environmental and Social Impact Assessment for the Troilus Mine Project

## CLIMATE (GREENHOUSE GAS EMISSIONS)

<b>10.</b>	<b>CLIMATE (GREENHOUSE GAS EMISSIONS)</b> .....	<b>10.1</b>
10.1	SCOPE OF ASSESSMENT .....	10.1
10.1.1	Regulatory and policy setting .....	10.2
10.1.2	Influence of consultation and engagement.....	10.3
10.1.3	Potential impacts, pathways and measurable parameters .....	10.3
10.1.4	Boundaries .....	10.4
10.1.5	Residual impacts characterization.....	10.4
10.1.6	Significance definition.....	10.5
10.2	EXISTING CONDITIONS .....	10.6
10.2.1	Overview.....	10.6
10.3	PROJECT INTERACTIONS WITH CLIMATE .....	10.6
10.4	ASSESSMENT OF RESIDUAL IMPACT ON CLIMATE .....	10.7
10.4.1	Change in GHG emission releases .....	10.8
10.4.2	Contribution to provincial GHG emissions.....	10.10
10.4.3	Summary of project residual impacts .....	10.10
10.4.4	Summary of adverse impact.....	10.11
10.5	CLIMATE RESILIENCE .....	10.12
10.6	PREDICTION CONFIDENCE .....	10.15
10.7	REFERENCES.....	10.16

### LIST OF TABLES

Table 10.1	Potential impacts, impacts, pathways and measurable parameters for climate .....	10.3
Table 10.2	Characterization of residual impacts on climate change .....	10.4
Table 10.3	Project Interactions with climate change .....	10.6
Table 10.4	Summary of peak annual GHG emissions during construction (Year -1).....	10.9
Table 10.5	Summary of peak annual GHG emissions during operation (Year 13) .....	10.10
Table 10.6	Project residual impacts on climate .....	10.11
Table 10.7	Summary of potential impacts and possible adaptation measures .....	10.13

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HYDROLOGICAL REGIME

<b>11.</b>	<b>HYDROLOGICAL REGIME</b>	<b>11.1</b>
11.1	SCOPE OF ASSESSMENT	11.1
11.1.1	Regulatory Framework	11.1
11.1.2	Influence of Consultation and Engagement	11.2
11.1.3	Potential Impacts, Pathways and Measurable Parameters	11.3
11.1.4	Boundaries	11.4
11.1.5	Residual Impacts Characterization	11.9
11.1.6	Significance Definition	11.11
11.2	EXISTING CONDITIONS	11.11
11.2.1	Methods	11.11
11.2.2	Current Conditions	11.14
11.3	PROJECT INTERACTIONS WITH HYDROLOGICAL REGIME	11.41
11.4	ASSESSMENT OF RESIDUAL IMPACTS ON HYDROLOGICAL REGIME	11.42
11.4.1	Modification of the Hydrological Regime	11.42
11.4.2	Summary of Project Residual impacts	11.65
11.5	PREDICTION CONFIDENCE	11.67
11.6	REFERENCES	11.68

### LIST OF TABLES

Table 11.1	Summary of key information, Indigenous knowledge and concerns for the project related to the hydrological regime	11.2
Table 11.2	Potential impacts, impact pathways and measurable parameters for the hydrological regime	11.3
Table 11.3	Characterization of residual impacts on hydrological regime	11.9
Table 11.4	Flows measured at stations HY1 to HY10 in 2019	11.28
Table 11.5	Broadback River flood indices (m <sup>3</sup> /s) estimated for different return periods	11.34
Table 11.6	Summary of daily simulation for the historical period (2017-2024)	11.40
Table 11.7	Project interaction with the hydrological regime	11.41
Table 11.8	Average annual volume (1000 m <sup>3</sup> ) at selected monitoring points	11.50
Table 11.9	Low-water flows (m <sup>3</sup> /s) at selected hydrological elements	11.50
Table 11.10	Peak flows (m <sup>3</sup> /s) at selected monitoring points	11.50
Table 11.11	Average annual volume (1000 m <sup>3</sup> ) at selected monitoring points	11.51
Table 11.12	Anticipated residual impacts of the project on the hydrological regime	11.66
Table 11.13	List of watercourses	11.72
Table 11.14	List of water bodies	11.81

### LIST OF FIGURES

Figure 11.1	Average monthly precipitation and temperature 1982-2023 Source: WSP, 2024	11.27
Figure 11.2	Seasonal mean flow (m <sup>3</sup> /s) 2023 measured at the five hydrometric stations	11.28
Figure 11.3	Average daily water level measured at the five hydrometric stations	11.29
Figure 11.4	Broadback station mean annual cycle hydrograph (1972 to 2024)	11.33
Figure 11.5	Distribution curves for the probability of not exceeding flood levels on the Broadback River (normal probability scale with 95% confidence interval)	11.35
Figure 11.6	Uncertainty of distribution curves for different flood indices	11.36

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HYDROLOGICAL REGIME

Figure 11.7	Annual trend and p-value observed at Broadback station.....	11.37
Figure 11.8	Winter trend and p-value observed at Broadback station.....	11.37
Figure 11.9	Spring trend and p-value observed at Broadback station.....	11.38
Figure 11.10	Summer trend and p-value observed at Broadback station .....	11.38
Figure 11.11	Autumn trend and p-value observed at Broadback station.....	11.39
Figure 11.12	Average annual cycle hydrograph for hydrological elements in Table 11.6 ...	11.40
Figure 11.13	Average annual cycle of anticipated flow at the confluence of Bibou Creek (CE2-SH46) at Lake A (PE43).....	11.48
Figure 11.14	Average annual cycle flow at Lake A outlet (PE43).....	11.49
Figure 11.15	Mean annual cycle flow at the junction of Bibou Creek (CE2-SH46) and Lake A (PE43) .....	11.52
Figure 11.16	Quantile-quantile diagram at the Bibou Creek junction (CE2-SH46, spring) .....	11.53
Figure 11.17	Quantile-quantile diagram at the Bibou Creek junction (CE2-SH46, summer-fall) .....	11.54
Figure 11.18	Hydrographs of mean annual discharge cycle at Lake A outlet (PE43) .....	11.55
Figure 11.19	Quantile-quantile graph at Lake A outlet (PE43, spring) .....	11.56
Figure 11.20	Quantile-quantile graph at Lake A outlet (PE43, summer-fall months) .....	11.57
Figure 11.21	Hydrographs of the mean annual discharge cycle at the LSA outlet.....	11.58
Figure 11.22	Quantile-quantile graph at LSA outlet (spring month) .....	11.59
Figure 11.23	Quantile-quantile graph at LSA outlet (summer-fall months).....	11.60
Figure 11.24	Variations (%) in peak flows for each of the four scenarios.....	11.61
Figure 11.25	Rate of change (%) in total volumes estimated at the various LSA monitoring points compared with the reference state.....	11.62
Figure 11.26.	Rate of change (%) in anticipated low-flow discharge at various LSA monitoring points compared with the reference state.....	11.63

## LIST OF MAPS

Map 11.1	Local Study Area .....	11.5
Map 11.2	Regional Study Area .....	11.7
Map 11.3	Watersheds .....	11.17
Map 11.4	Water bodies and watercourses in the Local Study Area and Regional Study Area.....	11.19
Map 11.5	Sub-watersheds - Local Study Area.....	11.21
Map 11.6	Bathymetry - Lake A (PE43).....	11.23
Map 11.7	Bathymetry - Lake B (PE29).....	11.25
Map 11.8	Hydrometric stations (2019-2024) in the Local Study Area .....	11.31

## LIST OF APPENDICES

### APPENDIX 11.1 LIST OF WATERCOURSES AND BODIES OF WATER LIKELY TO INTERACT WITH THE PROJECT

# Environmental and Social Impact Assessment for the Troilus Mine Project

## SURFACE WATER QUALITY

<b>12.</b>	<b>SURFACE WATER QUALITY .....</b>	<b>12.1</b>
12.1	SCOPE OF ASSESSMENT .....	12.1
12.1.1	Regulatory and Policy Setting .....	12.1
12.1.2	Influence of Consultation and Engagement.....	12.3
12.1.3	Potential Impacts, Pathways and Measurable Parameters .....	12.4
12.1.4	Spatial and Temporal Boundaries .....	12.5
12.1.5	Residual Impacts Characterization.....	12.6
12.1.6	Significance Definition .....	12.8
12.2	EXISTING CONDITIONS .....	12.9
12.2.1	Methods.....	12.9
12.2.2	Surface Water Quality: Reference Framework for the Historical Environment .....	12.18
12.2.3	Surface Water Quality: Reference Framework for the Current Environment .....	12.19
12.3	PROJECT INTERACTIONS WITH SURFACE WATER QUALITY .....	12.29
12.4	ASSESSMENT OF RESIDUAL IMPACT ON SURFACE WATER QUALITY .....	12.31
12.4.1	Modification of Physico-chemical Parameters of Surface Water Receiving Environment.....	12.31
12.4.2	Project Pathways.....	12.31
12.4.3	Mitigation and Enhancement Measures .....	12.33
12.4.4	Project Residual Impacts.....	12.36
12.4.5	Summary of Project Residual Impacts .....	12.73
12.4.6	Summary of Adverse Impacts .....	12.74
12.5	PREDICTION CONFIDENCE .....	12.74
12.6	REFERENCES.....	12.75

### LIST OF TABLES

Table 12.1	Summary of key information, Indigenous knowledge, and concerns for the project related to surface water quality.....	12.4
Table 12.2	Potential impacts, impact pathways and measurable parameters for surface water quality .....	12.5
Table 12.3	Characterization of residual impacts on surface water quality .....	12.7
Table 12.4	Description of existing environmental sampling stations (Wachih, 2024).....	12.17
Table 12.5	Parameters analyzed for surface water quality monitoring.....	12.18
Table 12.6	Surface water quality criteria exceedance statistics for samples ( $\mu\text{g/l}$ ) taken from 2019 to 2023 (Data source: Wachih, 2024).....	12.24
Table 12.7	Project interaction with surface water quality .....	12.29
Table 12.8	General chemistry: existing conditions in the current reference state .....	12.45
Table 12.9	Dissolved metals: existing conditions at current reference state.....	12.47
Table 12.10	General chemistry - Existing conditions: Sedimentation Pond effluent in equilibrium with calcite (mineral precipitation permitted, pH = 8) .....	12.49
Table 12.11	Dissolved metals - Current conditions: Effluent from sedimentation ponds in equilibrium with calcite (mineral precipitation permitted, pH = 8) (2 sheets).....	12.51
Table 12.12	General chemistry - Climate change scenario: Effluents from sedimentation ponds in equilibrium with calcite (mineral precipitation permitted, pH = 8).....	12.55

# Environmental and Social Impact Assessment for the Troilus Mine Project

## SURFACE WATER QUALITY

Table 12.13	Dissolved metals - Climate change scenario: sedimentation pond effluent in equilibrium with calcite (mineral precipitation permitted, pH = 8) .....	12.57
Table 12.14	Residual impacts of the project on surface water quality .....	12.73

### LIST OF MAPS

Map 12.1	Surface water quality monitoring 1996 to 2018 .....	12.13
Map 12.2	Surface water quality monitoring 2019 to 2023 .....	12.15
Map 12.3	Year 21 projected infrastructures .....	12.41

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HYDROGEOLOGY

<b>13.</b>	<b>HYDROGEOLOGY .....</b>	<b>13.1</b>
13.1	SCOPE OF ASSESSMENT .....	13.1
13.1.1	Regulatory and Policy Setting .....	13.1
13.1.2	Regulatory Requirements .....	13.2
13.1.3	Influence of Consultation and Engagement.....	13.3
13.1.4	Potential Impacts, Pathways and Measurable Parameters .....	13.3
13.1.5	Spatial and Temporal Boundaries .....	13.4
13.1.6	Residual Impacts Characterization.....	13.9
13.1.7	Significance Definition .....	13.10
13.2	EXISTING CONDITIONS .....	13.11
13.2.1	Methods.....	13.11
13.2.2	Pre-Mining Conditions .....	13.11
13.2.3	Hydrogeological Parameters .....	13.14
13.2.4	Current Conditions.....	13.16
13.3	PROJECT INTERACTIONS WITH HYDROGEOLOGY.....	13.51
13.4	ASSESSMENT OF RESIDUAL IMPACT ON HYDROGEOLOGY.....	13.53
13.4.1	Lowering/Raising of Aquifer Levels .....	13.53
13.4.2	Reduced flow from community springs and wells.....	13.70
13.4.3	Modified Recharge of Local Aquifers.....	13.71
13.4.4	Dewatering of Aquifer-Dependent Wetlands and Watercourses .....	13.74
13.4.5	Summary of Project Residual Impacts .....	13.77
13.5	PREDICTION CONFIDENCE .....	13.79
13.6	REFERENCES.....	13.80

### LIST OF TABLES

Table 13.1	Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Hydrogeology.....	13.3
Table 13.2	Potential impacts, Impacts pathways and measurable parameters for hydrogeology.....	13.4
Table 13.3	Characterization of residual impacts on hydrogeology.....	13.9
Table 13.4	Stratigraphy of boreholes drilled prior to the start of mining operations .....	13.12
Table 13.5	Piezometric data (1992-1994).....	13.13
Table 13.6	Hydraulic conductivity values extracted from previous studies .....	13.15
Table 13.7	Hydrogeological parameters in bedrock calculated from interpretation of two pumping tests .....	13.16
Table 13.8	Project interaction with hydrogeology.....	13.51
Table 13.9	Hydrogeological model surface recharge according to surface deposits .....	13.73
Table 13.10	Groundwater infiltration rates to the Bibou Creek/Bibou Creek diversion channel during different mine phases .....	13.75
Table 13.11	Groundwater infiltration rates in several lakes during different mine phases.....	13.76
Table 13.12	Residual impacts of the project on hydrogeology.....	13.77

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HYDROGEOLOGY

### LIST OF FIGURES

Figure 13.1	Water level interaction between MW-21-10(GWL) and Probe 1 (SWL) .....	13.35
Figure 13.2	Water level interaction between MW-21-05(GWL) and Probe 2a (SWL) .....	13.35
Figure 13.3	Water level interaction between X22-23-069(GWL) and Probe 2a (SWL) .....	13.36
Figure 13.4	Forward particle tracking for pits J4, X22 and 87 - Closure.....	13.68
Figure 13.5	Forward particle tracking for the Bibou Creek diversion channel - Closure....	13.69

### LIST OF MAPS

Map 13.1	Local Study Area (LSA) and location of monitored wells.....	13.5
Map 13.2	Regional Study Area (RSA).....	13.7
Map 13.3	Surficial geology .....	13.19
Map 13.4	Bedrock geology - Lithology and structure (2 sheets) .....	13.21
Map 13.5	Simulated piezometry in unconsolidated deposits.....	13.29
Map 13.6	Simulated piezometry in bedrock (2 sheets) .....	13.31
Map 13.7	Forward and backward particle tracking in the baseline scenario - J4 pit (2 sheets).....	13.39
Map 13.8	Forward and backward particle monitoring in the baseline scenario - 87 pit (2 sheets).....	13.43
Map 13.9	Forward and reverse particle tracking in the base case - Bibou Creek (2 sheets).....	13.47
Map 13.10	Simulated groundwater drawdown in bedrock for Year 10.....	13.57
Map 13.11	Simulated groundwater drawdown in bedrock for Year 21 .....	13.59
Map 13.12	Simulated groundwater upwelling in unconsolidated deposits for Year 10 ....	13.63
Map 13.13	Simulated groundwater upwelling in unconsolidated deposits for Year 21 ....	13.65

# Environmental and Social Impact Assessment for the Troilus Mine Project

## GROUNDWATER QUALITY

<b>14.</b>	<b>GROUNDWATER QUALITY .....</b>	<b>14.1</b>
14.1	SCOPE OF ASSESSMENT .....	14.1
14.1.1	Regulatory and Policy Setting .....	14.1
14.1.2	Influence of Consultation and Engagement.....	14.2
14.1.3	Potential Impacts, Pathways and Measurable Parameters .....	14.3
14.1.4	Boundaries .....	14.4
14.1.5	Residual Impacts Characterization.....	14.9
14.1.6	Significance Definition .....	14.11
14.2	EXISTING CONDITIONS .....	14.11
14.2.1	Methods.....	14.11
14.2.2	Pre-Mine Conditions .....	14.13
14.2.3	Current Conditions.....	14.13
14.3	PROJECT INTERACTIONS WITH GROUNDWATER QUALITY .....	14.25
14.4	ASSESSMENT OF RESIDUAL IMPACTS ON GROUNDWATER QUALITY .....	14.26
14.4.1	Metal Contamination.....	14.27
14.4.2	Hydrocarbon Contamination.....	14.31
14.4.3	Nutrient or Nitrate Enrichment.....	14.33
14.4.4	Summary of Project Residual Impacts .....	14.34
14.5	PREDICTION CONFIDENCE .....	14.35
14.6	REFERENCES.....	14.36

### LIST OF TABLES

Table 14.1	Summary of key information, Indigenous knowledge and concerns for the project related to groundwater quality .....	14.3
Table 14.2	Potential impacts, impact pathways and measurable parameters for groundwater quality .....	14.4
Table 14.3	Characterization of residual impacts on groundwater quality .....	14.9
Table 14.4	Summary of exceedances of DW and RSW criteria in groundwater - wells installed in unconsolidated deposits.....	14.16
Table 14.5	Summary of exceedances of DW and RSW criteria in groundwater - wells installed in bedrock.....	14.18
Table 14.6	Calculation of current metal levels in groundwater.....	14.19
Table 14.7	Summary of significant trends in the Mann-Kendall test between 2005 and 2023 .....	14.20
Table 14.8	Source of information by parameter in the DRASTIC index .....	14.22
Table 14.9	Project interactions with groundwater quality .....	14.25
Table 14.10	Anticipated residual impacts of the project on groundwater quality.....	14.34

### LIST OF MAPS

Map 14.1	Local Study Area and monitoring wells .....	14.5
Map 14.2	Regional Study Area .....	14.7
Map 14.3	DRASTIC index.....	14.23

# Environmental and Social Impact Assessment for the Troilus Mine Project

## SOILS AND SEDIMENTS

<b>15.0</b>	<b>SOILS AND SEDIMENTS</b> .....	<b>15.1</b>
15.1	SCOPE OF ASSESSMENT .....	15.1
15.1.1	Regulatory and Policy Setting .....	15.1
15.1.2	Influence of Consultation and Engagement.....	15.3
15.1.3	Potential Impacts, Pathways and Measurable Parameters .....	15.3
15.1.4	Spatial and Temporal Boundaries .....	15.5
15.1.5	Residual Impacts (RI) Characterizations .....	15.10
15.1.6	Significance Definition .....	15.11
15.2	EXISTING CONDITIONS .....	15.11
15.2.1	Methods.....	15.11
15.2.2	Pre-Development Conditions.....	15.15
15.2.3	Current Conditions.....	15.16
15.3	PROJECT INTERACTIONS WITH SOILS AND SEDIMENTS .....	15.51
15.4	ASSESSMENT OF RESIDUAL IMPACTS ON SOILS AND SEDIMENTS .....	15.54
15.4.1	Human Exposure to Contaminated Soil .....	15.54
15.4.2	Soil and Sediment Instability and Erosion .....	15.55
15.4.3	Alteration of Soil and Sediment Quality .....	15.57
15.4.4	Summary of Project Residual Impacts .....	15.59
15.5	PREDICTION CONFIDENCE .....	15.60
15.6	REFERENCES.....	15.61

### LIST OF TABLES

Table 15.1	Summary of soil and sediment concerns.....	15.3
Table 15.2	Potential impacts, impact pathways and measurable parameters .....	15.4
Table 15.3	Characterization of residual impacts on soil and sediment .....	15.10
Table 15.4	Results of chemical analyses of sediment samples (expressed in mg/kg, dry basis) (Entraco, 1993) .....	15.16
Table 15.5	Sediment particle size analysis results (% passing).....	15.16
Table 15.6	Potential sources of contamination .....	15.25
Table 15.7	Calculation of natural background metal levels in soils .....	15.45
Table 15.8	Project interactions with the valued component soil and sediment .....	15.51
Table 15.9	Anticipated residual impacts of the project on soils and sediments .....	15.59

### LIST OF MAPS

Map 15.1	Local Study Area and surficial geological formations .....	15.7
Map 15.2	Soil sampling points for initial characterization.....	15.19
Map 15.3	Location of soil sampling stations for characterization 2022-2024 .....	15.21
Map 15.4	Location of surface water and sediment sampling points (Wachiih Resources, 2024) .....	15.23
Map 15.5	Location of boreholes and soil analysis results in the buffer zone .....	15.29
Map 15.6	Location of boreholes and soil analysis results in the campsite area.....	15.33
Map 15.7	Location of 2024 boreholes and soil analysis summary (south, center and north) (3 sheets) .....	15.39
Map 15.8	Sample locations and sediment analysis summary.....	15.49

# Environmental and Social Impact Assessment for the Troilus Mine Project

## VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS

<b>16.</b>	<b>VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS</b> .....	<b>16.1</b>
16.1	SCOPE OF ASSESSMENT .....	16.1
16.1.1	Regulatory and Policy Setting .....	16.1
16.1.2	Influence of Consultation and Engagement.....	16.4
16.1.3	Potential Impacts, Pathways and Measurable Parameters .....	16.5
16.1.4	Boundaries .....	16.5
16.1.5	Residual Impacts Characterization.....	16.9
16.1.6	Significance Definition .....	16.10
16.2	EXISTING CONDITIONS .....	16.11
16.2.1	Methods.....	16.11
16.2.2	Pre-mine conditions.....	16.13
16.2.3	Existing conditions .....	16.13
16.3	PROJECT INTERACTIONS WITH VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS .....	16.24
16.4	ASSESSMENT OF RESIDUAL IMPACTS ON VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS.....	16.26
16.4.1	Change in diversity of terrestrial communities and species.....	16.26
16.4.2	Changes in wetland and riparian cover and function.....	16.34
16.4.3	Summary of project residual impacts .....	16.39
16.5	PREDICTION CONFIDENCE .....	16.40
16.6	REFERENCES.....	16.41

### LIST OF TABLES

Table 16.1	Summary of key information, Indigenous Knowledge and Concerns for the Project Related to Vegetation, Wetland and Riparian Environments .....	16.4
Table 16.2	Potential Impacts, Impacts Pathways and Measurable Parameters Vegetation, Riparian and Wetland Environments.....	16.5
Table 16.3	Characterization of Residual Impacts on Vegetation, Riparian and Wetland Environments .....	16.9
Table 16.4	Summary of terrestrial environments in the surveyed area and the LSA .....	16.14
Table 16.5	Summary of wetlands in the inventoried area and in the LSA.....	16.19
Table 16.6	Floristic species with conservation concern with a potential of presence deemed significant in the surveyed area.....	16.23
Table 16.7	Project interaction with Vegetation, Riparian and Wetland Environment .....	16.25
Table 16.8	Permanent project encroachment on terrestrial plant communities in the LSA.....	16.29
Table 16.9	Temporary encroachment of the project on terrestrial plant communities in the LSA.....	16.30
Table 16.10	Permanent encroachment of the project on wetlands and riparian areas in the LSA.....	16.36
Table 16.11	Temporary encroachment of the project on wetlands and riparian areas in the LSA.....	16.37
Table 16.12	Project Residual Impacts on vegetation, riparian and wetland environments.....	16.39

# Environmental and Social Impact Assessment for the Troilus Mine Project

## VEGETATION, RIPARIAN AND WETLAND ENVIRONMENTS

### LIST OF MAPS

Map 16.1	Vegetation, Riparian and Wetland Environments Study Areas .....	16.7
Map 16.2	Vegetation, Riparian and Wetland Environments in the Local Study Area.....	16.17
Map 16.3	Impacted Vegetation, Riparian and Wetlands Areas.....	16.31

# Environmental and Social Impact Assessment for the Troilus Mine Project

## TERRESTRIAL AND AVIAN FAUNA

<b>17.</b>	<b>TERRESTRIAL AND AVIAN FAUNA.....</b>	<b>17.1</b>
17.1	SCOPE OF ASSESSMENT .....	17.1
17.1.1	Regulatory and Policy Setting .....	17.1
17.1.2	Influence of Consultation and Engagement.....	17.2
17.1.3	Potential impacts, pathway and measurable parameters .....	17.3
17.1.4	Boundaries .....	17.4
17.1.5	Residual Impacts Characterization.....	17.7
17.2	EXISTING CONDITIONS .....	17.8
17.2.1	Methods.....	17.8
17.2.2	Pre-mining Conditions .....	17.12
17.2.3	Existing Conditions .....	17.12
17.3	PROJECT INTERACTIONS WITH TERRESTRIAL AND AVIAN FAUNA .....	17.24
17.4	ASSESSMENT OF RESIDUAL IMPACT .....	17.26
17.4.1	Disturbance of wildlife and its habitat .....	17.26
17.4.2	Risk of Mortality .....	17.63
17.4.3	Change in movement patterns .....	17.67
17.4.4	Summary of Project Residual Impacts .....	17.69
17.5	PREDICTION CONFIDENCE .....	17.70
17.6	REFERENCES.....	17.71

### LIST OF TABLES

Table 17.1	Summary of key information, indigenous knowledge and concerns for the project related to terrestrial and avian fauna .....	17.2
Table 17.2	Potential impacts, Impacts Pathways and Measurable Parameters Terrestrial and Avian Fauna .....	17.3
Table 17.3	Characterization of residual impacts on terrestrial and Avian Fauna, species with special designation and their habitats.....	17.7
Table 17.4	Fur-bearing Species and Small Fauna Potentially Present in the Local Study Area.....	17.15
Table 17.5	Micro-mammal Species Potentially Present in the Local Study Area.....	17.16
Table 17.6	Bat species Potentially Present in the Local Study Area.....	17.17
Table 17.7	Species Valued by the Cree in the LSA .....	17.20
Table 17.8	Species at Risk Present or Potentially Present in the Local Study Area .....	17.21
Table 17.9	Project Interactions with Terrestrial and Avian Fauna .....	17.24
Table 17.10	Woodland Caribou - Area of Preferred Habitat Affected in Construction Phase .....	17.30
Table 17.11	Large Fauna - Area of Preferred Habitat Affected During Construction Phase .....	17.31
Table 17.12	Small Wildlife and Fur-Bearing Animals - Area of Preferred Habitat Affected During Construction Phase .....	17.36
Table 17.13	Micromammals - Area of Preferred Habitat Affected During Construction Phase .....	17.36
Table 17.14	Chiroptera with Special Designation - Area of Preferred Habitat Affected in Construction Phase .....	17.41
Table 17.15	Herpetofauna - Area of Preferred Habitat Affected During Construction Phase .....	17.42

# Environmental and Social Impact Assessment for the Troilus Mine Project

## TERRESTRIAL AND AVIAN FAUNA

Table 17.16	Avifauna-Other - Area of Preferred Habitat Affected in Construction Phase .....	17.43
Table 17.17	Habitat area, Richness and Density of Birds Affected During the Construction Phase .....	17.44
Table 17.18	Species of Birdlife with Special Designation - Area of Preferential Habitat Affected During Construction Phase .....	17.47
Table 17.19	Project Residual Impacts on Terrestrial and Avian Fauna .....	17.69

### LIST OF MAPS

Map 17.1	Study Areas for terrestrial and Avian Fauna.....	17.5
Map 17.2	Project Impacts on the Woodland Caribou Component .....	17.33
Map 17.3	Encroachment into Bat Habitats .....	17.39
Map 17.4	Encroachment into Common Nighthawk habitats.....	17.49
Map 17.5	Encroachment into Olive-sided Flycatcher Habitats.....	17.51
Map 17.6	Encroachment into Lesser Yellowlegs Habitats .....	17.53
Map 17.7	Encroachment into Bald Eagle Habitats .....	17.55
Map 17.8	Encroachment into Rusty Blackbird habitats .....	17.57
Map 17.9	Encroachment into Short-Eared Owl Habitats.....	17.59
Map 17.10	Encroachment into Evening Grosbeak Habitats.....	17.61

# Environmental and Social Impact Assessment for the Troilus Mine Project

## FISH AND FISH HABITAT

<b>18.</b>	<b>FISH AND FISH HABITAT .....</b>	<b>18.1</b>
18.1	SCOPE OF ASSESSMENT .....	18.1
18.1.1	Regulatory Framework .....	18.1
18.1.2	Influence of Consultation and Engagement on the Assessment .....	18.4
18.1.3	Potential Impacts, Pathways and Measurable Parameters .....	18.5
18.1.4	Spatial and temporal limits .....	18.8
18.1.5	Residual Impacts Characterization .....	18.13
18.1.6	Significance Definition .....	18.15
18.2	EXISTING CONDITIONS FOR FISH AND FISH HABITAT .....	18.15
18.2.1	Methods .....	18.15
18.2.2	Overview .....	18.16
18.3	PROJECT INTERACTION WITH FISH AND FISH HABITAT .....	18.25
18.4	ASSESSMENT OF RESIDUAL IMPACT ON FISH AND FISH HABITAT .....	18.27
18.4.1	Analytical Assessment Techniques .....	18.27
18.4.2	Change in Fish Habitat .....	18.29
18.4.3	Change in Fish Health, Growth, or Survival .....	18.40
18.4.4	Summary of Project Residual Impacts .....	18.56
18.5	PREDICTION CONFIDENCE .....	18.57
18.5.1	Change in Fish Habitat .....	18.57
18.5.2	Change in Fish Health, Growth, or Survival .....	18.58
18.6	REFERENCES .....	18.59

### LIST OF TABLES

Table 18.1	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Fish and Fish Habitat .....	18.5
Table 18.2	Potential Impacts, Impacts Pathways, and Measurable Parameters for Fish and Fish Habitat .....	18.5
Table 18.3	Characterization of Residual Impacts on Fish and Fish Habitat .....	18.13
Table 18.4	Fish species documented in the RSA .....	18.20
Table 18.5	Project interactions with fish and fish habitat .....	18.25
Table 18.6	Initial Estimate of HADD Associated with the Project .....	18.35
Table 18.7	Initial Quantitative Analysis of Project Effects and Habitat Gains .....	18.35
Table 18.8	Project Residual Impact on Fish and Fish Habitat .....	18.57

### LIST OF MAPS

Map 18.1	Fish and Fish Habitat Study Area .....	18.11
Map 18.2	Fish Habitat within the Study Area including watercourses and waterbodies .....	18.23
Map 18.3	Watercourse and Waterbody Conditions Following Construction of the Bibou Creek Diversion Channel .....	18.37

# Environmental and Social Impact Assessment for the Troilus Mine Project

## LAND AND RESOURCES USE

<b>19.</b>	<b>LAND AND RESOURCES USE .....</b>	<b>19.1</b>
19.1	SCOPE OF ASSESSMENT .....	19.1
19.1.1	Regulatory and Policy Setting .....	19.1
19.1.2	Influence of Consultation and Engagement.....	19.3
19.1.3	Potential Impacts, Pathways and Measurable Parameters .....	19.5
19.1.4	Boundaries .....	19.7
19.1.5	Residual Impacts Characterization.....	19.11
19.1.6	Significance Definition .....	19.12
19.2	DESCRIPTION OF VALUED COMPONENT .....	19.13
19.2.1	Methods.....	19.13
19.2.2	Pre-mining Conditions .....	19.17
19.2.3	Existing Conditions .....	19.17
19.3	PROJECT INTERACTIONS WITH LAND AND RESOURCES USE .....	19.48
19.4	ASSESSMENT OF RESIDUAL IMPACTS ON LAND AND RESOURCES USE .....	19.50
19.4.1	Change in Cree Land and Resources Use.....	19.50
19.4.2	Change in Land Use and Recreational Resources of Jamesian Communities.....	19.53
19.4.3	Change in Navigation .....	19.55
19.4.4	Summary of Project Residual Impacts .....	19.57
19.5	REFERENCES.....	19.60

### LIST OF TABLES

Table 19.1	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project related to Land and Resources Use.....	19.3
Table 19.2	Potential Impacts, Impacts Pathways and Measurable Parameters for Land and Resource Use.....	19.6
Table 19.3	Characterization of Residual Impacts on Land and Resource Use .....	19.11
Table 19.4	Criteria for Assessing the Navigability of Watercourses and Bodies of Water.....	19.16
Table 19.5	Linear Distance of Watercourses and Waterbodies within the PDA by Navigation Probability Category .....	19.41
Table 19.6	Active Mining Claims in the RSA.....	19.42
Table 19.7	Species Reserved for the Exclusive use of Indigenous People .....	19.45
Table 19.8	Periods, Limits and Exceptions for Non-Indigenous Fishing in Zone 22 South .....	19.46
Table 19.9	Non-Indigenous Fishing Statistics for the Assinica and AMW Lakes Wildlife Reserves (2023) .....	19.47
Table 19.10	Project Interaction with Land and Resource Use .....	19.48
Table 19.11	Project residual impacts of Land and Resources Use.....	19.58

# Environmental and Social Impact Assessment for the Troilus Mine Project

## LAND AND RESOURCES USE

### LIST OF MAPS

Map 19.1	Land and Resources Use Local and Regional Study Areas.....	19.99
Map 19.5	Protected and Conserved Areas .....	19.23
Map 19.6	Components of the Jamesian Communities Land Use .....	19.29
Map 19.7	Navigability Likelihood within the Project Development Area (4 sheets).....	19.33

### LIST OF APPENDICES

#### APPENDIX 19.1 CONFIDENTIAL MAPS

Map 19.2	Cree Land Use - Camps, Transportation Routes and Other Valued Elements
Map 19.3	Cree Land Use – Environmental Information
Map 19.4	Cree Land Use - Harvesting Areas

# Environmental and Social Impact Assessment for the Troilus Mine Project

## INFRASTRUCTURES AND SERVICES

<b>20.</b>	<b>INFRASTRUCTURE AND SERVICES .....</b>	<b>20.1</b>
20.1	SCOPE OF ASSESSMENT .....	20.1
20.1.1	Regulatory and Policy Setting .....	20.1
20.1.2	Influence of Consultation and Engagement.....	20.2
20.1.3	Potential Impacts, Pathway and Measurable Parameters .....	20.3
20.1.4	Boundaries .....	20.4
20.1.5	Residual Impacts Characterization .....	20.5
20.1.6	Significance Definition .....	20.7
20.2	EXISTING CONDITIONS .....	20.11
20.2.1	Methods.....	20.11
20.2.2	Overview .....	20.11
20.3	PROJECT INTERACTIONS WITH THE VALUED COMPONENT.....	20.38
20.4	ASSESSMENT OF RESIDUAL IMPACTS ON INFRASTRUCTURE AND SERVICES .....	20.40
20.4.1	Change in Availability of Temporary Accommodation and Housing.....	20.40
20.4.2	Change in Demand for Services and Infrastructure .....	20.44
20.4.3	Change in Demand for Transportation Infrastructure .....	20.47
20.4.4	Summary of Project Residual Impacts .....	20.51
20.5	PREDICTION CONFIDENCE .....	20.52
20.6	REFERENCES.....	20.53

### LIST OF TABLES

Table 20.1	Summary of key Information, Indigenous knowledge and Concerns for the Project related to Infrastructure and services .....	20.2
Table 20.2	Potential Impacts, Impact Pathway and Measurable Parameters for Infrastructure and Services .....	20.4
Table 20.3	Characterization of Residual Impacts on Infrastructure and Services.....	20.5
Table 20.4	Housing characteristics, LSA/RSA, 2016-2021 (Statistics Canada, 2017 and 2023) .....	20.14
Table 20.5	Rate (%) of Core Housing Need in the LSA/RSA in 2021 and 2016 (Statistics Canada, 2022) .....	20.16
Table 20.6	Temporary Housing in the LSA/RSA, 2024 .....	20.17
Table 20.7	Number of Social, Community and Affordable Housing Units in the LSA/RSA in 2023 (SHQ, 2024) .....	20.18
Table 20.8	Installation and Use of Drinking Water in the Towns of Chibougamau and Chapais .....	20.18
Table 20.9	Educational Institutions in the LSA/RSA .....	20.25
Table 20.10	Number of Accidents by Severity (MTMD, 2025) .....	20.36
Table 20.11	Travelling Movements by Type of Operation Recorded Between 2022 and 2024 at Chibougamau-Chapais Airport (Statistics Canada, 2025).....	20.37
Table 20.12	Project Interaction with Services and Infrastructure .....	20.38
Table 20.13	Estimated Transport .....	20.49
Table 20.14	Project Residual Impacts on Infrastructure and Services.....	20.51

# Environmental and Social Impact Assessment for the Troilus Mine Project

## INFRASTRUCTURES AND SERVICES

### LIST OF MAPS

Map 20.1	Local/regional study area .....	20.9
Map 20.2	Road Infrastructures of Local-Regional Study Area .....	20.29

### LIST OF FIGURES

Figure 20.1	Evolution of Road Traffic Flow Between 2017 and 2023 in the LSA/RSA (MTMD, 2024) .....	20-35
-------------	---	-------

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ECONOMIC CONDITIONS

<b>21.</b>	<b>ECONOMIC CONDITIONS</b>	<b>21.1</b>
21.1	SCOPE OF ASSESSMENT	21.1
21.1.1	Regulatory and Policy Setting	21.1
21.1.2	Influence of Consultation and Engagement	21.2
21.1.3	Potential Impacts, Pathways and Measurable Parameters	21.3
21.1.4	Boundaries	21.4
21.1.5	Residual Impacts Characterization	21.5
21.1.6	Significance Definition	21.6
21.2	EXISTING CONDITIONS	21.9
21.2.1	Methods	21.9
21.2.2	Overview	21.10
21.3	PROJECT INTERACTIONS WITH ECONOMICS	21.49
21.4	ASSESSMENT OF RESIDUAL IMPACT ON ECONOMIC CONDITIONS	21.51
21.4.1	Analytical Assessment Techniques	21.51
21.4.2	Change in Employment	21.54
21.4.3	Change in Business	21.57
21.4.4	Change in Provincial Economy	21.61
21.4.5	Summary of Project Residual Impacts	21.67
21.5	PREDICTION CONFIDENCE	21.69
21.6	REFERENCES	21.70

## LIST OF TABLES

Table 21.1	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Economic Conditions	21.2
Table 21.2	Potential Impacts, Impacts Pathways and Measurable Parameters Economic Conditions	21.4
Table 21.3	Characterization of Residual Impacts on Economic Conditions	21.5
Table 21.4	Population change – 2016-2021	21.11
Table 21.5	Education levels of the population aged 15 and over in 2021	21.15
Table 21.6	Labour Force – 2021	21.19
Table 21.7	Working population aged 15 and over by industry	21.22
Table 21.8	Labour force 15 years and over by occupation	21.29
Table 21.9	Workforce requirements by region for the 2023-2028 period	21.33
Table 21.10	Labour requirements by region for the period 2023-2028	21.34
Table 21.11	Average hourly and annual earnings in Quebec industries – 2023	21.37
Table 21.12	Annual individual income before tax in 2020 for the population aged 15 and over in private households	21.39
Table 21.13	World gold mine production, by country, 2022 (p)	21.44
Table 21.14	World copper mine production, by country, 2022 (p)	21.45
Table 21.15	Project Interactions with Economics	21.49
Table 21.16	Capital Expenditures (C\$M) for the Project by Phase	21.52
Table 21.17	Estimated Operational Expenditures (C\$M) for the Life of the Project	21.53
Table 21.18	Direct and Indirect Labour (Person Year) Generated from the Project	21.55
Table 21.19	Direct and Indirect Economic Impacts via Sector, Construction (C\$M)	21.58
Table 21.20	Direct and Indirect Economic Impacts via Sector, Operations (C\$M)	21.59
Table 21.21	Direct and Indirect Economic Impacts, Construction (C\$M)	21.62
Table 21.22	Interprovincial and International Imports by Product, Construction (C\$M)	21.63

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ECONOMIC CONDITIONS

Table 21.23	Government Revenues, Construction (C\$M) .....	21.63
Table 21.24	Direct and Indirect Economic Impacts via Labour, Operations (\$CAD/M).....	21.64
Table 21.25	Interprovincial and International Imports by Product, Operations (\$CAD/M) .....	21.65
Table 21.26	Government Revenues, Operations (C\$M).....	21.65
Table 21.27	Project Residual Impacts on Economic Conditions .....	21.67

## LIST OF FIGURES

Figure 21.1	Canadian mines production of gold, 2013-2022 (p) .....	21.45
-------------	--	-------

## LIST OF MAPS

Map 21.1	Local/Regional Assessment Area.....	21.7
Map 21.2	Mining Projects in Nord-du-Quebec Region .....	21.47

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HEALTH CONDITIONS

<b>22.</b>	<b>HEALTH CONDITIONS .....</b>	<b>22.1</b>
22.1	SCOPE OF ASSESSMENT .....	22.3
22.1.1	Influence of Consultation and Engagement.....	22.7
22.1.2	Potential Impacts, Pathways and Measurable Parameters .....	22.15
22.1.3	Boundaries .....	22.19
22.1.4	Residual Impacts Characterization .....	22.25
22.1.5	Significance Definition .....	22.26
22.2	EXISTING CONDITIONS FOR HEALTH .....	22.26
22.2.1	Methods.....	22.27
22.2.2	Overview.....	22.32
22.2.3	Community Health Profile.....	22.35
22.2.4	Environmental Quality .....	22.57
22.3	PROJECT INTERACTIONS WITH HEALTH .....	22.58
22.4	ASSESSMENT OF RESIDUAL IMPACT ON HEALTH CONDITIONS .....	22.59
22.4.1	Analytical Assessment Techniques .....	22.59
22.4.2	Change in Health Conditions.....	22.60
22.4.3	Summary of Project Residual Impacts .....	22.86
22.5	PREDICTION CONFIDENCE .....	22.88
22.6	REFERENCES.....	22.90

### LIST OF TABLES

Table 22.1	Key Activity Checklist for the HIA .....	22.4
Table 22.2	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Health Conditions for Jamesian Community.....	22.8
Table 22.3	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project Related to Health Conditions for Cree Community .....	22.11
Table 22.4	Potential Impacts, Impacts Pathways and Measurable Parameters for Health .....	22.18
Table 22.5	Characterization of Residual Impacts on Health .....	22.25
Table 22.6	GBA Plus population groups for consideration.....	22.30
Table 22.7	Selected demographic indicators, Mistissini, Oujé-Bougoumou, Chibougamau, Chapais.....	22.35
Table 22.8	Selected demographic indicators, Région des Terres-Cries-de-la-Baie-James, Région du Nord-du-Québec and Quebec, 2021 .....	22.36
Table 22.9	Prevalence of Low Income, Mistissini, Oujé-Bougoumou, Chibougamau and Chapais (%), 2021 .....	22.37
Table 22.10	Prevalence of Low Income, Région des Terres-Cries-de-la-Baie-James, Région du Nord-du-Québec and Quebec (%), 2021 .....	22.38
Table 22.11	Educational attainment rates in Mistissini, Oujé-Bougoumou, Chibougamau and Chapais (%), 2021 .....	22.39
Table 22.12	Educational attainment rates in Région des Terres-Cries-de-la-Baie-James, Région du Nord-du-Québec and Quebec (%), 2021.....	22.39
Table 22.13	Selected housing indicators of Mistissini, Oujé-Bougoumou, Chibougamau and Chapais, 2021 .....	22.41
Table 22.14	Selected housing indicators of Région des Terres-Cries-de-la-Baie-James, Région du Nord-du-Québec and Quebec .....	22.41

# Environmental and Social Impact Assessment for the Troilus Mine Project

## HEALTH CONDITIONS

Table 22.15	Labour Force Status of Mistissini, Oujé-Bougoumou, Chibougamau and Chapais (%).....	22.42
Table 22.16	Labour Force Status of Région des Terres-Cries-de-la-Baie-James, Région du Nord-du-Québec and Quebec (%).....	22.42
Table 22.17	Infant or perinatal mortality, three-year average (2015).....	22.46
Table 22.18	Age-standardized rates of premature and potentially avoidable mortality, three-year period, per 100,000 (2019-2021).....	22.46
Table 22.19	Perceived health, very good or excellent, perceived mental health, very good or excellent, perceived life stress (%).....	22.54
Table 22.20	Physical and mental health status, EQSP 2020-2021, Northern Quebec and Quebec as a whole.....	22.54
Table 22.21	Sense of Community Belonging and Life Satisfaction, Satisfied or Very Satisfied (%).....	22.55
Table 22.22	Marital Status: Married, Common-law, not married and not common law (%).....	22.56
Table 22.23	Project Interactions with Health.....	22.58
Table 22.24	Project Residual Impacts on Health Conditions.....	22.87

## LIST OF FIGURES

Figure 22.1	HIA Diagram.....	22.2
Figure 22.2	Graphical Representation of Potential Impacts and Impact Pathways for Health Condition.....	22.17
Figure 22.3	Quebec Health Regions.....	22.28
Figure 22.4	Graphical Representation of Components of the Community Health Profile.....	22.33
Figure 22.5	Conceptual Site Model for Human Health Risk Assessment (Multimedia).....	22.69

## LIST OF MAPS

Map 22.1	Biophysical Determinants of Health Local Study Area / Regional Study Area.....	22.21
Map 22.2	Social Determinants of Health Local Study Area / Regional Study Area.....	22.23

# Environmental and Social Impact Assessment for the Troilus Mine Project

## LANDSCAPE

<b>23.</b>	<b>LANDSCAPE</b> .....	<b>23.1</b>
23.1	SCOPE OF ASSESSMENT .....	23.1
23.1.1	Regulatory and Policy Setting .....	23.1
23.1.2	Influence of Consultation and Engagement.....	23.1
23.1.3	Potential Impacts, Pathways and Measurable Parameters .....	23.2
23.1.4	Boundaries .....	23.2
23.1.5	Residual Impacts Characterization.....	23.7
23.1.6	Significance Definition .....	23.8
23.2	EXISTING CONDITIONS .....	23.9
23.2.1	Methods.....	23.9
23.2.2	Overview.....	23.9
23.2.3	Description of Landscape units .....	23.21
23.3	PROJECT INTERACTIONS WITH LANDSCAPE.....	23.30
23.4	ASSESSMENT OF RESIDUAL IMPACTS ON LANDSCAPE.....	23.32
23.4.1	Change in Topography .....	23.32
23.4.2	Changes in the Diversity of Terrestrial Plant Communities and Species.....	23.36
23.4.3	Changes to the Hydrographic Environment.....	23.38
23.4.4	Summary of Project Residual Impacts .....	23.40
23.5	CONFIDENCE IN PREDICTIONS .....	23.41
23.6	REFERENCES.....	23.41

### LIST OF TABLES

Table 23.1	Summary of Key Information, Indigenous Knowledge, and Concerns for the Project related to Landscape.....	23.2
Table 23.2	Potential Impacts, Impact Pathways and Measurable Parameters for the Landscape .....	23.2
Table 23.3	Characterization of Residual Landscape Impacts .....	23.7
Table 23.4	Project Interactions with the landscape.....	23.30
Table 23.5	Residual impacts of the project on landscape .....	23.40

### LIST OF PHOTOS

Photo 23.1	Troilus Mine Site, Stantec, October, 2 023.....	23.10
Photo 23.2	Boreal Forest in the Study Area, Stantec, October 2023 .....	23.11
Photo 23.3	Lake A (PE43), Stantec, October 2023 .....	23.11
Photo 23.4	Relief Forming a Bowl in the Study Site, Stantec, October 2023 .....	23.16
Photo 23.5	Ruisseau Bibou (CE2) Canalised Section, Stantec, October 2023.....	23.17
Photo 23.6	Vegetation and Infrastructure, Stantec, October 2023 .....	23.18
Photo 23.7	Marks of Industrial Infrastructures on the Territory, Stantec, October 2023...	23.18
Photo 23.8	View from Access Road, Stantec, October 2023 .....	23.19
Photo 23.9	Marks of Industrial Infrastructures on the Landscape, Stantec, October 2023 .....	23.20
Photo 23.10	Buildings Used for Living environments, Stantec, October 2023 .....	23.21
Photo 23.11	Warehouses for Workplaces, Stantec, October 2023 .....	23.22
Photo 23.12	Industrial Wasteland, Stantec, October 2023.....	23.22
Photo 23.13	Flooded Pits, Stantec, October 2023.....	23.23
Photo 23.14	Revegetated Waste Rock Pile, Stantec, October 2023.....	23.24

# Environmental and Social Impact Assessment for the Troilus Mine Project

## LANDSCAPE

Photo 23.15	Artificial Landscape of Unrestored Waste Rock Pile, Stantec, October 2023 .....	23.25
Photo 23.16	Tailing Storage Facility, Stantec, October 2023 .....	23.26
Photo 23.17	Forest Area Unaffected by Mining Activities, Stantec, October 2023 .....	23.27
Photo 23.18	Sandpit Area, Stantec, October 2023 .....	23.28
Photo 23.19	Filtered view of Peatland landscapes, Stantec, October 2023 .....	23.29
Photo 23.20	Lac Amont (PE-2), Stantec, October 2023 .....	23.30
Photo 23.21	Visual Simulation of Pit 87 Operation .....	23.34
Photo 23.22	Visual Simulation of the Flooding of Pit 87 at the end of Operation .....	23.35
Photo 23.23	Visual Simulation at the end of Tailing Storage Facility Operation .....	23.35
Photo 23.24	Visual Simulation of Tailings Facility Operation .....	23.36

## LIST OF FIGURES

Figure 23.1	Relief and Viewshed Component .....	23.15
-------------	-------------------------------------	-------

## LIST OF MAPS

Map 23.1	Landscape study areas .....	23.5
Map 23.2	Landscape Units .....	23.13

# Environmental and Social Impact Assessment for the Troilus Mine Project

## RIGHTS AND INTERESTS OF THE CREES

<b>24.</b>	<b>RIGHTS AND INTERESTS OF THE CREES .....</b>	<b>24.1</b>
24.1	SCOPE OF ASSESSMENT .....	24.2
24.1.1	Regulatory and Policy Setting .....	24.2
24.1.2	Influence of Consultation and Engagement.....	24.4
24.1.3	Potential Impacts, Pathways and Measurable Parameters .....	24.8
24.1.4	Boundaries .....	24.9
24.1.5	Residual Impacts Characterization.....	24.13
24.1.6	Significance Definition .....	24.14
24.2	DESCRIPTION OF VALUED COMPONENT .....	24.15
24.2.1	Methods.....	24.15
24.2.2	Existing Conditions .....	24.18
24.3	PROJECT INTERACTIONS WITH RIGHTS AND INTERESTS OF THE CREES.....	24.23
24.4	ASSESSMENT OF RESIDUAL IMPACTS ON RIGHTS AND INTERESTS OF THE CREES.....	24.25
24.4.1	Changes in Rights and Interests of the Crees .....	24.25
24.4.2	Changes in Land and Resources use .....	24.27
24.4.3	Changes in Social and Economic Conditions .....	24.30
24.4.4	Changes in Sanitary Conditions .....	24.33
24.4.5	Summary of Project Residual Impacts .....	24.38

### LIST OF TABLES

Table 24.1	Summary of Key Information, Indigenous Knowledge and Concerns for the Project Related to Rights and Interests of the Crees .....	24.4
Table 24.2	Potential Impacts, Pathways and Measurable Parameters for Rights and Interests of the Cree .....	24.8
Table 24.3	Characterization of residual impacts on Rights and Interests of the Cree.....	24.13
Table 24.4	Summary of Cree Information and Consultation Activities .....	24.16
Table 24.5	Project interaction with Rights and Interests of the Cree.....	24.23
Table 24.6	Residual impacts of the project on Rights and Interests of the Cree.....	24.39

### LIST OF MAPS

Map 24.1	Local and Regional Study Areas .....	24.11
----------	--------------------------------------	-------

# Environmental and Social Impact Assessment for the Troilus Mine Project

## CUMULATIVE IMPACTS ASSESSMENT

<b>25.</b>	<b>CUMULATIVE IMPACTS .....</b>	<b>25.1</b>
25.1	SCOPE OF ASSESSMENT .....	25.1
25.1.1	Regulatory and policy setting .....	25.1
25.1.2	Cumulative impact assessment approach.....	25.1
25.1.3	Physical activities considered for cumulative impact assessment.....	25.5
25.1.4	Spatial and Temporal Boundaries .....	25.9
25.1.5	Influence of consultation and engagement.....	25.9
25.2	JUSTIFICATION OF VALUED COMPONENTS NOT INCLUDED IN CUMULATIVE IMPACT ASSESSMENT .....	25.10
25.2.1	Atmospheric environment.....	25.10
25.2.2	Climate (Greenhouse gases emissions).....	25.10
25.2.3	Hydrological regime.....	25.11
25.2.4	Surface water quality .....	25.11
25.2.5	Hydrogeology .....	25.11
25.2.6	Groundwater quality .....	25.11
25.2.7	Soils and sediments .....	25.11
25.2.8	Vegetation, Riparian and Wetland Environments.....	25.12
25.2.9	Fish and Fish Habitat.....	25.12
25.2.10	Landscape .....	25.12
25.3	CUMULATIVE IMPACTS ASSESSMENT OF SELECTED VALUED COMPONENTS .....	25.12
25.3.1	Terrestrial and avian fauna.....	25.13
25.3.2	Land and Resource Use.....	25.23
25.3.3	Infrastructure and Services.....	25.32
25.3.4	Economic conditions.....	25.43
25.3.5	Health .....	25.52
25.4	REFERENCES.....	25.64

### LIST OF TABLES

Table 25.1	Summary of key information, indigenous knowledge, and concerns for the project related to cumulative impact assessment.....	25.10
Table 25.2	Contribution of the mining sector to total GHG emissions in Canada between 2018 and 2023.....	25.11
Table 25.3	List of projects and physical activities with potential for cumulative impacts on the valued component of terrestrial and avian fauna .....	25.16
Table 25.4	Residual cumulative impacts of the project on terrestrial and avian fauna.....	25.22
Table 25.5	List of projects and physical activities with potential for cumulative impacts on the valued component of Land and resource use.....	25.25
Table 25.6	Residual cumulative impacts of the project on Land and Resource Use .....	25.31
Table 25.7	List of projects and physical activities with potential for cumulative impacts on the valued component of infrastructure and services.....	25.34
Table 25.8	Residual cumulative impacts of the project on infrastructure and services....	25.42
Table 25.9	List of projects and physical activities with potential for cumulative impacts on the valued component of economic conditions .....	25.45
Table 25.10	Residual cumulative impacts of the project on economic conditions.....	25.51
Table 25.11	List of projects and physical activities with potential for cumulative impacts on the valued component of health.....	25.55

**Environmental and Social Impact Assessment for the Troilus Mine Project**

CUMULATIVE IMPACTS ASSESSMENT

Table 25.12 Residual cumulative impacts of the project on health .....25.62

**LIST OF MAPS**

Map 25.1 Future projects and activities.....25.7

# Environmental and Social Impact Assessment for the Troilus Mine Project

## OFFSETTING PLAN

<b>26.</b>	<b>OFFSETTING PLAN.....</b>	<b>26.1</b>
26.1	WETLAND COMPENSATION PROJECT.....	26.1
26.1.1	Proposed Projects.....	26.1
26.1.2	Impact of Forest Roads on Caribou Populations.....	26.2
26.1.3	Target Area for Work.....	26.2
26.1.4	Vegetation on Forest Roads.....	26.3
26.1.5	Culvert Removal and Soil Decompaction.....	26.4
26.1.6	Search for Compensation Projects in Collaboration with Stakeholders.....	26.4
26.1.7	Participation in a Research Project.....	26.5
26.2	PRELIMINARY OFFSETTING PLAN FOR LOSS OF FISH HABITAT.....	26.5
26.2.1	Preliminary Selection of Offsetting Options.....	26.6
26.2.2	Proposed Offsetting Projects.....	26.10
26.3	REFERENCES.....	26.13

### LIST OF TABLES

Table 26.1	Contacts established with stakeholders.....	26.4
Table 26.2	Summary of completed or ongoing offsetting projects - Spawning grounds.....	26.7
Table 26.3	Summary of compensation projects completed or underway - Other types of development.....	26.8
Table 26.4	Potential fish habitat offsetting projects in the Troilus Mine and Chibougamau areas.....	26.11

### LIST OF FIGURES

Figure 26.1	Forest Roads Identified by Troilus.....	26.3
-------------	---	------

# Environmental and Social Impact Assessment for the Troilus Mine Project

## SUMMARY OF RESIDUAL IMPACTS

<b>27. SUMMARY OF RESIDUAL IMPACTS .....</b>	<b>27.1</b>
27.1 SUMMARY OF RESIDUAL IMPACTS .....	27.1

### LIST OF TABLES

Table 27.1 Summary of residual impacts .....	27.1
--	------

# Environmental and Social Impact Assessment for the Troilus Mine Project

## TECHNOLOGICAL RISK MANAGEMENT

<b>28.</b>	<b>TECHNOLOGICAL RISK MANAGEMENT .....</b>	<b>28.1</b>
28.1	TECHNOLOGICAL ACCIDENT RISKS .....	28.1
28.1.1	Background .....	28.1
28.1.2	Scope of the Analysis .....	28.1
28.1.3	Methodology .....	28.2
28.1.4	Identification of Sensitive Environmental Elements .....	28.2
28.1.5	Risks Identification.....	28.3
28.1.6	Analysis of Technological Accident Risks .....	28.9
28.1.7	Summary of Technological Accident Risks .....	28.13
28.1.8	Safety Measures.....	28.28
28.1.9	Preliminary Emergency Response Plan .....	28.30
28.2	REFERENCES.....	28.32

### LIST OF TABLES

Table 28.1	Five-Year History of Technological Incidents in North America .....	28.4
Table 28.2	Propane Tank Inventory .....	28.6
Table 28.3	Summary of Main Chemicals on Site .....	28.7
Table 28.4	Probability Estimation Criteria .....	28.11
Table 28.5	Criteria for Estimating the Severity of Consequences .....	28.11
Table 28.6	Risk Estimation Matrix.....	28.12
Table 28.7	Risk Management Ranking .....	28.13
Table 28.8	Classification of Construction-related Risks .....	28.15
Table 28.9	Ranking of Risks Associated with Mining Operations .....	28.19
Table 28.10	Mechanisms for Preparing the Revised ERP .....	28.31

### LIST OF FIGURES

Figure 28.1	Technological Risk Analysis Approach (Source: MENV, 2002) .....	28.2
-------------	---	------

### LIST OF MAPS

Map 28.1	Tailing Storage Facility Breach (Location 2) Under Current Conditions .....	28.25
Map 28.2	Tailing Storage Facility Breach (Location 3) Last Year of Activity .....	28.26

### LIST OF APPENDICES

APPENDIX 28.1	ASSESSMENT OF POTENTIAL TAILING STORAGE FACILITY FAILURE
APPENDIX 28.2	PRELIMINARY EMERGENCY RESPONSE PLAN

# Environmental and Social Impact Assessment for the Troilus Mine Project

## CONTRIBUTION OF THE TROILUS MINING PROJECT TO SUSTAINABILITY

<b>29.</b>	<b>TROILUS MINING PROJECT'S CONTRIBUTION TO SUSTAINABILITY .....</b>	<b>29.1</b>
29.1	REGULATORY AND POLICY SETTING .....	29.1
29.2	METHODOLOGY .....	29.1
29.2.1	Information and consultation procedures .....	29.2
29.2.2	Spatial and Temporal Boundaries of the assessment .....	29.3
29.2.3	Consideration of Alternatives.....	29.3
29.2.4	Potential Impacts of the Project.....	29.4
29.3	PRINCIPLE 1 - CONSIDERATION OF THE INTERDEPENDENCE AND INTERCONNECTIVITY BETWEEN HUMAN SYSTEMS AND ECOSYSTEMS .....	29.5
29.3.1	Discussion of the interdependence and interconnectedness of components and their resilience to change .....	29.16
29.4	PRINCIPLE 2: CONSIDERATION OF THE WELL-BEING OF CURRENT AND FUTURE GENERATIONS .....	29.16
29.5	PRINCIPLE 3: CONSIDERATION OF THE PROJECT'S POSITIVE IMPACTS AND THE REDUCTION OF ITS ADVERSE IMPACTS .....	29.17
29.5.1	Description of anticipated/experienced positive impacts - Indigenous and non-Indigenous communities.....	29.18
29.5.2	Consideration of Recommendations .....	29.22
29.6	PRINCIPLE 4 - APPLICATION OF THE PRECAUTIONARY PRINCIPLE, CONSIDERING UNCERTAINTY AND THE RISK OF IRREVERSIBLE DAMAGE ...	29.27
29.7	CANADA'S ABILITY TO MEET ITS ENVIRONMENTAL OBLIGATIONS AND CLIMATE CHANGE COMMITMENTS .....	29.28
29.8	REFERENCES.....	29.29

### LIST OF TABLES

Table 29.1	List of Valued Components and the reason for their inclusion as a Valued Component.....	29.4
Table 29.2	Concerns and issues concerning Valued Components.....	29.5
Table 29.3	Summary of adverse and positive impacts expressed by members of the Cree communities of Oujé-Bougoumou and Mistissini.....	29.19
Table 29.4	Summary of adverse and positive impacts expressed by members of the Jamesian communities of Chapais and Chibougamau .....	29.21
Table 29.5	Oujé-Bougoumou and Mistissini Cree communities' recommendations and proposed mitigation measures .....	29.22
Table 29.6	Recommendations of the Jamesian communities of Chapais and Chibougamau and proposed mitigation measures .....	29.24

### LIST OF FIGURES

Figure 29.1	Interconnectivity between Land Use and other Valued Components.....	29.7
Figure 29.2	Interconnectivity between Health and other Valued Components.....	29.8
Figure 29.3	Interconnectivity between Water Resources (quality and quantity) and other Valued Components.....	29.9
Figure 29.4	Interconnectivity between Landscape and other Valued Components.....	29.10
Figure 29.5	Interconnectivity between Air Quality and other Valued Components.....	29.11
Figure 29.6	Interconnectivity between Terrestrial, Avian and Aquatic Fauna and other Valued Components.....	29.12

# Environmental and Social Impact Assessment for the Troilus Mine Project

## CONTRIBUTION OF THE TROILUS MINING PROJECT TO SUSTAINABILITY

Figure 29.7	Interconnectivity between Vegetation and RWE and other Valued Components .....	29.13
Figure 29.8	Interconnectivity between Indigenous Communities and other Valued Components .....	29.14
Figure 29.9	Interconnectivity between Economic Conditions / Infrastructure and Services and other Valued Components .....	29.15

# Environmental and Social Impact Assessment for the Troilus Mine Project

## ENVIRONMENTAL, SOCIAL MONITORING AND FOLLOW-UP PROGRAM

<b>30.</b>	<b>ENVIRONMENTAL AND SOCIAL MONITORING PROGRAM</b>	<b>30.1</b>
30.1	ENVIRONMENTAL MONITORING PROGRAM	30.1
30.1.1	Objectives	30.1
30.1.2	Application and project phases	30.1
30.1.3	Adaptive and change management	30.4
30.2	ENVIRONMENTAL AND SOCIAL MONITORING PROGRAM	30.5
30.2.1	Objectives	30.5
30.2.2	Air quality monitoring	30.6
30.2.3	Greenhouse gas emissions monitoring	30.8
30.2.4	Geotechnical monitoring	30.9
30.2.5	Geochemical characterization of mine tailings	30.10
30.2.6	Hydrological regime	30.11
30.2.7	Surface water monitoring	30.12
30.2.8	Groundwater monitoring	30.16
30.2.9	Monitoring of sediment physico-chemistry	30.17
30.2.10	Monitoring of vegetation and wetlands	30.18
30.2.11	Monitoring invasive exotic species	30.19
30.2.12	Wildlife monitoring	30.19
30.2.13	Monitoring the effectiveness of fish and wetland habitat compensation projects	30.23
30.2.14	Human environment monitoring	30.23
30.2.15	Vibration and air overpressure	30.28
30.2.16	Cumulative impact monitoring	30.28
30.2.17	Post-restoration monitoring program	30.29
30.2.18	Response mechanism in the event of unforeseen impact or degradation	30.30
30.2.19	Dissemination of information and transparency of monitoring results	30.30
30.3	ENVIRONMENTAL MANAGEMENT PLAN	30.31
30.4	REFERENCES	30.34

### LIST OF TABLES

Table 30.1	Air quality monitoring station	30.7
Table 30.2	Methodology by substance	30.7
Table 30.3	Regular monitoring of final effluent according to the MDMER	30.12
Table 30.4	Regular monitoring of final effluent as per Directive 019	30.14
Table 30.5	Quarterly monitoring of final effluent as per Directive 019	30.15
Table 30.6	Location of measurement points during noise climate monitoring	30.28
Table 30.7	Environmental management plans	30.32

### LIST OF APPENDICES

#### APPENDIX 30.1 GROUNDWATER MONITORING PROGRAM

## Environmental and Social Impact Assessment for the Troilus Mine Project

### Complete list of appendices to the ESIA (presented under separate covers)

<b>A. Impact Statement Guidelines and Directives</b>	
A.1	Tailored Impact Statement Guidelines (AÉIC, 2023)
A.2	Directives du MELCC pour la réalisation de l'étude d'impact (MELCC, 2022)
A.3	Table de concordance
<b>B. Working team for the drafting of the ESIA for the Troilus mine project</b>	
<b>C. Design Studies</b>	
C.1	Analyse des Variantes-Chemin d'accès et Ligne électrique (BluMetric, 2024)
C.2	Water Management Workshop (Troilus Gold, 2022)
C.3	Water management workshop summary (Troilus Gold, 2024)
C.4	Bibou Creek Stream Diversion (WSP, s.d)
C.5	Concentrate Marketing Study (Ocean Partners, 2024)
C.6	Étude d'opportunité économique et de marché pour la transformation au Québec (Troilus Gold, 2025)
C.7	Analyse préliminaire de variantes – Transport de concentré (BluMetric, 2024)
C.8	Feasibility Study: Troilus Gold – Copper Project (AGP Mining Consultants Inc., 2024)
C.9	Tailings Review and Expansion Potential (Golder et Associés, 2019)
C.10	Stockpiles Stability Assessment and Geotechnical Foundations Recommendations (WSP, 2024)
C.11	Wastewater Management Fact Sheet. Membrane Bioreactors (Environmental Protection Agence, 2007)
C.12	Tailings Management Feasibility Study (WSP, 2024)
C.13	Factual Investigation Report (WSP, 2024)
C.14	Troilus Project Operational Site-Wide Water Management Plan (WSP, 2024)
C.15	Gestion des matières résiduelles et analyse des variantes de gestion des matière résiduelles non dangereuses (BluMetric, 2024)
<b>D. Preliminary Closure/Restoration Plan</b>	
<b>E. Consultation Procedures - Table of Comments and Concerns</b>	
<b>F. Geochemistry</b>	
F.1	Présentation et analyse des études de caractérisation géochimique, 1990-2024 (Lamont Inc. Expert Conseils, 2024)
F.2	Projet de recherche en géochimie FRQNT-Coalia-Troilus (Lamont Inc. Expert Conseils, 2024)
F.3	Quantifying Oxidation and Acquiring Data Pertinent to Neutralization Rates of Troilus Mine Wastes (Phase I) (Conseil national de recherches Canada, 2023)

## Environmental and Social Impact Assessment for the Troilus Mine Project

F.4	Prediction of ARD Potential in the J4, 87, and Southwest Ore Zones - Phase 1: Based on Generic ARD Criteria (Minesite Drainage Assessment Group, 2024)
F.5	Prediction of ARD Potential in the J4, 87, and Southwest Ore Zones - Phase 2: Kinetic Testing and Site-Specific ARD Criteria (Minesite Drainage Assessment Group, 2024)
<b>G. Reference studies</b>	
<b>G.1. Hydrology and Hydrogeology</b>	
G1.1	Hydrologie - Étude de référence (Wachiih Ressources, 2024)
G1.2	État de référence de l'hydrologie (Wachiih et Hydro-Ressources Inc. 2019)
G1.3	Milieus hydriques et habitat du poisson - Étude de référence (Wachiih, 2024)
G.1.4	État de référence de la qualité de l'eau, des sédiments et des communautés d'invertébrés benthiques (Wachiih, 2020)
G1.5	Programme de surveillance et D'inspection environnementale post-fermeture (Troilus, 2021)
G1.6	Qualité de l'eau de surface et des sédiments - Étude de référence (Wachiih, 2024)
G1.7	Qualité de l'eau Fosses F87 et J4 – Mine Troilus (Wachiih, 2018)
G1.8	Predicted Maximum Aqueous Concentrations and Geochemical Source Terms (Minesite Drainage Assessment Group, 2024)
G.1.9	Modélisation hydrogéologique des fosses projetées du projet Troilus - Étude de faisabilité (WSP, 2024)
G.1.10	Suivis de la qualité des eaux souterraines en 2022 (WSP, 2024)
G.1.11	Suivis de la qualité des eaux souterraines réalisé en 2023 au site minier Troilus (WSP, 2024)
G1.12	Résultats analytiques des suivis de Troilus en 2018 à 2021
<b>G.2. Soils and sediments</b>	
G2.1	Évaluation environnementale de site (phase 1) (BluMetric, 2024)
G2.2	Memorandum technique-Characterisation environnementale des sols du secteurs des campements à la suite de l'évaluation environnementale de site Phase I (BluMetric, 2024)
G2.3	Caractérisation physicochimique de l'état initial des sols avant l'implantation d'un projet industriel (BluMetric, 2025)
<b>G.3. Vegetation, riparian and wetlands environments</b>	
G3.1	Inventaire de la végétation et des milieux humides - État de référence (Wachiih, 2024)
<b>G.4. Terrestrial and avian fauna</b>	
<b>G.4.1. Large fauna</b>	
G4.1.1	Inventaire de la grande faune (WSP, 2019)
<b>G.4.2. Chiroptera</b>	
G4.2.1	Inventaire acoustique des chiroptères au site de Troilus, dans la région du Nord-du-Québec (Wavx, 2023)

## Environmental and Social Impact Assessment for the Troilus Mine Project

G4.2.2	Évaluation du potentiel d'hibernacles pour les chauves-souris (Spéléo Québec, 2023)
G4.2.3	Inventaire des sites de repos potentiels des chiroptères au site de Troilus (Wachiih, 2024)
<b>G.4.3 Micromammals</b>	
G.4.3.1	État de référence du milieu récepteur micromammifères (Wachiih, 2020)
G.4.3.2	Étude des micromammifères du site minier (FauENord, 2020)
<b>G4.4 Herpetofauna</b>	
G4.4.1	Avifaune et herpétofaune - Étude de référence (Wachiih, FauENord, 2024)
G4.4.2	Étude des anoures du site minier (FauENord, 2021)
G4.4.3	État de référence du milieu récepteur herpétofaune (Wachiih, 2019)
<b>G4.5. Avifauna</b>	
G4.5.1	État de référence du milieu récepteur avifaune (Wachiih, FauENord, 2020)
G4.5.2	Étude de la sauvagine du site minier (FauENord 2021)
G4.5.3	Avifaune et herpétofaune-Étude de référence (Wachiih, 2025)
<b>G.5.5. Fish and Fish Habitat</b>	
G.5.1	Étude complémentaire pour évaluation des risques sur la santé - Caractérisation des concentrations de métaux potentiellement préoccupants chez les poissons et les végétaux (Stantec, 2025)
<b>G.6. Inventaire archéologique, mine Troilus, automne 2024 (Stantec, 2025)</b>	
<b>H. Technical studies</b>	
H.1	Troilus Gold Project Technical Data Report – Air Quality Assessment (Stantec, 2025)
H.2	Rapport d'évaluation du climat sonore (Stantec, 2025)
H.3	Technical Data Report: Quantification of Greenhouse Gases (GHGs) for the Troilus Gold Mine Project (Stantec, 2025)
H.4	Technical Report - Hydrology Model (BluMetric, 2025)
H.5	Surface Water Quality Program (BluMetric, 2025)
H.6	Troilus Mine Groundwater Model and Forecast of Mine Expansion Effects on Waters Resources (BluMetric, 2025)
H.7	Troilus Mining Project Technical Data Report – Human Health Risk Assessment (Inhalation) (Stantec, 2025)
H.8	Troilus Mining Project Technical Data Report – Human Health Risk Assessment (Problem Formulation Multimedia) (Stantec, 2025)



