EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

December 23, 2022

Nicolas Courville
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Dear Mr. Courville,

Re: Greenstone Mine, 2022 Fish and Fish Habitat Federal EIS Follow-up Monitoring Report

Greenstone Gold Mines GP Inc. (GGM) is constructing, and proposes operate, and ultimately decommission/close a new open pit gold mine, process plant, and associated ancillary facilities, collectively known as the Greenstone Mine (the Mine). The Mine's Environmental Impact Statement was approved by the federal Minister of the Environment as outlined in the Decision Statement issued December 10, 2018, under Section 54 of the Canadian Environmental Assessment Act, 2012. The 2022 Fish and Fish Habitat Federal EIS Follow-up Monitoring Report has been developed and submitted to satisfy Federal EIS Conditions 3.15, 3.16, 3.17, 3.2, 5.4 and 5.5.1.

Should you have any questions or comments, please contact the undersigned.

Sincerely,

<original signed by>

Eric Lamontagne
General Manager

cc: Michelle Fraser, Stantec Consulting Ltd.
Mike Johns, Stantec Consulting Ltd.
Lesley Lorrimer, Stantec Consulting Ltd.
Laura Vares, Greenstone Gold Mines
Peter Pajunen, Greenstone Gold Mines

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Greenstone Mine

2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report

(To satisfy Federal EIS Conditions 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1)

HP-MG003-EV-136-0033_0

December 22, 2022

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List of Abbreviations

ASTM	American Society for Testing and Materials
BACI	before-after-control-impact
BGS	below ground surface
CALA	Canadian Association for Laboratory Accreditation
COC	chain of custody
DFO	Fisheries and Oceans Canada
DO	dissolved oxygen
EA	Environmental Assessment
ECA	Environmental Compliance Approval
EIS	Environmental Impact Statement
ETP	effluent treatment plant
GFC	Goldfield Creek
GGM	Greenstone Gold Mines GP Inc.
HDPE	high density polyethylene
HSA	hollow stem auger
ICP-MS	inductively coupled plasma mass spectrometry
ISW	industrial sewage works
MDMER	Metal and Diamon Mining Effluent Regulations
MHT	MacLeod high tailings
O.Reg.	Ontario Regulation
PAHs	Polycyclic Aromatic Hydrocarbons
PDA	Project Development Area
PHCs	Petroleum Hydrocarbons

Plan	Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan
PoPC	parameter of potential concern
PTTW	Permit to Take Water
PVC	polyvinyl chloride
QA/QC	quality assurance / quality control
STP	sewage treatment plant
SWAT	Southwest Arm Tributary
TETP	Temporary Effluent Treatment Plant
TMF	Tailings Management Facility
tpd	tonnes per day
WRSA	waste rock storage area
YOY	young-of-the-year

1 Introduction

Greenstone Gold Mines GP Inc. (GGM) is in the process of constructing the Greenstone Mine (the Project), which was formerly referred to as the Hardrock Project. The Mine site is located just south of Geraldton, Ontario, within the municipality of Greenstone, at the intersection of Highway 11 and Highway 584. The Project's Environmental Impact Statement (EIS) (Stantec 2018a) was approved by the Canadian Environmental Assessment Agency (CEAA), as outlined in the Decision Statement issued under Section 54 of the *Canadian Environmental Assessment Act, 2012*. The federal Decision Statement contained various Conditions of Approval. A Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (the Plan) (GGM 2021a) was prepared to address seven specific federal Conditions of Approval related to monitoring potential effects of the Project on fish and fish habitat (Conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1). This 2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report describes activities undertaken during the period of October 1, 2021 through September 30, 2022 (i.e., the 2022 monitoring period) to satisfy the requirements of the Plan.

Construction started March 1, 2021, with tree clearing activities, which allowed for the construction of a temporary camp to house mine workers, the set-up of construction trailers, and the construction of a temporary effluent treatment plant (TETP). No activities that involved the excavation or movement of soil occurred prior to the TETP being commissioned on September 15, 2021. Construction of the following features and mine components commenced during the 2022 monitoring period:

A. New highway realignment road base
B. MacLeod High Tailings (MHT) seepage collection system and associated pipeline to the TETP
C. Historical tailings Containment Cell No. 1 to facilitate construction of the MHT seepage collection system
D. Development of S4 and T2 aggregate pits
E. Tailings Management Facility (TMF) dams
F. Goldfield Creek Diversion Dam
G. Goldfield Creek realignment
H. Two grade control structures on the Southwest Arm Tributary (SWAT)
I. Several culverts
J. Full scale effluent treatment plant (ETP)
K. Full scale ETP effluent discharge pipeline
L. Water management pond M1
M. Stockpiling of material in Waste Rock Storage Area (WRSA) C

N. Starter pit

O. Office buildings

P. The mill

Q. Other site infrastructure.

1.1 Purpose

The purpose of this Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report is to describe monitoring activities for the 2022 monitoring period. The monitoring activities were undertaken to assess the accuracy of the EIS as it pertains to federal Conditions of Approval related to fish and fish habitat, and to determine the effectiveness of related mitigation measures. The overall objectives related to each Condition are provided Table 1-1, which also references the applicable section of this 2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report.

Table 1-1: Objectives for Federal Conditions of Approval Related to Fish and Fish Habitat

Federal Condition	Report Section	Objective (from federal Decision Statement, 9/4/2019)
3.14	2.1	*develop, prior to construction, and implement, during all phases of the Designated Project and in a manner consistent with the Fisheries Act and its regulations, measures to control erosion and sedimentation in the project development area. The Proponent shall submit these measures to the Agency before implementing them. Among other measures, the Proponent shall maintain stream bank stability using ditches and diversion berms.*
3.15	2.4	*determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of blasting on fish and fish habitat*
3.16	2.2	*verify the accuracy of the environmental assessment and to determine the effectiveness of the mitigation measures as it pertains to adverse environmental effects on fish and fish habitat caused by changes in water quality in Kenogamisis Lake, Mosher Lake and the Southwest Arm Tributary*
3.17	2.3	*verify the accuracy of the environmental assessment and to determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on fish and fish habitat of from changes in groundwater quality*
3.2	2.4	*develop, prior to the start of blasting activities in or near water, and implement, during blasting activities in or near water, mitigation measures to avoid or prevent adverse effect on fish and fish habitat from the use of explosives*
5.4	2.5 (water) 2.6 (fish)	*verify the accuracy of the environmental assessment as it pertains to the adverse environmental effects on the health of Indigenous Peoples of changes in concentrations of contaminants in water and fish**

Table 1-1: Objectives for Federal Conditions of Approval Related to Fish and Fish Habitat

Federal Condition	Report Section	Objective (from federal Decision Statement, 9/4/2019)
5.5.1	2.7	*verify the accuracy of the environmental assessment and to determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the health of Indigenous Peoples of changes in concentrations of contaminants in fish tissue*

* Note that an objective of this monitoring program is to document potential changes to the concentration of parameters of potential concern in fish tissue. The assessment of risk to human health will be described under the reporting requirements of the Indigenous Peoples Health Risk Assessment Follow-Up Plan (GGM 2020a).

2 Follow-Up Monitoring

Sections 2.1 through 2.7 provide a description of follow-up monitoring activities undertaken in the 2022 monitoring year to satisfy Conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1.

2.1 Erosion and Sediment Control

As per the requirements of federal Condition 3.14, GGM has developed and implemented measures to control erosion and sedimentation in the Project Development Area (PDA) (GGM 2020b). Work that occurred in and around water during the 2022 monitoring period included the construction of the:

- New highway realignment road base
- Grade Control Structures in the SWAT
- Roads and culverts on site
- Temporary diversion channel around the Goldfield Diversion Pond work area
- Newly realigned section of Goldfield Creek
- Full scale effluent discharge pipeline.

The Erosion and Sediment Control Plan (ESCP) (GGM 2020b) was implemented to mitigate potential effects of erosion and sedimentation on fish and fish habitat. ESC measures are presented in the ESCP and include the following main components:

- Completing work in and around fish habitat during the appropriate timing window (no in-water work April 1 to June 20) to avoid spawning times and times when eggs and juvenile fish may be more susceptible to potential effects of increased turbidity and sedimentation
- Limiting the area of ground disturbance and vegetation clearing
- Reducing the duration of in-water work

- Use of silt fencing, straw bales, fiber mats, filter bags, silt curtains and other ESC tools to reduce erosion and sedimentation
- Revegetation of disturbed areas.

Erosion and sediment controls were regularly inspected to verify the effectiveness of the mitigation measures. Management practices were implemented to protect the environment, and to determine whether new management strategies and/or mitigation measures were required. The following activities were undertaken as part of the regular erosion and sediment control monitoring:

- Work sites were inspected and monitored on an on-going basis for compliance with the ESCP (GGM 2020b).
- Earthworks were inspected daily to look for evidence of erosion and sedimentation and corrective measures were taken as necessary.
- Where required, work activities ceased to address potential erosion and sediment control issues.
- Silt fence barriers were inspected daily and immediately following rainfall events.
- Silt fence was repaired or replaced if it was not functioning as intended.
- Stand-by material of prefabricated silt fence barrier was maintained on the construction site and was available for rapid deployment.
- Erosion control structures were reinforced when significant rainfall events were forecasted.

2.2 Surface Water Quality

The following section describes the measures carried out to satisfy federal Condition 3.16 of the EIS approval by presenting surface water quality monitoring completed by GGM to support the identified mitigation measures to reduce adverse effects on fish and fish habitat. This follow-up program describes the results of the October 2021 through September 2022 water quality in Kenogamisis Lake, Mosher Lake, and the SWAT (Condition 3.16).

There are two components of surface water quality monitoring presented herein:

1. Surface water quality monitoring
2. Dissolved oxygen and water temperature profiling

2.2.1 Methods

2.2.1.1 Surface Water Quality Monitoring Methods

The surface water monitoring locations, sampling frequency, sampling methods, analytical parameters, and data analysis are presented in the following sections.

2.2.1.1.1 Data Collection

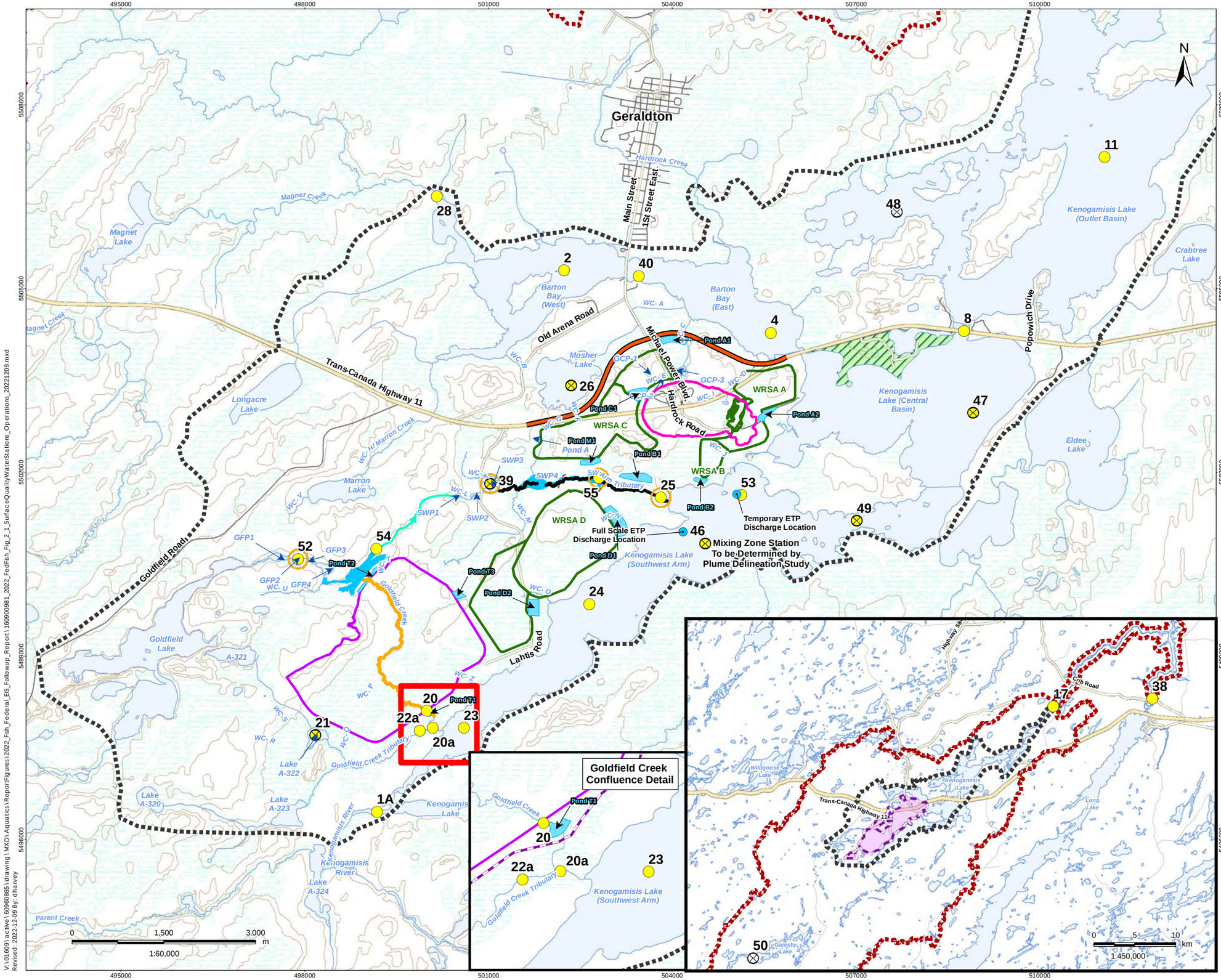
Surface water quality in lakes and streams may potentially be affected through the sewage treatment plant (STP) and effluent treatment plant (ETP) discharges to the Southwest Arm of Kenogamisis Lake or from groundwater seepage from the Waste Rock Storage Areas (WRSAs), TMF, and historical tailings.

Surface water quality sampling locations are presented in Figure 2-1. Surface water monitoring locations are reviewed throughout the adaptive management process presented in the Plan (GGM 2021a). Monitoring locations may be added or removed from the monitoring program in accordance with their utility in monitoring potential effects of the Project.

Table 2-1 presents the frequency of sampling and rationale for each monitoring station for surface water quality. Surface water quality monitoring includes:

- Water quality monitoring (monthly) of the Southwest Arm of Kenogamisis Lake to monitor the extent of the effluent mixing zones within the receiver as well as potential effects of the TMF on the Southwest Arm of Kenogamisis Lake.
- Water quality monitoring (monthly) of Barton Bay, Central Basin, and Outflow Basin of Kenogamisis Lake, and downstream of Kenogamisis Lake at the locations indicated on Figure 2-1 to document changes in water quality.
- Water quality monitoring (monthly) of Goldfield Creek (GFC) Tributary, GFC diversion channel, SWAT inflow to the Southwest Arm of Kenogamisis Lake, Magnet Creek, and Mosher Lake to document changes in water quality.

Of the twenty-five (25) surface water quality monitoring stations, twenty-four (24) locations were sampled during 2022. Station 54 is located at the outlet of the GFC diversion pond. Sampling of station 54 will commence once Goldfield Creek is diverted and water begins flowing into the new channel, expected in winter 2023. The location of Station 46 may be modified in 2023 to monitor the mixing zone for the full scale ETP, after a plume delineation study is completed to determine the best location for this water quality monitoring station. The surface water quality monitoring locations were monitored monthly, when safe to do so, to assess seasonal fluctuations in water quality. Data from monthly monitoring was used to monitor potential trends in surface water quality and to evaluate whether fluctuations in quality were due to natural variability or from a Project related effect. The frequency of monitoring will be reduced to quarterly if there are no trigger thresholds exceeded during a two-year period (approximately 24 samples). The surface water quality monitoring stations are shown on Figure 2-1.



Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Existing Portion of Goldfield Creek (to be overprinted)
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

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160900981

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.
2-1

Title

Surface Water Quality Monitoring Locations

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Revised: 2022-12-09 By: dharvey

Table 2-1: Surface Water Quality Monitoring Locations, Frequency, and Rationale

Station	Frequency	Rationale
1A	Monthly	Background station, upstream of Southwest Arm
2	Monthly	Monitor for potential effects of historical Little Long Lac tailings seepage discharge
4	Monthly	Monitor for potential effects of historical MacLeod tailings seepage discharge and Geraldton STP discharge on Barton Bay East
8	Monthly	Monitor for potential effects downstream of the Kenogamisis Lake Central Basin near the outlet to the Outlet Basin
11	Monthly	Monitor for potential effects midway through the Outlet Basin
17	Monthly	Kenogamisis Dam. End of Local Assessment Area
20	Monthly	Monitor for potential effects of the TMF on GFC, upstream of confluence of GFC and GFC Tributary and upstream of Kenogamisis Lake
20A	Monthly	Monitor for potential effects of the TMF on GFC, downstream of confluence of GFC and GFC Tributary and upstream of Kenogamisis Lake
21	Monthly	Monitor potential effects of TMF on Lake A-322.
22A	Monthly	Monitor for potential effects of the TMF on Goldfield Creek Tributary, upstream of confluence of GFC and GFC Tributary.
23	Monthly	Monitor potential effects of the TMF on the Southwest Arm of Kenogamisis Lake
24	Monthly	Monitor for potential effects of the TMF and/or WRSA D on the Southwest Arm of Kenogamisis Lake
25	Monthly	Monitor for potential effects of mining activities at the mouth of the SWAT
26	Monthly	Monitor for potential effects of WRSA C on Mosher Lake. Requirement of Condition 3.16 of CEAA Decision Statement
28	Monthly	Background station. Magnet Creek, upstream of Barton Bay
38	Monthly	Downstream of Outlet Basin upstream of Long Lake
39	Monthly	Southwest Pond 3 (SWP3) of SWAT, downstream of Goldfield Creek Diversion
40	Monthly	Barton Bay East. Upstream of historical MacLeod tailings seepage discharge and Geraldton STP
46	Monthly	Monitor full scale ETP mixing zone; station location post discharge to be determined/confirmed by plume delineation study.
47	Monthly	Monitor for potential effects in the Central Basin
49	Monthly	Monitor for potential effects where Southwest Arm outlets to Central Basin
52	Monthly	Background station upstream of Goldfield Creek Diversion
53	Monthly	Monitor water quality at the end of the mixing zone for the temporary ETP
54	Monthly	Monitor for potential effects at the outlet of the Goldfield Creek Diversion Pond
55	Monthly	Monitor potential effects of the Project in the Southwest Am Tributary (SWAT), including the Goldfield Creek realignment

Surface water sampling was completed by grab sampling, using bottles provided by the laboratory that contained appropriate preservative, where required. Samples for dissolved forms of metals were filtered using a 0.45 µm membrane filter. Water quality samples were taken just below the surface of the water (0.1 m deep). Water quality samples were collected by an experienced technician using suitable sampling equipment. Samples were preserved (if applicable) and transported in appropriate containers to maintain the integrity of sample temperatures and hold times. Samples were submitted to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory under chain of custody (COC) documentation.

2.2.1.1.2 Laboratory Analysis

The accredited CALA laboratory used the authorized analytical methods set out in the industrial sewage works (ISW) environmental compliance approvals (ECAs), permits to take water (PTTWs), and regulations (i.e., Metal and Diamond Mining Effluent Regulations [MDMER] and Ontario Regulation [O.Reg.] 560/94).

The surface water quality samples were analyzed for general chemistry, nutrients, and total and dissolved metals (including arsenic), total suspended solids (TSS), nitrate (as N), total kjeldahl nitrogen (as N), pH, total phosphorus, and sulfate. Unionized ammonia was calculated based on total ammonia, and field pH and field temperature measurements.

In situ temperature, pH, conductivity, turbidity, and dissolved oxygen (DO) were measured at the water surface during sample collection using a multi parameter water quality meter. A sample collection form was used to record *in situ* parameters and to record current weather (i.e., air temperature, raining, snowing) and flow conditions (i.e., low flows, high flows, ice cover conditions).

Quality assurance (QA) / quality control (QC) principles for sampling and laboratory analysis outlined in Metal Mining Technical Guidance for Environmental Effects Monitoring (EC 2012) were followed. Duplicate samples were collected from a subset of samples collected to quantify environmental variability and analytical consistency, with a minimum of one duplicate for every 10 parent samples. A minimum of one travel and one field blank was collected per sampling event to detect potential sources of contamination. Field instruments were calibrated regularly according to the manufacturer's specifications and calibration logs were maintained.

Water quality data were entered into an electronic database and was validated against the original laboratory certificate of analysis.

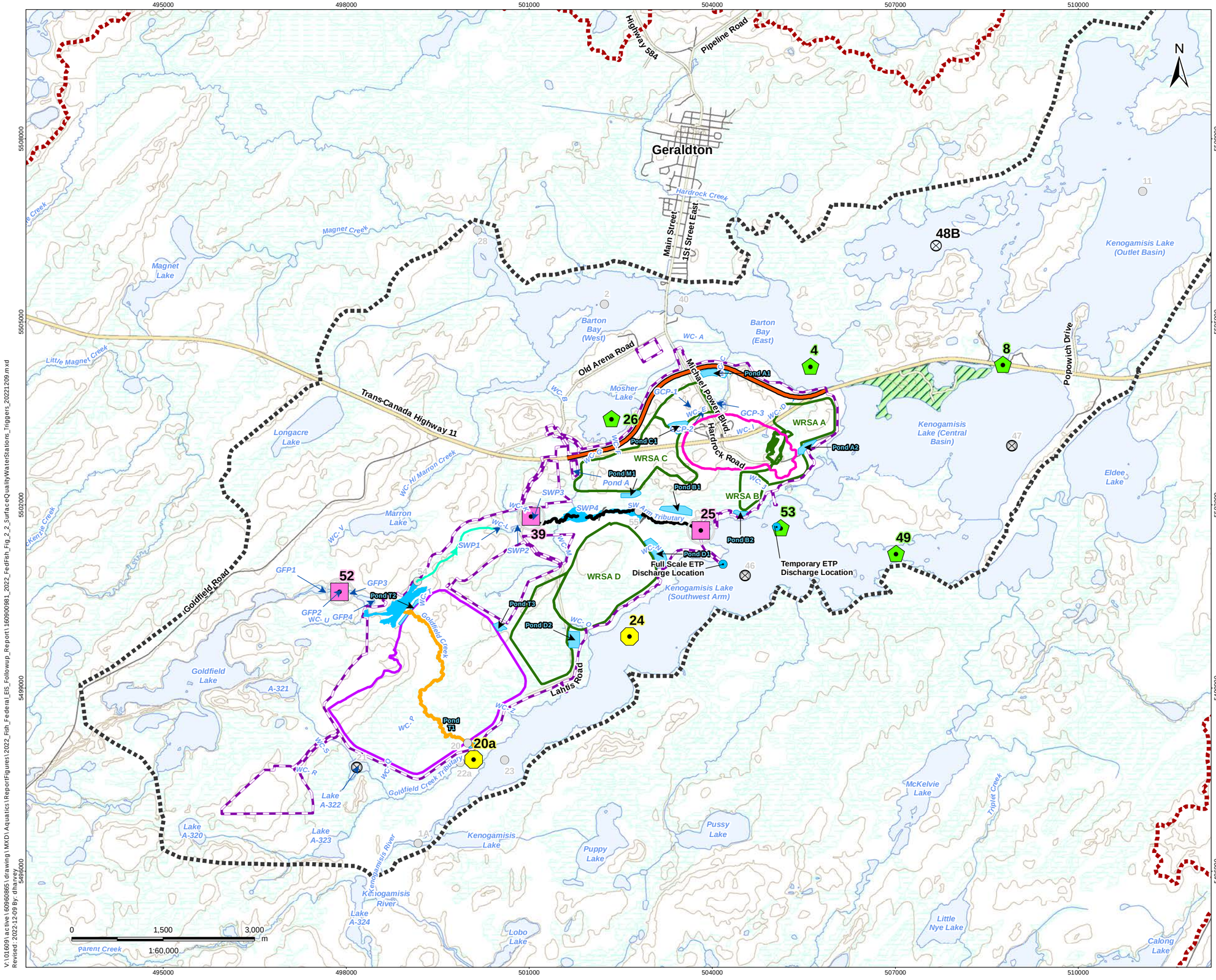
2.2.1.1.3 Data Analysis

The raw data set for each parameter at each station was compiled into a spreadsheet to present the monitoring completed for the 2022 period. Since monitoring occurred after the start of discharge from the temporary ETP on September 15, 2021, the data are considered to be representative of the construction period. Baseline surface water quality data for the site included samples taken up to and including the September 2021 sample set (samples collected before September 15, 2021).

For the 2022 reporting period, the compilation of monthly data was compared to trigger thresholds for surface water quality defined in the Plan (GGM 2021a). The trigger monitoring stations, indicator parameters, and rationale are presented in Table 2-2. The locations of the trigger monitoring stations are presented in Figure 2-2.

Table 2-2: Surface Water Trigger Threshold Monitoring Stations

Trigger Threshold Monitoring Station	Frequency of Measurement	Indicator Parameter	Rationale
4	Monthly	As, Co, Fe, P, Sb, U	Monitor for potential effects of the historical tailings and WRSAs seepage and Geraldton STP discharge on Barton Bay East.
8	Monthly	As, Co, Fe, P, Sb, U	Monitor for potential Project effects downstream of the Kenogamisis Lake Central Basin near the outlet to the Outlet Basin.
20A	Monthly	As, Co, Cu, Fe, P, Sb, U, CN free & total	Monitor for potential effects of the TMF on GFC, downstream of confluence of GFC and GFC Tributary and upstream of Kenogamisis Lake
24	Monthly	As, Co, Cu, Fe, P, Sb, U, CN free & total	Monitor for potential effects of the TMF and/or WRSA D on the Southwest Arm of Kenogamisis Lake
25	Monthly	As, Co, Fe, P, Sb, U, Hg, MeHg	Monitor for potential effects of mining activities on the water at the mouth of the SWAT
26	Monthly	As, Co, Fe, P, Sb, U	Monitor for potential effects of WRSA C on Mosher Lake
39	Monthly	As, Co, Fe, P, Sb, U, Hg, MeHg	Monitor for potential effects of mining activities on SWAT, downstream of GFC Diversion
49	Monthly	As, Co, Fe, P, Sb, U	Monitor for potential effects where Southwest Arm outlets to Central Basin
52	Monthly	As, Co, Fe, P, Sb, U, Hg, MeHg	Background station upstream GFC Diversion
53	Monthly	As, Co, Fe, P, Sb, U	Monitor for potential effects beyond the temporary ETP mixing zone



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Revised: 2022-12-09 By: dharvey

Stantec

Legend

- Project Development Area
- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring
- Routine Water Quality Monitoring

Trigger Threshold Surface Water Quality Stations and Routine Monitoring

- Monthly Sampling for As, Co, P, Sb, U, Hg, Fe and MeHg
- Monthly Sampling for As, Co, Cu, Fe, P, Sb, U, CN Free and CN Total
- Monthly Sampling for As, Co, Fe, P, Sb, U

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
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Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.
2-2

Title

Surface Water Quality Trigger Threshold Monitoring Locations

2.2.1.2 Dissolved Oxygen and Water Temperature Profile Monitoring Methods

2.2.1.2.1 Data Collection

The DO and water temperature profile monitoring locations are presented in Figure 2-1. Temperature and DO water column profile sampling was completed quarterly (February, June, August, October) at eight surface water monitoring locations. Table 2-3 presents the location, frequency of profile sampling, and rationale for each temperature and DO water column profile sampling location.

Table 2-3: Dissolved Oxygen and Water Temperature Profile Monitoring Locations, Frequency, and Rationale

Station	Frequency	Rationale
21	Quarterly	Deepest point in Lake A-322
26	Quarterly	Deepest point in Mosher Lake
39	Quarterly	Deepest point in Southwest Pond 3 (SWP3) of SWAT
46	Quarterly	Southwest Arm near proposed effluent discharge location
47	Quarterly	Deepest point in Central Basin
48	Quarterly	Deepest point in Outlet Basin, Hardrock Bay
49	Quarterly	Deep location at narrows where Southwest Arm outlets to Central Basin
50	Quarterly	Gamsby Lake – Reference area, 25 km southwest of the Project, no known historical mine influences

DO and temperature were measured at 1 m intervals from the surface of the water column at the profile sampling locations. DO and temperature were measured using a handheld multi parameter water quality meter with an extended cable for the probe, sufficient to reach the full depth of the water column. The meter was calibrated prior to use according to the manufacturer's specifications using the appropriate calibration standards. The probe was lowered with a graduated tape measure to confirm the depth of the probe. The probe was allowed to equilibrate prior to taking a reading.

2.2.1.2.2 Data Analysis

The raw data set for each parameter at each station was compiled into a spreadsheet to present the monitoring completed for the 2022 period. Each quarterly monitoring event was plotted on a graph comparing the depth of the water column to the water temperature and DO levels for a visual representation of observed conditions.

2.2.2 Results

A summary of the surface water sampling results for routine surface water quality monitoring and DO and temperature profiling from October 2021 through September 2022 is presented in the subsequent sections below.

2.2.2.1 Routine Surface Water Quality Monitoring

2.2.2.1.1 Data Collection

Surface water quality data was collected for the required parameters monthly at the 24 monitoring stations from October 2021 to September 2022, with the exception of December 2021 when access to the sites was unsafe due to ice. Sampling at station 1A was also not completed in January 2022 and April 2022 due to unsafe access, and Station 28 was not sampled during April 2022 due to unsafe access. For the sampling period of July to September 2022, the field parameter of oxidation-reduction potential (ORP) was not collected at some stations as the ORP probe on the handheld water quality sonde was malfunctioning. Additionally, sampling was conducted at station 25 in July however low level mercury was not analyzed due to a submission error.

Monitoring of Station 54 will begin following the diversion of Goldfield Creek, once the proposed monitoring location is inundated and water is available to monitor, which is anticipated to be in early 2023.

Copies of the completed monthly surface water quality sampling field sheets for the period of October 2021 to September 2022 are provided as Appendix A1.

Monthly surface water quality sampling is expected to continue for the stations in Table 2-1 for the 2023 reporting period.

2.2.2.1.2 Data Analysis

A summary of surface water analytical results is provided in Appendix A2.

The seasonal surface water quality trigger thresholds for the 10 stations and parameters identified in Table 2-2 were calculated using available baseline data up to September 8, 2021, prior to the start of the temporary ETP discharge, and are presented in Appendix A3. The four seasonal periods were defined as winter (January – March), spring (April – June), summer (July-September), and fall (October – December).

The 2022 surface water quality monitoring data for the 10 stations and parameters identified in Table 2-2 were compared to the seasonal trigger thresholds. The results of this comparison are presented in Appendix A3. Surface water quality results above their respective seasonal 95th percentile concentrations, or >10% above the predicted surface water quality concentration from the EIS/EA (for those stations where the seasonal 95th percentile baseline concentration is less than the predicted surface water quality concentration from the EIS/EA), and five times the detection limit are highlighted in Appendix A3.

Prior to January 2022, the baseline surface water quality samples were analyzed by ALS. In January 2022, GGM contracted Testmark Laboratories to complete the water analyses for the Mine. A variety of parameters concentration in surface water were elevated since January 2022 compared to baseline concentrations. In August 2022, GGM initiated an investigation into the results of the laboratory analyses. The investigation involved collecting duplicate samples for analysis by Testmark Laboratories

and ALS. Preliminary analytical results received in September 2022 showed a difference in concentrations between laboratories, particularly iron which was consistently elevated in the results from Testmark Laboratories versus ALS. Given the discrepancy, GGM expanded the investigation to include triplicate sampling with analysis by Testmark Laboratories, ALS and Bureau Vertis (BV) to attempt to quantify the discrepancy in concentrations between laboratories, which occured in October 2022. In addition, a discussion is ongoing with Testmark Laboratories to identify the source of the elevated iron concentrations and to determine a path forward. Therefore, water analytical data analyzed since January 2021 should be viewed with caution until the laboratory investigation is complete.

2.2.2.2 Dissolved Oxygen and Water Temperature Profile

2.2.2.2.1 Data Collection

The quarterly DO and water temperature profile monitoring was completed, when safe to do so, at least once per quarter. The summary of monitoring completion is presented in Table 2-4.

Table 2-4: Dissolved Oxygen and Water Temperature Profile Monitoring Completion

Year	Sampling Season	In-Situ Water Quality Profile Station Number							
		21	26	39	46	47	48	49	50
2021	Fall	✓	✓	✓	✓	✓	✓	✓	✓
2022	Winter	✓	✓	✓	✓	✓	✓	✓	-
	Spring	✓	✓	✓	✓	✓	✓	✓	✓
	Summer	✓	✓	✓	✓	✓	✓	✓	✓

Quarterly profile sampling was completed at all eight surface water monitoring stations, except for winter profiling at station 50 due to unsafe ice conditions.

Quarterly DO and water temperature profile monitoring is expected to continue for the stations in Table 2-4 for the October 2022 through September 2023 reporting period.

2.2.2.2.2 Data Analysis

Raw, *in situ* temperature and DO profile data from October 2021 through September 2022 are presented in Appendix A4. Temperature and DO profile graphs are presented in Appendix A4.

2.2.3 Adaptive Management

2.2.3.1 Surface Water Quality

As written in the Follow-Up Plan (Stantec 2021), two trigger thresholds for surface water quality were defined, each with a varying level of sensitivity and associated level of response.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For stations and indicator parameters where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station AND five times the detection limit.

Surface water quality Trigger Threshold 2 is defined as a confirmed exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend for baseline data, an increase in the magnitude of the trend compared to baseline.

Surface water quality data collected in the 2022 reporting period for the 10 stations and parameters identified in Table 2-2 were compared to the seasonal site-specific surface water quality trigger thresholds. The following presents a summary of the Trigger 1 and Trigger 2 exceedances documented during the October 2021 to September 2022 monitoring period.

Station 4:

- Trigger Threshold 1 exceedance of uranium in January 2022. Resampling of uranium occurred in February 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for uranium in February 2022. Trigger Threshold 2 evaluation was completed and concluded that there was no significant upward trend in the data and therefore Trigger Threshold 2 was not exceeded, and no action was required. The same conclusions were made for March and April 2022 Trigger Threshold 1 and 2 exceedances of uranium.

Station 8:

- Trigger Threshold 1 exceedance of arsenic in January 2022. Resampling of arsenic occurred in February 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for arsenic in February 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for arsenic at station 8 and therefore Trigger Threshold 2 was exceeded. An investigation report for the Trigger Threshold 2 exceedance was completed in April 2022 and attached as Appendix A5-1. The investigation concluded that arsenic exceedances at Station 8 were not mine related but can be attributed to natural variability. As the Trigger Threshold 2 exceedance of arsenic at Station 8 was not mine related, the monitoring plan was recommended to continue with no modifications.
- Trigger Threshold 1 exceedance of iron in July 2022. Resampling of iron occurred in August 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in August 2022. Trigger Threshold 2 evaluation was completed and

concluded that there was a statistically significant upward trend for iron at station 8 and therefore Trigger Threshold 2 was exceeded. Iron at station 8 continued to exceed the trigger in September 2022. An investigation report was completed in September 2022 and is attached as Appendix A5-2. The investigation was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggested the elevated concentrations of iron at Station 8 may be related to either natural variability or laboratory analyses affecting the results for iron. Therefore, the investigation into the laboratory data needs to be completed prior to concluding the potential source of increased iron concentrations at Station 8. As the concentrations of iron at Station 8 were notably below the PWQO, the monitoring plan was recommended to continue with no modifications while the investigation into the laboratory analyses is completed. Once the investigation into the laboratory analyses is completed, a review of the trigger threshold exceedances to date will be completed to understand if the results of the laboratory investigation alter the previously noted trigger threshold exceedances and associated investigations.

Station 20A:

- Trigger Threshold 1 exceedance of arsenic in August 2022. Resampling for this parameter and station was completed as part of the September 2022 sampling event. Arsenic at station 20A did not exceed in September 2022, and therefore Trigger Threshold 1 was not confirmed, and no further action was required.

Station 24:

- Trigger Threshold 1 exceedance of iron in August 2022. Resampling of iron occurred in September 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in September 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for iron at station 24 and therefore Trigger Threshold 2 was exceeded. An investigation report for the Trigger Threshold 2 exceedance was completed in November 2022 and attached as Appendix A5-3. The investigation was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggested the elevated concentrations of iron at Station 24 may be related to either natural variability or laboratory analyses affecting the results for iron. As the concentrations of iron at Station 24 were notably below the PWQO, the monitoring plan was recommended to continue with no modifications while the investigation into the laboratory analyses is completed. Station 25:
- Trigger Threshold 1 exceedance of arsenic in April 2022. Resampling for this parameter and station in May 2022 showed the concentration of arsenic was less than the seasonal 95th percentile baseline concentration, therefore no further action was required.
- Trigger Threshold 1 exceedance of total phosphorous in April 2022. Resampling of total phosphorous occurred in May 2022, which concluded four consecutive monthly exceedances of

the seasonal 95th percentile baseline concentration for total phosphorous in May 2022. Trigger Threshold 2 evaluation was completed and concluded there was not a statistically significant upward trend for total phosphorous at station 25 in May and therefore Trigger Threshold 2 was not exceeded. Trigger Threshold 1 was exceeded again in June 2022 and so an evaluation of Trigger Threshold 2 was completed again, which concluded a statistically significant upward trend for total phosphorous at station 25. Therefore, Trigger Threshold 2 was exceeded in June 2022 and an investigation report was completed in July 2022, attached an Appendix A5-4 The investigation concluded that no direct link of total phosphorus exceedances at Station 25 and mine related activities can be established. However, the concentration of total phosphorous was beyond that observed historically. GGM undertook additional investigation including a site walk within the construction area to observe erosion and mitigation measures and potential for fresh exposure of rock within the vicinity that may have affected mass load of total phosphorous to the SWAT. Based on the site walk it was concluded that erosion and sediment controls were installed and operated as designed. Also, it was concluded that despite the increase concentration in the SWAT, the overall mass load of total phosphorous to Kenogamisis Lake is within the permitted mass load associated with the full scale ETP and the temporary ETP as the temporary ETP is not discharging at the maximum limits and the full scale ETP was yet to be commissioned.

- Trigger Threshold 1 exceedance of iron in April 2022. Resampling of iron occurred in May 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in May 2022. Trigger Threshold 2 evaluation was completed and concluded that there was not a statistically significant upward trend for iron at station 25 in May, and no further action was required. Iron continued to exceed Trigger Threshold 1 in June through August 2022. The same conclusions were made for June through August 2022 Trigger Threshold 1 exceedances of iron. Iron at station 25 did not exceed Trigger Threshold 1 in September 2022.
- Trigger Threshold 1 exceedance of mercury in June 2022. Sampling was conducted at station 25 in July however low-level mercury was not analysed due to a submission error. Resampling in August 2022 showed no more exceedance of the seasonal 95th percentile for mercury and therefore Trigger Threshold 1 was not confirmed for mercury at station 25, and no further action was required.
- Trigger Threshold 1 exceedance of arsenic in August 2022. Resampling of arsenic occurred in September 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for arsenic in September 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for arsenic at station 25 and therefore Trigger Threshold 2 was exceeded. An investigation report for the Trigger Threshold 2 exceedance was completed in November 2022 and attached as **Appendix A5-5**. The investigation suggested that the source of the increased arsenic concentrations may be related to temporary mine construction activities around SWAT.

Elevated total arsenic is likely related to SWAT in-water works that may have resulted in increased dissolved arsenic as particulate arsenic and sediments were mitigated with the ESC measures (e.g., filter bags and sedimentation basins) that were implemented. No modifications to the monitoring plan were recommended. It is anticipated that arsenic concentrations will decrease after in-water construction on the SWAT is completed. A significant decline in arsenic concentration was observed in September and October in comparison to summer months when the in-water construction was occurring.

Station 26:

- Trigger Threshold 1 exceedance of iron in July 2022. Resampling of iron occurred in August 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in August 2022. Trigger Threshold 2 evaluation was completed and concluded there was a statistically significant upward trend for iron at station 26 and therefore Trigger Threshold 2 was exceeded. Iron at station 26 continued to exceed Trigger Threshold 2 in September 2022. An investigation report was completed in October 2022, attached as Appendix A5-6. The investigation concluded that iron exceedances at Station 26 were not mine related but can be attributed to natural variability. As the Trigger Threshold 2 exceedance of iron at Station 26 was not mine related, the monitoring plan was recommended to continue with no modifications.

Station 39:

- Trigger Threshold 1 exceedance of iron in January 2022. Resampling for this parameter and station in February 2022 showed no more exceedance of the seasonal 95th percentile baseline concentration of iron and therefore no exceedance of Trigger Threshold 1. No further action was required.
- Trigger Threshold 1 exceedance of uranium in February 2022. Resampling of uranium occurred in March 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for uranium in March 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for uranium at station 39 in March. Therefore, Trigger Threshold 2 was exceeded. An investigation report was completed in May 2022, attached an Appendix A5-7. The investigation concluded that uranium exceedances at Station 39 were not mine related but can be attributed to natural variability. As the Trigger Threshold 2 exceedance of uranium at Station 39 was not mine related, the monitoring plan was recommended to continue with no modifications.
- Trigger Threshold 1 exceedance of iron in June 2022. Resampling of iron occurred in July 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in July 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for iron at station 39, therefore

Trigger Threshold 2 was exceeded. An investigation report was completed for iron at station 39 in August 2022, attached as Appendix A5-8. The investigation concluded that iron exceedances at Station 39 were not mine related but can be attributed to natural variability. As the Trigger Threshold 2 exceedance of iron at Station 39 was not mine related, the monitoring plan was recommended to continue with no modifications.

- Trigger Threshold 1 exceedance of arsenic in August 2022. Resampling of arsenic occurred in September 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for arsenic in September 2022. Trigger Threshold 2 evaluation was completed and concluded that there was no statistically significant upward trend for arsenic at station 39 and therefore Trigger Threshold 2 was not exceeded. No further action was required.

Station 49:

- Trigger Threshold 1 exceedance of iron in August 2022. Resampling of iron occurred in September 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in September 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for iron at station 49 and therefore Trigger Threshold 2 was exceeded. An investigation report for the Trigger Threshold 2 exceedance was completed in November 2022, attached as Appendix A5-3. The investigation was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggested the elevated concentrations of iron at Station 49 may be related to either natural variability or laboratory analyses affecting the results for iron. As the concentrations of iron at Station 49 were notably below the PWQO, the monitoring plan was recommended to continue with no modifications while the investigation into the laboratory analyses is completed.

Station 52:

- Trigger Threshold 1 exceedance of uranium in January 2022. Resampling of uranium occurred in February 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for uranium in February 2022. Trigger Threshold 2 evaluation was completed and concluded that although a statistically significant upward trend for uranium was assessed the magnitude of the trend when considering the entire available dataset is consistent with the magnitude of the trend for baseline conditions and therefore no action was required. Uranium continued to exceed Trigger Threshold 1 in March and April 2022. Similarly, Trigger Threshold 2 evaluations were completed and determined that Trigger Threshold 2 was not exceeded, and no further action was required.

Station 53:

- Trigger Threshold 1 exceedance of iron in August 2022. Resampling of iron occurred in September 2022, which concluded four consecutive monthly exceedances of the seasonal 95th percentile baseline concentration for iron in September 2022. Trigger Threshold 2 evaluation was completed and concluded that there was a statistically significant upward trend for iron at station 53 and therefore Trigger Threshold 2 was exceeded. An investigation report for the Trigger Threshold 2 exceedance was completed in November 2022 and attached as Appendix A5-3. The investigation was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggested the elevated concentrations of iron at Station 53 may be related to either natural variability or laboratory analyses affecting the results for iron. As the concentrations of iron at Station 53 were notably below the PWQO, the monitoring plan was recommended to continue with no modifications while the investigation into the laboratory analyses is completed.

In summary, surface water quality Trigger 1 and Trigger 2 exceedances were documented in the 2022 monitoring period. The triggers were assessed as per the Adaptive Management Plan. In summary:

- Trigger Threshold 2 investigations for uranium at Station 39, arsenic at Station 8, and iron at Stations 26 and 39 were identified to be not mine related but can be attributed to natural variability.
- Trigger Threshold 2 investigations for iron at stations 8, 24, 49 and 53 suggested that elevated concentrations of iron may be related to either natural variability or issues related to laboratory analyses. The laboratory investigation is ongoing. The investigation into the laboratory data needs to be completed prior to concluding the potential source of increased iron concentrations at these stations.
- Trigger Threshold 2 investigation for total phosphorous at station 25 concluded that no direct link of total phosphorus exceedances at Station 25 and mine related activities can be established.
- Trigger Threshold 2 investigation for arsenic at station 25 suggested that the source of the increased arsenic concentrations may be related to temporary mine construction activities around SWAT. The arsenic concentrations at station 25 declined considerably in September and October sampling in comparison to summer months during active in-water construction.

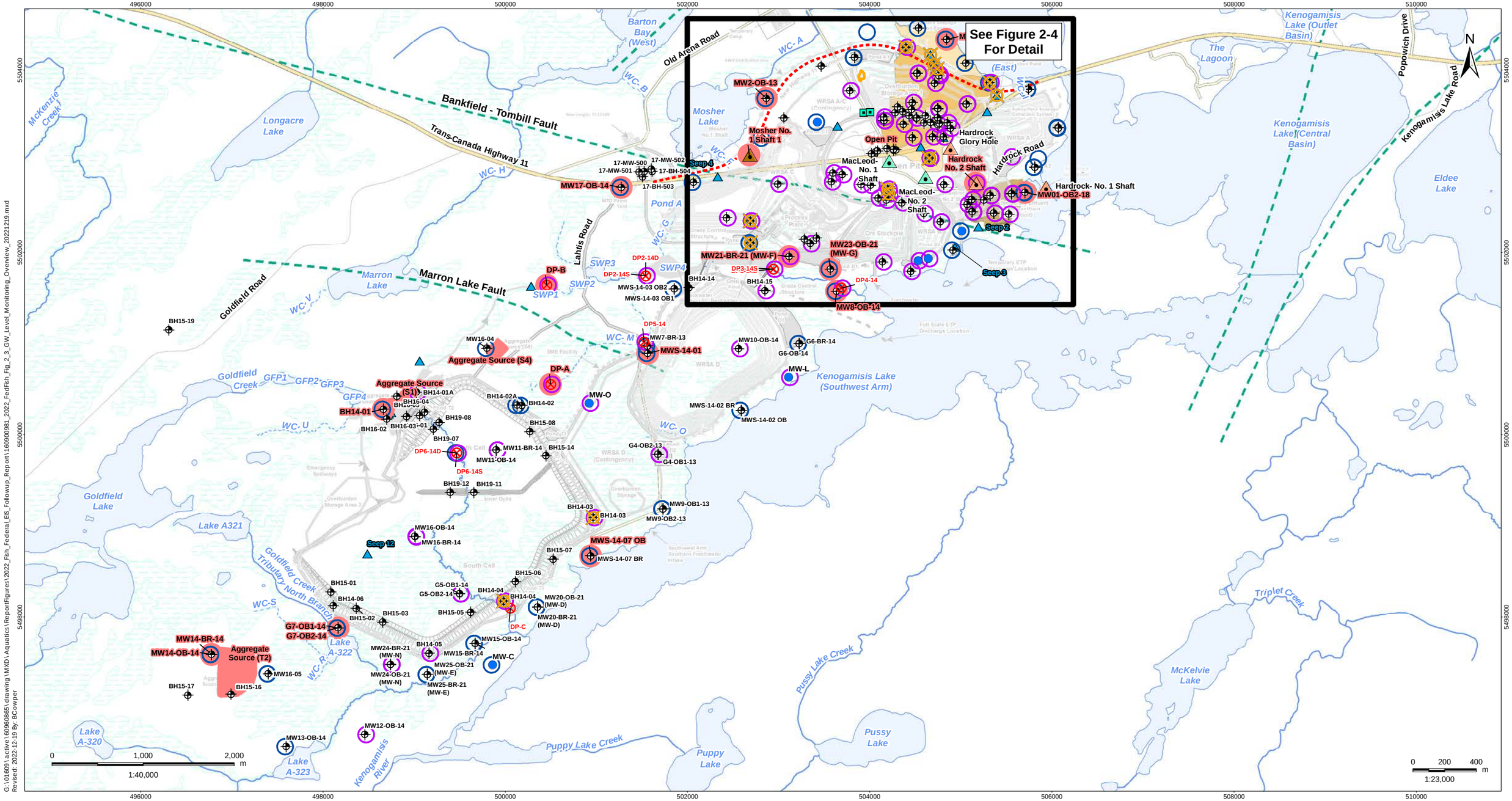
Based on the information presented above and within Appendix A-5, no changes to the existing monthly water quality monitoring stations/locations have been recommended. Therefore, existing monitoring program (stations, locations, frequency) will be continued for the 2023 reporting year. The laboratory analysis investigation described above will be concluded in winter 2023 and will inform a path forward for elevated iron source identification and subsequent recommendations.

2.3 Groundwater

The following section describes methods and results of groundwater monitoring during the 2022 reporting period that was undertaken to address federal Condition 3.17 of the federal EIS approval, which relates to mitigating and monitoring potential adverse effects on fish and fish habitat with respect to groundwater. There were three main groundwater monitoring components:

1) Pumped Volume Monitoring
2) Water Level Monitoring
3) Water Quality Monitoring

Methods and results for these groundwater monitoring components are described herein, along with recommendations for adaptive management. An overview of the groundwater quantity and quality monitoring locations is presented in Appendix B-1, Table B-1-1. The groundwater quantity monitoring locations are shown in Figure 2-3 and Figure 2-4 and the groundwater quality locations are shown on Figure 2-5.



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Revised: 2022-12-19 By: BCowper

December 2022
160900981

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

Legend

- Monitoring Well
- Groundwater Quantity Trigger Threshold Monitoring Locations
- Drive Point
- Proposed Monitoring Location
- Manual Groundwater Level Measurement
- Data Logger
- Monitoring Location Overprinted by Mine Infrastructure (2022)
- Seep
- Former Gas Station
- Faults
- New Highway 11 Alignment
- Watercourse- Permanent
- Watercourse- Intermittent
- Former Macleod Landfill Site
- Wetland (Eco-Site Based)

Historic Tailings Areas

- Hardrock Tailings
- Hardrock Reactive Tailings Area
- MacLeod High Tailings
- MacLeod Low Tailings

Historical Tailings Areas Mine Shafts

- Consolidated Mosher Long Lac Shaft
- Hard Rock Gold Mine Shaft
- Little Longlac Mine Shaft
- MacLeod-Cockshutt Mine Shaft

Client/Project

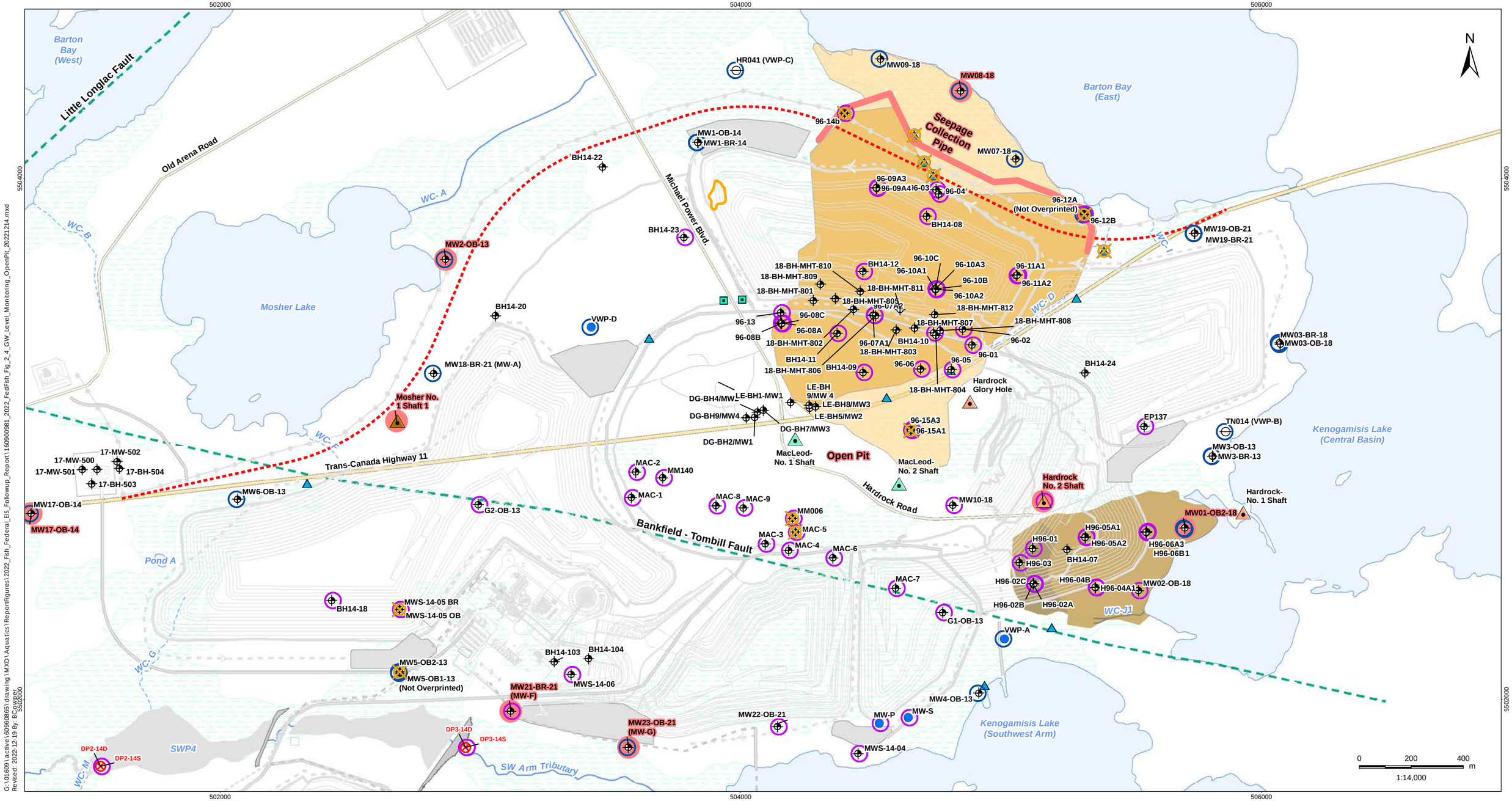
Greenstone Gold Mines GP Inc (GGM)
Hardrock Project

Figure No.

2-3

Title

Groundwater Quantity Monitoring Locations (Overview)



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Revised: 2022-12-19 By: BCowper

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Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
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Legend

- Monitoring Well
- Vibrating Wire Piezometer
- Groundwater Quantity Trigger Threshold Monitoring Locations
- Drive Point
- Proposed Monitoring Location
- Manual Groundwater Level Measurement
- Data Logger
- Monitoring Location Overprinted by Mine Infrastructure (2022)
- Seep
- Former Gas Station
- Faults
- New Highway 11 Alignment
- Watercourse- Permanent
- Watercourse- Intermittent
- Former Macleod Landfill Site
- Wetland (Eco-Site Based)

Historic Tailings Areas

- Hardrock Tailings
- Hardrock Reactive Tailings Area
- MacLeod High Tailings
- MacLeod Low Tailings

Historical Tailings Areas Mine Shafts

- Consolidated Mosher Long Lac Shaft
- Hard Rock Gold Mine Shaft
- Little Longlac Mine Shaft
- MacLeod-Cockshutt Mine Shaft

Client/Project

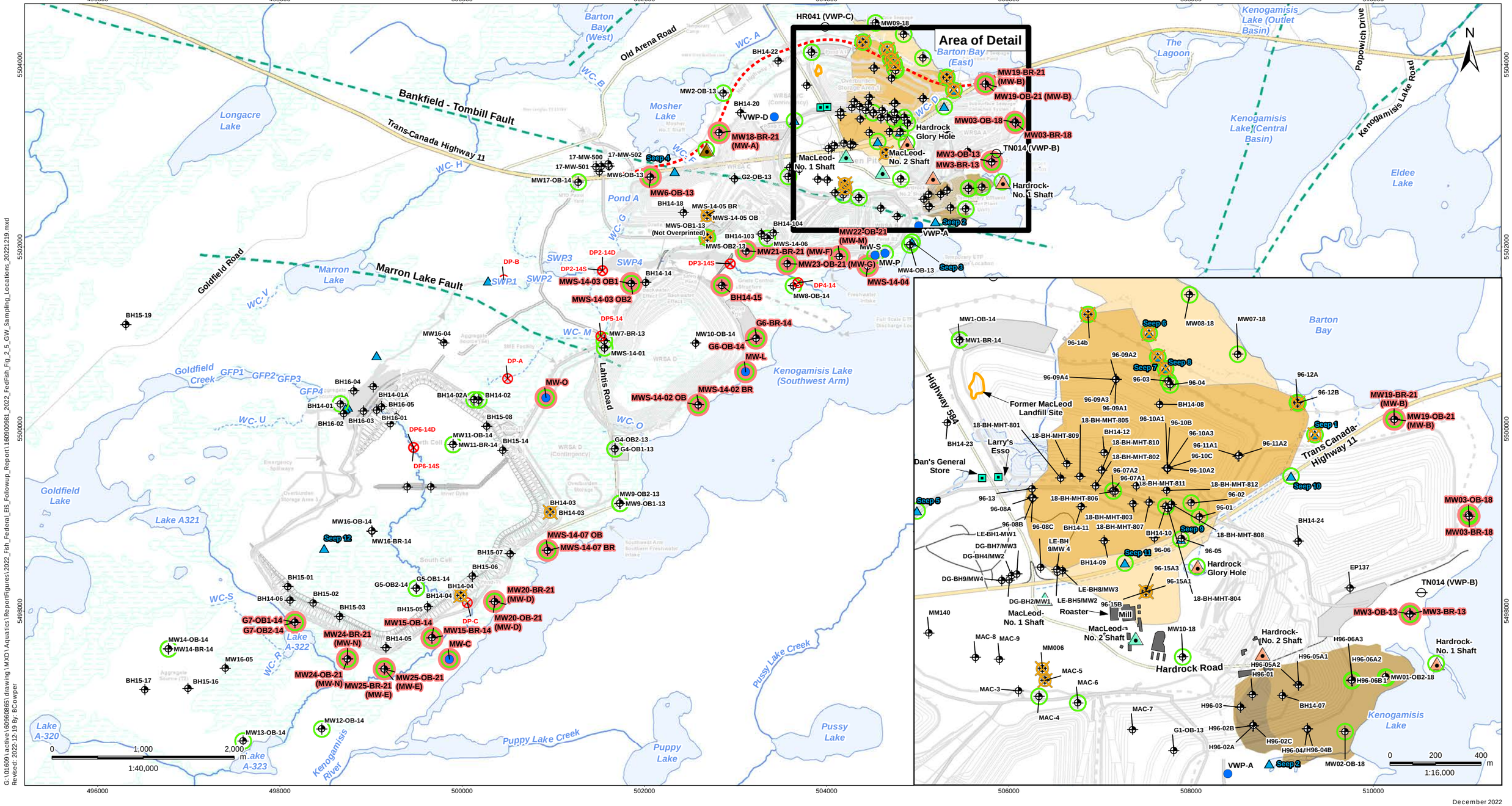
Greenstone Gold Mines GP Inc (GGM)
Hardrock Project

Figure No.

2-4

Title

Groundwater Quantity Monitoring Locations (Open Pit Area)



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Revised: 2022-12-19 By: BCowper

December 2022
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Legend

- Monitoring Well
- Vibrating Wire Piezometer
- Trigger Threshold Groundwater Quality Monitoring Location
- Drive Point
- Proposed Monitoring Location
- Groundwater Sampling Location
- Monitoring Location Overprinted by Mine Infrastructure (2022)
- Seep
- Former Gas Station
- Faults
- New Highway 11 Alignment
- Watercourse- Permanent
- Watercourse- Intermittent
- Former Macleod Landfill Site
- Wetland (Eco-Site Based)

Historic Tailings Areas

- Hardrock Tailings
- Hardrock Reactive Tailings Area
- MacLeod High Tailings
- MacLeod Low Tailings

Historical Tailings Areas Mine Shafts

- Consolidated Mosher Long Lac Shaft
- Hard Rock Gold Mine Shaft
- Little Longlac Mine Shaft
- MacLeod-Cockshutt Mine Shaft

Client/Project

Greenstone Gold Mines GP Inc (GGM)
Hardrock Project

Figure No.

2-5

Title

Groundwater Quality Monitoring Locations

2.3.1 Methods

The following section presents the methods and a summary of the required data analysis, consistent with the Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a) and program recommendations provided in the 2021 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report (GGM 2021b).

2.3.1.1 Pumped Volume Monitoring

2.3.1.1.1 Data Collection

The water pumped from the open pit, Mosher No. 1 Shaft, Hardrock No. 2 Shaft, MHT seepage collection system, and aggregate pits and quarry, when occurring, were measured. In addition to these operational features, the water pumped from excavations during the construction of some of the Mine features, including the TMF, Goldfield Creek diversion, process plant, culverts, and water management ponds, when occurring, were measured and tracked.

The frequency of sampling for each of the groundwater monitoring locations presented in Table B-1-1 of Appendix B-1 is described as follows:

- Water quantity (flow rate and total daily volume) pumped from Mosher No. 1 Shaft and Hardrock No. 2 Shaft during dewatering of historical underground workings and open pit.
- Water quantity (flow rate and total daily volume) pumped from the MHT seepage collection system (east pumping chamber discharge).
- Water quantity (flow rate and total daily volume) pumped from the aggregate pits (S1, S4, and T2) and TMF Quarry.
- Water quantity (flow rate and total daily volume) pumped from construction excavations in the process plant area.

The pumped volume from Mosher Shaft No. 1, Hardrock No. 2 Shaft, the open pit, and the aggregate pits, when occurring were monitored using a flow meter or totalizer so that the pumped volume may be measured or calculated based on flow rate and duration of pumping on a daily basis. For construction dewatering from excavations, the pumped volume may be monitored directly or estimated based on pump capacity and daily run times.

2.3.1.1.2 Data Analysis

The pumped volume from the open pit, when pumping is occurring, will be compared to the predicted dewatering rate to assess whether there is potential for drawdown greater than that predicted in the EIS/EA (Stantec 2018a) which can potentially result in changes in baseflow in nearby surface water features.

Select locations where water is pumped were chosen as trigger threshold monitoring locations under the adaptive management plan for groundwater (GGM 2021a). Table 2-5 presents a summary of the groundwater pumped volume trigger threshold monitoring locations and associated rationale. The pumped volume for trigger threshold monitoring locations were reviewed with respect to the trigger threshold quarterly.

In the case of construction dewatering, the volume of water was recorded as a single pumped volume but is required to be reported as a separate groundwater taking and surface water taking, in accordance with the relevant issued PTTWs. It is not possible to separate groundwater and surface water flow from the total flow in the field. Therefore, in the analysis of the pumped volume data, the division of groundwater and surface water was considered and divided on a consistent percentage basis.

2.3.1.2 Groundwater Water Level Monitoring

2.3.1.2.1 Data Collection

Groundwater levels within the vicinity of the open pit, TMF, WRSAs, aggregate pits, Kenogamisis Lake, SWAT, and Goldfield Creek were monitored to assess potential effects of the Project on groundwater quantity. Figure 2-3 and Figure 2-4 show the groundwater level monitoring locations. Well completion details are presented in Table B-2-1 in Appendix B-2.

Groundwater level monitoring was completed at up to 140 existing monitoring wells (95 locations) as well as 22 proposed monitoring wells, drive-point piezometers, and/or vibrating wire piezometers (11 locations) for a total of 162 monitoring points (106 locations). Data loggers were installed in up to 57 existing monitoring points (39 locations) and will be installed in up to 11 proposed monitoring points at 4 locations. Proposed monitoring locations will be added to the monitoring program once installation has been completed. Table B-1-1 in Appendix B-1 presents the groundwater level monitoring program. The total number of locations monitored during the reporting period are described in Section 2.3.2.2.1.

Water levels at the monitoring wells and drive-point piezometers were monitored using a combination of manual and automated techniques. Manual water level measurements were collected using a battery-operated probe and calibrated tape, water depths were measured in meters below the top of casing (BTOC) and recorded.

Monitoring wells instrumented with a data logger record pressure and frequency. If the data logger is not vented, then the atmospheric pressure was recorded at the site so that the data logger readings may be corrected for atmospheric pressure to obtain the actual height of water above the data logger. The data loggers were set to record at a frequency that is sufficient to understand the variability in the groundwater level at the given monitoring well (minimum 1-hour intervals).

2.3.1.2.2 Data Analysis

The groundwater levels in monitoring wells will be compared to baseline conditions and those predicted in the EIS/EA (Stantec 2018a) once related pumping activities commence. The purpose is to assess whether there is potential for a change in associated baseflow to nearby surface water features that is greater than that predicted in the EIS/EA (Stantec 2018a) and to confirm the reversal of the horizontal hydraulic gradient between the historical MacLeod and Hardrock tailings and Kenogamisis Lake.

Select locations, where groundwater levels are monitored, were chosen as trigger threshold monitoring locations for groundwater level and/or horizontal hydraulic gradient under the adaptive management plan for groundwater (Stantec 2020). Table 2-5 presents a summary of the groundwater level and horizontal hydraulic gradient trigger threshold monitoring locations and associated rationale. The groundwater level and horizontal hydraulic gradient for trigger threshold monitoring locations were reviewed with respect to the trigger thresholds in spring, summer, and fall of a given year.

Table 2-5: Groundwater Trigger Threshold Monitoring Locations, Frequency, Parameters, and Rationale

Trigger Threshold Monitoring Location	Frequency of Measurement and Comparison to Trigger Threshold	Trigger Threshold Parameter	Rationale
Groundwater Quantity			
Mosher No. 1 Shaft and Hardrock No. 2 Shafts	Daily Compared to Trigger Threshold – Quarterly	Pumped Volume	Indirectly monitor potential effects of dewatering the open pit on groundwater levels.
Open Pit	Compared to Trigger Threshold – Quarterly	Pumped Volume	
Aggregate Pit S1	Daily Compared to Trigger Threshold - Quarterly	Pumped Volume	Indirectly monitor potential effects of dewatering the aggregate pits on groundwater levels.
Aggregate Pit T2	Daily Compared to Trigger Threshold - Quarterly	Pumped Volume	
Aggregate Pit S4	Daily Compared to Trigger Threshold - Quarterly	Pumped Volume	
BH14-01 G7-OB1-14 G7-OB2-14 MW14-OB-14 MW14-BR-14 MWS-14-01 MWS-14-07 OB DP-A (Proposed Drive-Point Piezometer DP-A in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) (Central Wetland)	Manual - Spring, Summer, and Fall Data Logger – 1 hour Intervals Compare to Trigger Threshold – Spring, Summer, and Fall	Water Level	Monitor potential changes in groundwater levels associated with the TMF and/or dewatering of the aggregate pits to be protective of wetlands and baseflow to surface water features.
DP-B (Proposed Drive-Point Piezometer DP-B in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) (GFC Diversion)	Manual - Spring, Summer, and Fall Data Logger – 1 hour Intervals Compare to Trigger Threshold – Spring, Summer, and Fall	Water Level	Monitor potential changes in groundwater levels associated with the GFC diversion on a wetland located in the upper reaches of the SWAT.

Table 2-5: Groundwater Trigger Threshold Monitoring Locations, Frequency, Parameters, and Rationale

Trigger Threshold Monitoring Location	Frequency of Measurement and Comparison to Trigger Threshold	Trigger Threshold Parameter	Rationale
MW2-OB-13 MW8-OB-14 MW17-OB-14 MW01-OB2-18 MW08-18	Manual - Spring, Summer, and Fall Data Logger – 1 hour Intervals Compare to Trigger Threshold – Spring, Summer, and Fall	Water Level	Monitor potential changes in groundwater levels associated with dewatering the open pit to be protective of wetlands and baseflow to surface water features.
MW21-BR-21 (Proposed Monitoring Well MW-F in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) MW23-OB-21 (Proposed Monitoring Well MW-G in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a))	Manual - Spring, Summer, and Fall Data Logger – 1 hour Intervals Compare to Trigger Threshold – Monthly during Construction Dewatering of process plant	Horizontal Hydraulic Gradient toward the SWAT	Monitor potential changes in groundwater levels associated with temporary construction dewatering of the process plant area to be protective of wetlands and baseflow to surface water features. Confirm there is a horizontal hydraulic gradient toward the SWAT.
MHT Seepage Collection Drain	Manual - Spring, Summer, and Fall Data Logger – 1 hour Intervals Compared to Trigger Threshold – Spring, Summer, and Fall	Horizontal Hydraulic Gradient	Confirm that an inward horizontal hydraulic gradient is maintained toward the MHT seepage collection drain and/or toward the open pit. The horizontal hydraulic gradient will be interpreted based on water level measurements at nearby and surrounding monitoring locations ((via access holes in the drain, 96-03, 96-04, 96-09A1, 96-09A2, 96-09A3, 96-09A4, 96-11A1, 96-11A2, 96-12A, 96-12B, 96-14B, MW07-18, MW08-18, MW09-18, MW-H, MW-I, MW-J, and/or MW-K)
Reversal in horizontal hydraulic gradient between the historical MacLeod and Hardrock tailings and Kenogamisis Lake.	Manual – Spring, Summer, and Fall Data Logger – 1 hour Intervals at select wells Compared to Trigger Threshold – Fall starting in	Horizontal Hydraulic Gradient	Monitor timing of reversal in hydraulic gradient between historical tailings and Kenogamisis Lake to reduce mass loading from historical tailings to Kenogamisis Lake. The horizontal hydraulic gradient will be interpreted based on water level

Table 2-5: Groundwater Trigger Threshold Monitoring Locations, Frequency, Parameters, and Rationale

Trigger Threshold Monitoring Location	Frequency of Measurement and Comparison to Trigger Threshold	Trigger Threshold Parameter	Rationale
	year 5 of open pit development		measurements at monitoring wells completed within and surrounding the historical MacLeod and Hardrock tailings that will be monitored as per the groundwater sampling program (Section 2.3.1.4.1, Figure 2-3 and Figure 2-4)
Groundwater Quality			
G7-OB1-14 G7-OB2-14	Spring, Summer, and Fall	CN- (free), SO4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from the TMF on Lake A-322
MW15-OB-14 MW15-BR-14 MW25-BR-21 and MW25-OB-21 (Proposed Monitoring Well MW-E in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) MW24-BR-21 and MW24-OB-21 (Proposed Monitoring Well MW-N in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a))	Spring, Summer, and Fall	CN- (free), SO4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from the TMF prior to discharge to GFC Tributary
MWS-14-07 OB MWS-14-07BR MW20-BR-21 and MW20-OB-21 (Proposed Monitoring Well MW-D in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) Proposed Monitoring Wells MW-C	Spring, Summer, and Fall	CN- (free), SO4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from the TMF prior to discharge to Southwest Arm

Table 2-5: Groundwater Trigger Threshold Monitoring Locations, Frequency, Parameters, and Rationale

Trigger Threshold Monitoring Location	Frequency of Measurement and Comparison to Trigger Threshold	Trigger Threshold Parameter	Rationale
MWS-14-02 OB MWS-14-02-BR G6-BR-14 G6-OB-14 Proposed Monitoring Well MW-L	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from WRSA D prior to discharge to Southwest Arm
BH14-15 MWS-14-03 OB1 MWS-14-03 OB2	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from WRSA D prior to discharge to SWAT
MWS-14-04 MW22-OB-21 (Proposed Monitoring Well MW-M in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) Proposed Monitoring Well MW-O	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from WRSA B and/or Ore Stockpile prior to Discharge to Southwest Arm
MW6-OB-13 MW18-BR-21 (Proposed Monitoring Well MW-A in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a))	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effect of seepage from WRSA C prior to discharge to Mosher Lake
MW3-OB-13 MW3-BR-13 MW03-OB-18 MW03-BR-18 MW19-BR-21 and MW19-OB-21 (Proposed Monitoring Well MW-B in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a))	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, and Ur	Monitor for potential effects of seepage from WRSA A prior to discharge to Central Basin and Barton Bay
MW21-BR-21 (Proposed Monitoring Well MW-F in Federal Fish and Fish Habitat	Spring, Summer, and Fall	SO_4, and dissolved Sb, As, Co, Fe, Ur,	Monitor for potential effects of the process plant and associated facilities (fuel storage) on

Table 2-5: Groundwater Trigger Threshold Monitoring Locations, Frequency, Parameters, and Rationale

Trigger Threshold Monitoring Location	Frequency of Measurement and Comparison to Trigger Threshold	Trigger Threshold Parameter	Rationale
Federal EIS Follow-Up Monitoring Plan (GGM 2021a)) MW23-OB-21 (Proposed Monitoring Well MW-G in Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a))		BTEX, and PHCs	groundwater quality as well as potential effects of seepage from upgradient WRSAs.

2.3.1.3 Groundwater Water Quality Monitoring

2.3.1.3.1 Data Collection

Groundwater quality was monitored upgradient, cross gradient, and downgradient of the TMF, WRSAs, and historical MacLeod and Hardrock tailings to monitor for changes in groundwater quality due to Project development. Figure 2-5 shows the groundwater quality monitoring locations. A summary of the groundwater quantity and quality monitoring locations are presented in Table B-1-1 of Appendix B-1.

Groundwater quality monitoring was completed at up to 97 existing monitoring points (67 locations). Eight monitoring wells (5 locations) are proposed for future installation. Proposed monitoring locations will be added to the monitoring program once installation has been completed. Actual monitoring wells sampled during the reporting period are described in Section 2.3.2.3.1.

Groundwater quality sampling of up to 97 monitoring points (67 locations) occurred annually (fall) and 34 monitoring wells (23 locations) occurred in spring and summer.

Newly installed (2021) monitoring wells (included in the 97 locations described above) for groundwater quality are sampled in spring, summer, and fall until 10 sampling events are completed, then sampling frequency will change to fall, unless the new monitoring well is associated with a trigger threshold monitoring location as per the Plan (Section 2.c.2.3.3) then frequency will remain as spring, summer, and fall.

Dedicated equipment was used, when possible, and reusable equipment was decontaminated between sampling locations using phosphate free detergent and deionized water. Groundwater samples were collected in laboratory supplied bottles containing appropriate preservatives. Samples that require filtering (e.g., samples for metals analysis) were filtered in the field using a dedicated 0.45 µm filter.

Groundwater quality sampling for general chemistry and metals analysis was completed by purging the monitoring wells prior to sample collection. Where feasible, the monitoring wells were purged by removing a minimum of three well casing volumes of water, or until the well was purged dry three

times. Monitoring wells were sampled using dedicated tubing and peristaltic pumps. Field parameters comprising temperature, pH, conductivity, oxidation-reduction potential (ORP), and DO were measured during purging using a multi-parameter water quality meter and flow through cell where feasible. The meter was calibrated prior to use according to the manufacturer's specifications using the appropriate calibration standards.

QA/QC samples were collected as a check on the field methodology, laboratory analytical methods, and on sample precision in accordance with Environment Canada (2012). A minimum one field blank and trip blank were collected per sampling event in addition to one blind field duplicate for approximately 10% of groundwater samples per sampling event.

Groundwater quality samples were placed on ice and sent, under COC documentation, to an analytical laboratory that is accredited under CALA.

2.3.1.3.2 Laboratory Analysis

Groundwater quality samples collected as part of this monitoring program were analyzed for general chemistry, nutrients, and metals as listed in Table 2-6. Once fuel storage begins near the process plant, four monitoring wells located downgradient of the fuel storage location (MW5-OB1-13, MW5-OB2-13, MW21-BR-21 (MW-F) and MW23-OB-21 (MW-G)) will be sampled for organic parameters listed in Table 2-6.

Dissolved metals analysis is considered appropriate for groundwater samples and is more representative of metals chemistry in the aquifer than total metals since the suspended solids are generally not transported through aquifer materials and water supply wells are typically designed and developed to a state to reduce the potential for sediment in the pumped water. Therefore, the dissolved metals fraction was analyzed and compared to regulatory criteria and/or the trigger thresholds as per the Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a).

Table 2-6: Summary of Analytical Parameters for Groundwater Quality Samples

Parameter	
Alkalinity	Copper
Ammonia (as N)	Iron
Chloride	Lead
Electrical Conductivity	Magnesium
Cyanide (free and total)	Manganese
Fluorine	Mercury
Hardness	Molybdenum
Nitrite (as N)	Nickel
Nitrate (as N)	Potassium
pH	Selenium
Phosphorus	Silver

Parameter	
Sulfate	Sodium
Total Dissolved Solids (TDS)	Thallium
Total Suspended Solids	Tungsten
Turbidity	Uranium
Aluminum	Vanadium
Antimony	Zinc
Arsenic	Zirconium
Beryllium	Benzene *
Boron	Toluene *
Calcium	Ethylbenzene *
Cadmium	Xylenes *
Chromium (total)	Petroleum Hydrocarbons (PHCs) Fraction 1 (F1) to 4 (F4) *
Cobalt	

* Benzene, Toluene, Ethylbenzene, Xylenes, and PAHs sampled at monitoring wells located downgradient of fuel storage locations (MW5-OB1-13, MW5-OB2-13 and MW21-BR-21 (MW-F), and MW23-OB-21 (MW-G))

2.3.2 Results

The following sections present the results of the groundwater quantity and quality monitoring program including comparisons of data to groundwater trigger thresholds as required by the AMP. As required by the Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a) monitoring began March 1, 2021 corresponding with the start of construction of the Mine. Although the current reporting period is from October 1, 2021 until September 30, 2022, the groundwater results include data collected before and after these dates to avoid splitting seasonal groundwater sampling events over multiple annual reports.

2.3.2.1 Pumped Volume Monitoring

2.3.2.1.1 Data Collection

The open pit has not yet been developed but pumping from the historical underground workings began on August 5, 2022 and continued intermittently until the end of the reporting period. The original Plan indicated pumping of the historical underground workings would be via Hardrock No. 2 Shaft and Mosher No. 1 Shaft. Based on detailed design, pumping from MacLeod No 1. Shaft instead of Hardrock No. 2 Shaft was predicted to be more efficient at limiting groundwater inflow to the starter pit. Therefore, pumping of the historical underground workings in the reporting period was completed via MacLeod No. 1 Shaft. Average monthly pumped volume for the historical underground workings is presented in Figure B-3-1 in Appendix B-3. Pumped volume data between August 5, 2022 and

September 19, 2022 was unavailable at the time of report preparation. Pumping data over this period will be presented in the next annual monitoring report.

Construction dewatering of groundwater and surface water occurred in the area of the process plant and was associated with dewatering of construction excavations to support construction of the associated infrastructure. Pumping occurred in two periods:

- September 15, 2021 to November 17, 2021
- April 11, 2022 to August 10, 2022

Available total daily volumes for the process plant construction dewatering are presented in Appendix B-3, Figure B-3-2. No pumping data was available between April 11, 2022 and August 10, 2022 at the time of report preparation. Pumping data over this period will be presented in the next annual report. No additional construction dewatering related to the process plant area is expected.

2.3.2.1.2 Data Analysis

One of the five groundwater quantity trigger thresholds described in the Plan is related to pumping. Groundwater quantity trigger threshold 2, which compares measured pumped volumes from the open pit, historical shafts, and/or aggregate pits in relation to the predicted dewatering rates in the EIS/EA, is evaluated quarterly. Monthly average pumped volume data for the open pit and historical shafts are presented in Figure B-3-1 (Appendix B-3) along with the applicable pumped volume trigger threshold of 14,860 m^3/day. Pumping from MacLeod Shaft No. 1 occurred intermittently beginning August 5, 2022 and continuing to the end of the monitoring period. Available average monthly pumped volumes were below the trigger threshold of 14,860 m^3/day. Pumped volume data between August 5, 2022 and September 19, 2022 was unavailable at the time of report preparation, but based on groundwater level response to pumping observed in the Mosher No. 1 Shaft (Figure B-3-1, Appendix B), daily pumped volumes were interpreted to be less than those occurring in October and November 2022. No trigger threshold exceedances were interpreted to have occurred during this reporting period.

2.3.2.2 Groundwater Water Level Monitoring

2.3.2.2.1 Data Collection

For this reporting period, groundwater level monitoring was completed in fall 2021, spring 2022, summer 2022 and fall 2022 at most required locations. Where data loggers were installed, downloading occurred during the water level monitoring event.

Groundwater level monitoring and data logger downloading was completed during each seasonal monitoring event according to Table B-1-1 in Appendix B with following exceptions:

Fall 2021 (September 21, 2021 to November 8, 2021):

- Data logger in MW16-04 failed. Replacement was scheduled for spring 2022 following the spring thaw.

- Manual groundwater levels at DP4-14 and DP5-14 were not collected because locations were inaccessible due to high water levels.

Spring 2022 (May 30, 2022 to June 22, 2022):

- Data logger in MW16-04 replaced on June 19, 2022.
- BH14-03, BH14-04, 96-15A1, 96-15A3, 96-15B, MWS-14-05 BR, and MWS-14-05 OB were overprinted by mine infrastructure. No manual groundwater levels could be taken. These monitoring wells were identified in the Plan as locations that would be removed from the Plan as construction progresses as they were located within the footprint of mine infrastructure.
- MW5-OB2-13 was overprinted by mine infrastructure. No manual groundwater levels could be measured and logger data was not available. MW5-OB2-13 is part of the Plan and will therefore be replaced in 2023 so monitoring may continue.
- 96-12B and 96-14B were overprinted by mine infrastructure. No manual groundwater levels could be taken. Data logger data for 96-12B were not available. Monitoring wells 96-12B and 96-14B are part of the Plan for monitoring hydraulic gradients in and around the historical MacLeod tailings as well as additional proposed monitoring wells. Optimization of the monitoring network associated with the historical MacLeod tailings will be completed in 2023 and additional monitoring wells will be installed once the north berm, which overlies the MHT drain, is complete.
- Manual groundwater levels at DP4-14 and DP5-14 were not collected because locations were inaccessible due to high water levels.
- DP6-14 metal cap seized and was inaccessible.
- Vibrating wire piezometers (VWP) HR041 (VWP-C) and TN014 (VWP-B) were added to the monitoring program. These data loggers included data back until January 2022.

Summer 2022 (July 5, 2022 to August 25, 2022):

- Manual groundwater levels at DP4-14 and DP5-14 were not collected because locations were inaccessible due to high water levels.

Fall 2022 (September 19, 2022 to October 20, 2022):

- Manual groundwater levels at DP4-14 and DP5-14 were not collected because locations were inaccessible due to high water levels
- DP3-14S was noted as damaged in August 2022. DP3-14S and DP3-14D were replaced on September 26, 2022 with DP3-22S and DP3-22D.
- MM006 and MAC-5 were overprinted by mine infrastructure. No manual groundwater levels were obtained. These locations were identified as monitoring wells that would be removed

from the Plan as construction proceeded as they were located within the footprint of mine infrastructure.

Following each of the four seasonal monitoring events, available data logger data was processed. During data processing the following issues were noted:

- Logger data from MW15-BR-14 and MW15-OB-14 were reviewed following the spring monitoring event. Data showed indications of pressure transducer failure. The loggers were replaced on July 20, 2022.
- No pressure transducer data was available for BH14-01 between September 29, 2021 and November 18, 2021 due to a programming error.

There are 12 remaining proposed monitoring wells (8 locations) in the Plan that were not installed at the time of the report completion. Details of the additional monitoring locations are provided in Section 2.3.1.1 and Appendix B-2, Table B-2-1. Proposed monitoring wells are tentatively scheduled to be installed in the first half of 2023, but are dependent on construction schedules. Proposed vibrating wire piezometers are located in areas currently under active construction. Installation timing will be reviewed following each monitoring even in 2023..

2.3.2.2.2 Data Analysis

Manual groundwater level measurements collected during the reporting period are presented in Appendix B-3, Table B-3-1. Groundwater level data collected via data loggers are presented in hydrographs in Appendix B-3.

One groundwater quantity trigger threshold is related to groundwater level and three groundwater quantity trigger thresholds are related to horizontal hydraulic gradients. The thresholds are related to dewatering of mine features (open pit, aggregate pits, historical underground workings) and/or infrastructure such as the MHT seepage collection system and GFC diversion. A review of the applicable groundwater trigger thresholds for the reporting period are presented as follows.

Groundwater quantity trigger threshold 1 monitors impacts related to aggregate pit S1 and the TMF. Aggregate pit S1 has not been constructed. Construction of the TMF is underway, however the trigger threshold is related to mounding of the water table due to the storage of saturated material within the TMF. Therefore, groundwater quantity trigger threshold 1 is not applicable during the reporting period.

Groundwater quantity trigger threshold 3 requires the maintenance of an inward horizontal hydraulic gradient toward the SWAT from monitoring wells MW21-BR-21 (MW-F) and MW23-OB-21 (MW-G) during construction dewatering associated with the process plant. Construction dewatering for the process plant ceased by August 10, 2022. Groundwater level data for monitoring wells MW21-BR-21 (MW-F), MW23-OB-21 (MW-G), and SW4 are presented in Figure B-3-2 (Appendix B). The groundwater level at MW21-BR-21 (MW-F) and MW23-OB-21 (MW-G) were greater than the surface water level at SW4 throughout the construction dewatering periods, which indicates that a horizontal hydraulic gradient towards the SWAT was maintained. No exceedance of the groundwater quantity trigger threshold 3 occurred during the construction dewatering period. As groundwater dewatering associated

with excavations in the process plant area has ceased, groundwater quantity trigger threshold 3 is not required in subsequent reports unless groundwater dewatering of the process plant recommences.

Groundwater quantity trigger threshold 4 requires an inward horizontal hydraulic gradient be maintained toward the MHT seepage collection drain. The trigger threshold is to be evaluated in spring, summer, and fall at monitoring wells presented in Table 2-5. Construction of the MHT seepage collection system commenced on April 6, 2022 with operation of the drain commencing in May 2022. Figure B-3-3 (Appendix B) presents available groundwater level monitoring data for the monitoring locations associated with the MHT seepage collection system along with the lowest invert elevation of the MHT seepage collection drain (at the east pumping station). Groundwater monitoring location 96-12B (manual groundwater level and logger data) was to be used in trigger threshold review but was overprinted by mine infrastructure in spring 2022. Instead, manual and data logger data was collected from 96-12A. Details of monitoring well 96-12A are presented in Table B-2 (Appendix B). Additional monitoring wells are proposed in the Plan to allow the monitoring of water levels near the drain as well as upgradient and downgradient of the drain to understand horizontal hydraulic gradient around the drain. As stated in the Plan, the proposed monitoring wells would not be installed until construction of the MHT drain was complete. The drain has been constructed but the associated north berm and Highway 11 realignment, a portion of which overlies the MHT drain, is ongoing and therefore not possible to install the monitoring wells as access is limited and there is high risk the wells would be damaged or overprinted with ongoing construction.

The available groundwater levels of the MHT seepage collection system monitoring locations show the groundwater levels upgradient of the drain (96 series monitoring wells) were higher than the invert elevation of the MHT east pumping station and the groundwater levels downgradient of the drain (MW07-18 through MW09-18) were lower than the invert elevation of the MHT east pumping station indicating groundwater flow from the MHT is toward the drain. In addition, the drain is being actively pumped, which means an inward hydraulic gradient to the drain would result from pumping. Therefore, there were no exceedances of the groundwater quantity trigger threshold 4 criteria during this reporting period.

Groundwater trigger threshold 5 monitors the reversal and timing of reversal of the horizontal hydraulic gradient between the historical tailings and Kenogamisis Lake as a result of open pit dewatering. Trigger threshold monitoring is scheduled to start in year 5 of dewatering. Since open pit dewatering and/or dewatering of the historical underground workings commenced in late 2022, trigger threshold review is not required for this reporting period.

During the reporting period, there were no exceedances of the groundwater level and horizontal hydraulic gradient trigger thresholds for groundwater quantity as defined in the Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a).

2.3.2.3 Groundwater Water Quality Monitoring

2.3.2.3.1 Data Collection

Groundwater quality monitoring is to be completed in the spring, summer and fall at select locations. This reporting period covers water quality sampling results from fall 2021, spring 2022, summer 2022, and fall 2022. Groundwater quality monitoring was completed during each seasonal monitoring event according to Table B-1-1 in Appendix B with following exceptions:

Fall 2021 (September 21, 2021 to November 8, 2021):

- Hardrock Glory Hole and Hardrock No. 2 Shaft could not be sampled due to safety and access issues.

Spring 2022 (May 30, 2022 to June 22, 2022):

- MW5-OB2-13 and 96-12B were overprinted by mine infrastructure. No groundwater quality sample could be collected. These wells are scheduled for replacement in the first half of 2023.

Summer 2022 (July 5, 2022 to August 25, 2022):

- MW5-OB2-13 and 96-12B were overprinted by mine infrastructure. No groundwater quality sample could be collected. These wells are scheduled for replacement in the first half of 2023.
- The ORP was not collected at some locations during well development. The available muli-parameter meter was not equipped with an ORP sensor.

Fall 2022 (September 19, 2022 to October 20, 2022):

- Hardrock Glory Hole and Hardrock No. 2 Shaft could not be sampled due to safety and access issues.
- MW5-OB2-13, 96-12B, and 96-14b were overprinted by mine infrastructure. No groundwater quality sample could be collected. These wells are scheduled for replacement in the first half of 2023. Monitoring wells 96-12B and 96-14B are part of the Plan for monitoring seepage quality in and around the historical MacLeod tailings. Optimization of the monitoring network associated with the historical MacLeod tailings will be completed in 2023 and additional monitoring wells will be installed once the north berm, which overlies the MHT drain, is complete. Therefore, the need for replacement of 96-12B and 96-14B will be evaluated as part of the overall optimization of the monitoring of the MHT drain, which will occur in 2023.
- Seep 1, seep 6, seep 7, and seep 8 were not visible and could not be sampled. It is likely that the MHT seepage collection drain has lowered the water table in the vicinity of these seeps and the seeps are no longer flowing.
- The ORP was not collected at some locations during well development. The available muli-parameter meter was not equipped with an ORP sensor.

The remaining proposed monitoring wells that were not installed at the time of the report completion are scheduled to be installed in the first half of 2023 or subsequent to active construction activities occurring the in the immediate vicinity of the proposed locations. Details of the additional monitoring locations are provided in Section 2.3.1.1 and Appendix B-2, Table B-2-1.

Prior to January 2021, the baseline surface water quality samples were analyzed by ALS. In January 2022, GGM contracted Testmark Laboratories to complete the water analyses for the Mine. A variety of parameters concentration in surface water were elevated since January 2022 compared to baseline concentrations. In August 2022, GGM initiated an investigation into the results of the laboratory analyses. The investigation involved collecting duplicate samples for analysis by Testmark Laboratories and ALS. Preliminary analytical results received in September 2022 show a difference in concentrations between laboratories, particularly iron which was consistently elevated in the results from Testmark Laboratories versus ALS. Given the discrepancy, GGM has expanded the investigation to include triplicate sampling with analysis by Testmark Laboratories, ALS and Bureau Vertis (BV) to attempt to quantify the discrepancy in concentrations between laboratories, which will occur in October 2022. In addition, a discussion is ongoing with Testmark Laboratories to identify the source of the elevated iron concentrations and to determine a path forward. Therefore, water analytical data analyzed since January 2021 should be viewed with caution until the laboratory investigation is complete.

2.3.2.3.2 Data Analysis

Table B-4-1 (Appendix B-4) presents the groundwater quality results for the reporting period. Laboratory Certificates of Analysis for spring, summer, and fall (2021 and 2022) sampling events are provided in Appendix B-4. Groundwater quality trigger thresholds were chosen to alert to changing groundwater quality downgradient of the TMF, WRSAs, and ore stockpile prior to discharge to surface water features. Storage of material within the TMF, WRSAs, and ore stockpile has not commenced except within WRSA C. While there is no waste rock being stored in WRSA C, storage of Type B soil in WRSA C commenced in December 2021. Type B soil is defined in the Soil Management Plan (GGM 2020c) as having concentrations of metals in soil exceeding the Table 8.1 Site Condition Standards (O.Reg. 153) with the concentration of metals in leachate less than the Table 8.1 Site Conditions Standards (O.Reg. 153) and Aquatic Protection Values (APV) (O.Reg. 153). The groundwater quality data collected during the reporting period are considered baseline data except for monitoring wells associated with monitoring seepage from WRSA C. Due to the storage of Type B soil at WRSA C the groundwater quality trigger monitoring locations associated with WRSA C were evaluated as defined in the Federal Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a).

Table 2-7 presents a summary of the groundwater quality trigger threshold review. Trigger Threshold 1 is defined as a statistically significant upward trend for a given indicator parameter or for stations that have a statistically significant upward trend in the baseline data, an increase in the magnitude of the trend compared to baseline.

Groundwater quality trigger threshold parameters at WRSA C monitoring locations showed a downward or neutral trend in indicator parameter concentrations, except for arsenic and iron at MW6-OB-13. Groundwater quality trigger threshold parameters with a downward or neutral trend do not require further review. Arsenic and iron concentrations at MW6-OB-13 show upward trends in both baseline

dataset and the full dataset. A review for the full dataset and baseline dataset for both arsenic and iron concentrations indicate similar order of magnitude trendlines, therefore, trigger threshold 1 is not exceeded. No groundwater quality trigger thresholds were exceeded in this reporting period.

Table 2-7: Groundwater Quality Trigger Threshold Summary

WRSA C				
Monitoring Location	**Trigger Threshold Parameter**	**Mann-Kendall Analysis Result: Baseline Data**	**Mann-Kendall Analysis Result: All Data**	**Groundwater Quality Trigger Threshold 1 Exceedance**
MW6-OB-13	Sulfate	Downward trend	Downward trend	No
	Antimony	Downward trend	Decreasing trend	No
	Arsenic	Upward trend	Upward trend - similar magnitude to baseline data	No
	Cobalt	Downward trend	Downward trend	No
	Iron	Upward trend	Upward trend - similar magnitude to baseline data	No
	Uranium	Neutral trend	Neutral trend	No
MW18-BR-21	Sulfate	Insufficient baseline data to complete analysis. Monitoring location installed 24-Jun-21	Downward trend	No
	Antimony		Downward trend	No
	Arsenic		Downward trend	No
	Cobalt		Downward trend	No
	Iron		Downward trend	No
	Uranium		Downward trend	No

2.3.3 Recommended Adaptive Management

The groundwater quantity and quality trigger locations were evaluated as per the AMP. The following sections present recommendations and/or updates to the Plan and associated groundwater monitoring and trigger monitoring locations, frequency, thresholds, and/or rationale. Recommended changes to the water quantity and water quality monitoring programs are detailed below.

Pumped Volume Monitoring

The following changes to the pumped volume monitoring program are recommended:

- Total daily volume pumped from each individual historical shaft will be measured and combined with the open pit pumped volume for trigger threshold comparison.

Groundwater Level Monitoring

The following changes to the groundwater level monitoring program are recommended:

- Removal of BH14-03, BH14-04, MAC-5, MWS-14-05 BR, MWS-14-05 OB, 96-15A1, 96-15B, and MM006 from the monitoring program. As indicated in the Plan, these monitoring wells were overprinted by mine infrastructure and are no longer required in the monitoring program.
- Evaluation of monitoring well network associated with groundwater quantity trigger threshold 4 and the maintenance of an inward horizontal hydraulic gradient to the MHT seepage collection drain. The need to replace 96-12B and/or 96-14B with respect to groundwater quantity trigger threshold 4 should be part of the evaluation. New monitoring wells will be installed once construction of the north berm and Highway 11 realignment is complete due to issues with access and risk of new monitoring wells being damaged during construction.
- The temporary addition of 96-12A to the monitoring program in place of the overprinted 96-12B Monitoring location 96-12A would be used to aid in the evaluation of trigger threshold 4. 96-12A should be monitored for both seasonal manual groundwater levels and continuous groundwater levels via data logger.

Groundwater Quality Monitoring

The following changes to the groundwater quality monitoring program are recommended:

- Installation of a replacement monitoring well for MW5-OB2-13 and monitor in accordance with the MW5-OB2-13 monitoring plan.
- Remove Hardrock Glory Hole from the monitoring plan. Hardrock Glory Hole is inaccessible due to safety concerns about the stability of the surrounding rock.
- Review status of overprinted monitoring locations seep 1, seep 6, seep 7, and seep 8 in spring 2023 once the spring thaw has occurred.

- The addition of MacLeod No. 1 Shaft as a water quality monitoring location while it is an active pumping source for the historical underground workings.
- Notes at the bottom of Table 2-6 will be updated to remove PAH water quality sampling and include PHC sampling as indicated in the main body of the table.
- Completion of the laboratory investigation into potential discrepancy of analytical results for water and implementation of recommendations that come out of the laboratory investigation in the 2023 reporting period.
- Groundwater level trigger thresholds will be updated once the baseline data collection period ends for a given mine feature. Baseline data collection period will end for monitoring wells associated with monitoring effects of the open pit and/or aggregate pits when dewatering of these features commences. For monitoring wells associated with monitoring groundwater level effects associated with the TMF and GFC diversion, the baseline data collection period will end when tailings are placed within the TMF and the GFC diversion is diverted, respectively.

The existing groundwater quantity and quality monitoring program with the above recommendations will be continued for the 2023 reporting year.

2.4 Use of Explosives in or Near-Water

This section describes measures implemented in the 2022 monitoring period to mitigate potential adverse effects on fish and fish habitat from the use of explosives near water and to satisfy federal Condition 3.2 and 3.15 of the EIS. The Noise and Vibration Monitoring and Management Plan (NVMMP) (GGM 2020) identifies an overpressure threshold of 50 kPa in water and a vibration threshold of 13mm/sec (in substrate).

The open pit will generally be set back a sufficient distance from fish and fish bearing habitat to limit potential effects to fish and fish habitat due to the use of explosives, except around the eastern extension of the open pit and potentially in some water courses within the Project area. The edge of the eastern extension will be located approximately 220 m from the high-water level mark of Kenogamisis Lake. However, no blasting occurred in the eastern extension in the current reporting year.

Figure 2-6 shows all 2022 blast locations and monitoring locations per the NVMMP. Note that monitoring location FH02 is located approximately 200 m west of the planned location indicated in the NVMMP and is located approximately 1 km from the current blast locations. Monitoring location FH01 is further from the 2022 blast locations than FH02 and was not used in the current monitoring period.

Table 2-8 details the blast events in the current reporting period, with measured instantaneous pressure in water and PPV in substrate at monitoring location FH02.

504000

WC-G

WC-I

WC-D

Trans-Canada Highway 11

P1-10330-02B (13-Sep-22)

P1-10330-003 (22-Sep-22)

P1-10330-002C (17-Sep-22)

P1-10330-005A (29-Sep-22)

P1-10330-02A (8-Sep-22)

Hardrock Road

P1-10330-01A (30-Aug-22)

P1-10330-004 (28-Sep-22)

P1-10330-001C (16-Sep-22)

P1-10330-01B (6-Sep-22)

FH01

Kenogamisis Lake (Central Basin)

WC-J1

FH02

NV2022

Kenogamisis Lake (Southwest Arm)

bing

0 100 200 m

1:8,000

504000

N

Stantec

Legend

- Fish Blasting Monitoring Location
- Noise Vibration Monitoring Location
- Blasting Location
- Kenogamisis Lake High Water Mark (329.85 masl)
- Kenogamisis Lake Conservative High Water Mark (330 masl)
- Open Pit- Full Extent
- Contour Line (10m intervals)
- Highway
- Major Road
- Local Road
- Watercourse- Permanent
- Watercourse- Intermittent
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N

2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

3. Orthographic Imagery Source: © 2022 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS

December 2022
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Client/Project

Greentsone Gold Mines GP Inc (GGM)
Hardrock Project

Figure No.

2-6

Title

2022 Noise and Vibration Monitoring and Blast Locations

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Revised: 2022-12-21 By: svandamme

Table 2-8: Blasting Effects In and Near Water, Monitoring Location FH02

Mining Operation Blast ID	Date	Blast Details		UTM Coordinates (NAD 83 Zone 16N)			Distance to Monitoring Location/ Waterbody (m)[2]	Measured Pressure in Water (kPa)[3]	Measured PPV (mm/s)[4]
		Actual Emulsion (kg)	Charge Size/ Delay (kg)[1]	Northing	Easting	Elevation (MASL)			
P1-10330-01A	30-Aug-22	12,336	204	5502692	504134	340	1070	--	2.1
P1-10330-01B	6-Sep-22	11,281		5502690	504167	340	1045	--	1.1
P1-10330-02A	8-Sep-22	14,853		5502727	504151	340	1080	--	1.6
P1-10330-02B	13-Sep-22	15,952		5502747	504151	340	1090	--	1.2
P1-10330-001C	16-Sep-22	12,050		5502685	504193	340	1020	0.105	5.9
P1-10330-002C	17-Sep-22	14,599		5502767	504151	340	1105	0.125	2.9
P1-10330-003	22-Sep-22	25,514		5502744	504199	340	1050	0.065	3.7
P1-10330-004	28-Sep-22	25,288		5502684	504235	340	985	0.026	5.6
P1-10330-005A	29-Sep-22	20,703		5502742	504228	340	1030	0.021	3.9

Table Notes:

1. Maximum charge per delay.
2. Distance to nearest 5 metres (m).
3. Pressure in water was measured from Sept 15, 2022 to end of this reporting period. Water pressure from blasting prior to the installation of the monitor is expected to be well below the limit of 50 kPa as the blasting locations are almost 10 times the setback required to meet the limit.
4. PPV vector sum.

Following are observations on the data measured in the 2022 period:

- As shown by the measured levels in Table 2-8, the pressure in water and PPV in substrate at monitoring location FH02 did not exceed established thresholds (Stantec 2018b, GGM 2020d) for fish and fish habitat.
- Review of the measured levels does show some anomalies in the pressure in water – specifically P1-10330-001C (0.105 kPa) and P1-10330-002C (0.125 kPa) – where these blast pressures are significantly higher than the others, and do not conform to expected reduction in pressure with increased distance (considering blast charge is consistent at 204kg/charge).
- These anomalies could be attributed to outdoor propagation environmental effects (e.g., wind speeds, direction, temperature gradients, etc.) but require further investigation to confirm.
- However, further investigation is not warranted at this time, given that the absolute pressure values are significantly below the 50kPa threshold.

Additional water bodies closer to the 2022 blast locations than the FH02 monitoring location (Kenogamisis Lake) have been identified and assessed using minimum setback distances for the 50 kPa pressure threshold and 13 mm/s PPV threshold. The nearest fish habitat identified is located approximately 500 m northeast from the blast locations (see Figure 2-6). Based on an average charge size of 204 kg/delay, the setback distance is 111 m for pressure and 216 m for PPV. Therefore, the minimum setback distance is 111 m. The nearest fish habitat is located outside the minimum setback distance established the charge used for the Project.

Additionally, a construction blast occurred on Sept 15 near the intersection of the realigned Highway 11. The exact location of the blast and charge details were not available at the time this report was produced.

Based on measured overpressure and vibration levels in Kenogamisis Lake and calculated setback distance to the smaller water bodies near the project site, established thresholds for the protection of fish and fish habitat (overpressure threshold of 50 kPa in water and a vibration threshold of 13mm/sec in substrate) were not exceeded during the 2022 monitoring period.

As required by the NVMMP's blasting monitoring plan, vibration monitoring (PPV) is to be conducted during the restrictive timing window for work in and around fish habitat (i.e., between April 1 to June 20). Although measured PPV levels at location FH02 were well below the 13 mm/s threshold in 2022, PPV will be monitored between April 1 and June 20, 2023. The NVMMP states (Table 7-3) that blast monitoring is to be re-initiated if there is potential to exceed 10 mm/s PPV in fish habitat. PPV monitoring should occur for any blasts that are closer to fish habitat than blasts measured to date and/or for any blast location within 216 m from fish habitat for the same charge size of 204 kg), and/or if larger blast charges are used.

2.4.1 Adaptive Management

Since the blast events in the 2022 reporting period did not cause exceedances at the monitoring location, effects on fish and fish habitat due to blasting are not anticipated. Additionally, the small water bodies closest to the blast identified were approximately 400 m or more away, which is outside the calculated setback distance calculated for the 50 kPa overpressure (111 m) and 13 mm/s vibration (216 m) thresholds. Therefore, modifications to the NVMMP are not recommended at this time. GMM will continue to implement the NVMMP throughout the upcoming 2023 monitoring period.

2.5 Concentration of Mercury and Methylmercury in Water

2.5.1 Methods

2.5.1.1 Data Collection

The realignment of GFC is planned to facilitate siting of the TMF and to offset predicted effects on fish and fish habitat. GFC will be diverted into the existing SWAT, which will increase flow in the SWAT and result in an increase of the permanently inundated area by approximately 15 ha. The management and monitoring measures identified in this section deal specifically with potential effects related to changes in mercury concentrations and methylmercury generation in the GFC diversion. The surface water monitoring locations, sampling frequency, and sampling methods as it pertains to mercury and methylmercury are presented in the following sections.

Surface water at Stations 25, 39, 52, and 55 presented in Figure 2-1, was monitored monthly and was assessed for potential changes to mercury and methylmercury as a result of the GFC diversion and associated inundated areas. Monitoring locations may be added or removed from the monitoring program in accordance with their utility in monitoring the effects of the Project on the environment or to account for modifications during detailed design.

Table 2-9 presents the frequency of sampling and rationale for each monitoring station for surface water quality. Four surface water monitoring locations were monitored monthly for mercury and methylmercury, when safe to do so, to assess seasonal fluctuations in water quality. Monthly monitoring data were used to conduct trend analysis of mercury and methylmercury to differentiate whether observed fluctuations are due to natural/seasonal sample variation, or if they may indicate a mine related effect. The frequency of monitoring will be reduced to quarterly if there are no trigger thresholds exceeded during a two-year period (approximately 24 samples). The surface water quality monitoring stations are shown in Figure 2-1.

Table 2-9: Receiving Environment Surface Water Quality Monitoring Locations, Frequency, and Rationale

Station	Frequency	Rationale
25	Monthly	Monitor potential effects of the Project, including the GFC diversion, on mercury and methylmercury concentrations in surface water at the downstream end of the GFC diversion
39	Monthly	Monitor potential effects of the Project, including the GFC diversion, on mercury and methylmercury concentrations in surface water in SWP3 and the middle section of the channel diversion
52	Monthly	Document background mercury and methylmercury concentrations in surface water upstream of the GFC diversion
55	Monthly	Monitor potential effects of the Project, including the Goldfield Creek realignment, on mercury and methylmercury concentrations in surface water in SWP5 and the middle section of the channel realignment

Surface water grab samples were collected using laboratory-provided bottles, containing appropriate preservative. Water quality samples were taken just below the surface of the water (0.1 m deep). Water quality samples were collected by an experienced technician using suitable sampling equipment. Samples were preserved (if applicable) and transported in appropriate containers to maintain the integrity of sample temperatures and hold times. Samples were submitted to a CALA accredited laboratory under COC documentation.

2.5.1.2 Laboratory Analysis

The accredited CALA laboratory used the authorized analytical methods set out in the ISW ECAs, PTTWs, and regulations (i.e., MDMER and O. Reg. 560/94).

The method detection limits (MDLs) used by the CALA laboratory for mercury and methylmercury have been revised since the beginning of the baseline monitoring program. MDLs for mercury and methylmercury are currently 0.0001 µg/L and 0.00002 µg/L, respectively. The current MDLs can detect the concentrations of mercury and methylmercury in surface water and have been used to develop baseline 95th percentile concentrations for surface water quality Stations 25, 39, and 52.

QA/QC principles for sampling and laboratory analysis outlined in Environment Canada (2012) were followed. Duplicate samples were collected from a subset of samples collected to quantify environmental variability and analytical consistency, with a minimum of one duplicate sample in approximately 10 surface water samples per sample set. A minimum of one travel and one field blank were collected per sampling event to detect potential sources of contamination.

Mercury and methylmercury data were entered into an electronic database and was cross-checked against the original laboratory certificate of analysis and validated.

2.5.1.3 Data Analysis

The raw data set for mercury and methylmercury at the applicable stations was compiled into a spreadsheet to present the monitoring completed for the 2022 period. For the 2022 reporting period, monthly data for applicable stations were compared to trigger thresholds for surface water quality as defined in the Plan (GGM 2021a). Sampling for mercury and methyl-mercury was inadvertently missed due to a submission error at station 25 during the July 2022 sampling event.

The trigger monitoring stations, indicator parameters, and rationale are presented in Table 2-10. The locations of the trigger threshold monitoring stations are presented in Figure 2-2.

Table 2-10: Mercury and Methylmercury Trigger Threshold Monitoring Stations

Trigger Monitoring Station	Frequency of Measurement	Indicator Parameter	Rationale
25	Monthly	Hg, MeHg	Monitor for potential effects of mining activities on the water at the mouth of the SWAT
39	Monthly	Hg, MeHg	Monitor for potential effects of mining activities on SWAT, downstream of GFC Diversion
52	Monthly	Hg, MeHg	Background station upstream GFC Diversion

2.5.2 Results

Mercury and methylmercury are both parameters included in the surface water quality monitoring presented in Section 2.2.2.1. As such, Section 2.2.2.1 should be referred to for results of the Federal Condition 5.4 of the EIS reporting.

2.5.3 Adaptive Management

Mercury and methylmercury are both parameters included in the surface water quality monitoring adaptive management plan, as indicated in Section a. As such, Section 2.2.2.1 should be referred to for changes to the adaptive management to support federal Condition 5.4 of the EIS reporting. There were no trigger threshold exceedances of mercury or methylmercury for the applicable trigger monitoring stations during the 2022 reporting period.

2.6 Fish Tissue Monitoring – SWAT

The management and monitoring measures described in this section deal specifically with EIS Condition 5.4 and potential effects related to changes in mercury concentrations and methylmercury generation in the Goldfield Creek realignment. EIS Condition 5.5.1, which also relates to fish tissue, is addressed in Section 2.7 of this report.

The purpose of fish tissue sampling is to monitor potential changes in the concentration of mercury and methylmercury in fish tissue and, if changes are observed, to determine if there is an adverse effect on fish health or an increased risk to human and wildlife consumers. This monitoring program will document potential changes to the concentration of parameters of potential concern in fish tissue. The assessment of risk to human health will be described under the reporting requirements of the Indigenous Peoples Health Risk Assessment Follow-Up Plan (GGM 2020a).

The realignment of Goldfield Creek was completed to facilitate siting of the TMF and to offset for predicted effects on fish and fish habitat. At the time of this report production, the new channel and diversion pond had been constructed and flow had been diverted from the old Goldfield Creek channel into the newly constructed Goldfield Creek Diversion Pond (GFDP). The GFDP is anticipated to fill slowly in late 2022 and early 2023, with flow entering the new channel from the GFDP outlet in winter 2023. At that time, water will flow into the new Goldfield Creek Channel and then through what was previously referred to as the SWAT. Increased flow into the SWAT will result in the permanent inundation of approximately 15 ha of wetland habitat that was occasionally inundated under baseline conditions.

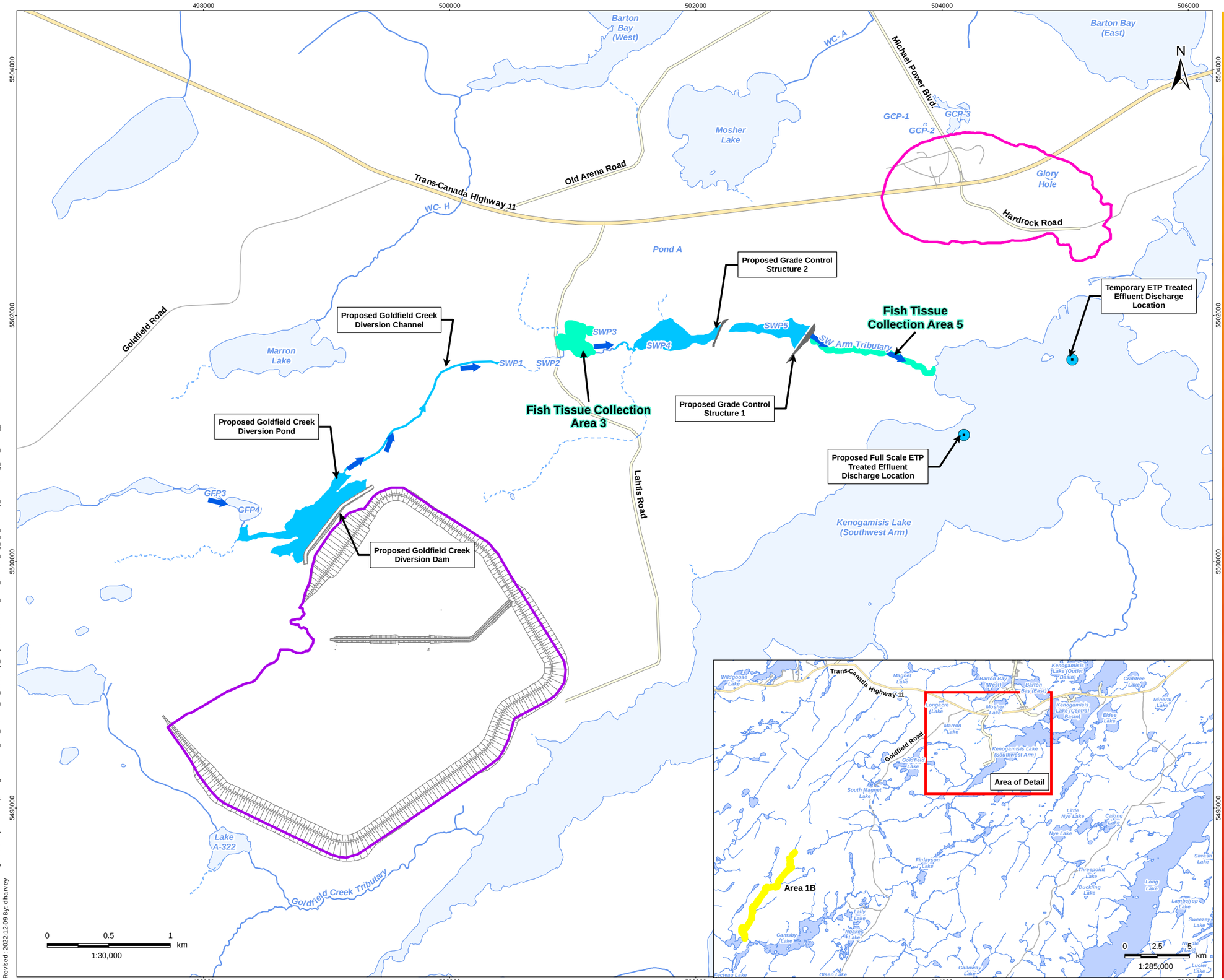
The need for this study is driven primarily by the realignment of Goldfield Creek, and the associated inundation of adjacent wetlands as described in the EIS (Stantec 2018a). Since flow has not yet been diverted into the new Goldfield Creek realignment, a pre-post comparison of fish tissue concentrations cannot be completed. The first year of post construction monitoring is planned for 2023 (GGM 2021a).

2.6.1 Methods

A before-after-control-impact (BACI) study design has been initiated, to examine potential changes in mercury and methylmercury concentrations in fish tissue along the Goldfield Creek realignment. Approved methods for the BACI study are presented in the Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan (GGM 2021a). No data collection was required in the 2022 monitoring period.

2.6.2 Results

Fish tissue sampling was not required (GGM 2021a) nor completed during the 2022 monitoring period. Therefore, no fish tissue sampling results are presented in this 2022 monitoring report. The 2021 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report (GGM 2021b) presented the results of baseline fish tissue data collected in 2021 from the two test areas and one reference area (Figure 2-7). BACI analysis of the data will be completed following the collection of post-construction data in 2023.



V:\01609\active\60960865\drawing\MXD\Aquatics\ReportFigures\2022_Fish_Federal_EIS_Followup_Report\160900981_2022_FedFish_Fig_2_6_Mercury_Monitoring_Fish_Tissue__20221209.mxd
Revised: 2022-12-09 By: dharvey

Stantec

Legend

- Fish Tissue Collection Area
- Fish Tissue Reference Area
- Flow Direction
- Diffuser Location
- Tailings Management Facility
- Open Pit- Full Extent
- Diversion Channel
- Highway
- Major Road
- Local Road
- Watercourse- Permanent
- Watercourse- Intermittent
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N

2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

December 2022
160900981

Client/Project

Greenstone Gold Mines GP Inc (GGM)
Hardrock Project

Figure No.

2-**7**

Title

2021 Sampling Areas for Monitoring Mercury and Methylmercury in Fish Tissue

2.6.3 Adaptive Management

The 2021 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report (GGM 2021b) identified a change to the Plan, where a more suitable reference area was selected for sampling age 1 Yellow Perch. Rationale for this change is provided in the 2021 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report (GGM 2021b). Other than updating the reference area, changes to the Plan related to monitoring fish tissue in the SWAT are not recommended at this time.

2.7 Fish Tissue Monitoring - Kenogamisis Lake

Fish tissue monitoring activities were not required by the Plan for Kenogamisis Lake during the 2022 monitoring period. Fish tissue monitoring is required within 24 months from when the Mine first began discharging effluent via the TETP, which occurred on September 15, 2021. The fish tissue monitoring cycle is scheduled to occur every two years for the first six years of operation, after which time the need for additional monitoring will be evaluated.

Since fish tissue monitoring in Kenogamisis Lake was not required during the 2022 reporting period, modifications to the Plan related to sampling fish tissue in Kenogamisis Lake are not recommended. GMM will continue to implement the Kenogamisis Lake fish tissue monitoring program as scheduled.

3 Closing

This 2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report was prepared to address the monitoring requirements of the Fish and Fish Habitat Follow-Up Monitoring Plan (the Plan) (GGM 2021a); which was designed to address seven specific federal Conditions of Approval related to monitoring potential effects of the Project on fish and fish habitat (Conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1). This report presents the results of related monitoring activities undertaken during the period of October 1, 2021, through September 30, 2022 (i.e., the 2022 monitoring period) to satisfy the requirements of the Plan.

4 References

Environment Canada (EC). 2012. Metal Mining Technical Guidance for Environmental Effects Monitoring. National Environmental Effects Monitoring Office, Environment Canada Ottawa, ON.

GGM. 2020a. Hardrock Project. Indigenous Peoples Health Risk Assessment Follow-Up Plan. HP-MG003-EV-130-0007_0. November 2, 2020.

GGM. 2020b. Hardrock Project Erosion and Sediment Control Plan. HP-MG007-EV-130-0007_0. September 11, 2020.

GGM. 2020c. Soil Management Plan. HP-MG007-EV-130-0001_0. November 3, 2020.

GGM. 2020d. Hardrock Project Noise and Vibration Management and Monitoring Plan. HP-MG004-EV-130-0004_0 July 22, 2020EA Reference No. 14175EA File No. EA-02-10.

GGM. 2021a. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. HP-MG003-EV-130-0008_0. February 16, 2021.

GGM. 2021b. Greenstone Mine 2021 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report

Stantec Consulting Ltd. (Stantec). 2018a. Hardrock Project Final Environmental Impact Statement/Environmental Assessment with Supplemental Information Added. Prepared for: Greenstone Gold Mines GP Inc. Prepared for Greenstone Gold Mines GP Inc. August 2018.

Stantec Consulting Ltd. (Stantec). 2018b. Potential Lethal and Sublethal Effects of Blasting on Fish, Greenstone Gold Mine Hardrock Project, Geraldton, Ontario Memo to Greenstone gold Mines. File # 160961111

Appendix A
Surface Water Data

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

A-1
Completed Field Sheets

Surface Water Field Report

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Date: 10 2021

	Field Visit Details										
	Date	Conductivity (us/cm)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°C)	Turbidity (NTU)	Chlorophyll a Y/N	Mercury Y/N	Technician 1	Technician 2
11	10/19/2021 12:35	160.9	9.91	137.9	8.01	11.7	3.13			A. O'Nabigon	L. Mendowegan
17	10/21/2021 16:57	156.2	10.50	94.4	7.88	8.8	3.60			A. O'Nabigon	L. Mendowegan
1A	10/18/2021 11:39	211.7	9.99	152.7	7.70	9.5	2.66			A. O'Nabigon	L. Mendowegan
2	10/20/2021 10:20	193.0	10.14	116.8	7.92	10.1	3.26			A. O'Nabigon	L. Mendowegan
20	10/21/2021 13:56	195.7	11.59	157.4	7.60	5.4	1.98			A. O'Nabigon	L. Mendowegan
20A	10/18/2021 15:12	195.8	9.96	159.7	7.42	8.9	2.16			A. O'Nabigon	L. Mendowegan
21	10/21/2021 13:26	189.6	10.10	138.0	7.56	8.3	1.92			A. O'Nabigon	L. Mendowegan
22A	10/18/2021 14:45	205.1	9.25	180.7	7.36	8.6	2.14			A. O'Nabigon	L. Mendowegan
23[D]	10/18/2021 15:26	206.5	9.57	139.3	7.77	11.5	3.14			A. O'Nabigon	L. Mendowegan
24	10/19/2021 9:41	185.3	9.91	126.5	7.82	10.8	3.36			A. O'Nabigon	L. Mendowegan
25	10/19/2021 10:32	264.5	8.97	137.8	7.43	8.1	1.76	Y	Y	A. O'Nabigon	L. Mendowegan
26	10/19/2021 15:03	332.5	10.15	153.6	8.11	11.4	2.33	Y		A. O'Nabigon	L. Mendowegan
28	10/20/2021 9:54	227.8	10.53	107.1	7.69	8.1	1.31			A. O'Nabigon	L. Mendowegan
38	10/21/2021 16:05	169.4	9.07	72.3	7.72	10.3	3.33			A. O'Nabigon	L. Mendowegan
39	10/21/2021 14:41	455.0	8.74	186.4	7.64	10.1	2.59		Y	A. O'Nabigon	L. Mendowegan
4	10/20/2021 11:48	243.9	10.31	100.9	8.05	10.2	4.38			A. O'Nabigon	L. Mendowegan
40	10/22/2021 12:09	224.3	10.20	129.7	7.95	10.1	3.02			A. O'Nabigon	L. Mendowegan
46	10/19/2021 10:08	180.3	10.01	142.7	7.85	11.2	3.27	Y		A. O'Nabigon	L. Mendowegan
47	10/19/2021 11:35	174.4	10.02	132.9	8.05	12.1	2.91			A. O'Nabigon	L. Mendowegan
49	10/19/2021 11:00	180.3	9.99	119.8	7.98	11.2	3.31			A. O'Nabigon	L. Mendowegan
52	10/21/2021 11:57	187.5	11.12	149.3	7.69	6.9	2.27		Y	A. O'Nabigon	L. Mendowegan
53	10/19/2021 14:10	182.4	10.09	114.5	8.08	11.6	3.30			A. O'Nabigon	L. Mendowegan
55	10/21/2021 10:42	257.2	8.54	178.4	7.22	5.5	1.67		Y	A. O'Nabigon	L. Mendowegan
8[D]	10/19/2021 12:19	166.9	9.60	145.1	7.93	12.0	3.07			A. O'Nabigon	L. Mendowegan

Legend:

[D] - Duplicate sample taken.
Not required.

Notes:

- All locations and QA/QC completed as required by the MMMP.
- Site 54 is unlisted as it is not a sampling requirement until the Goldfield C
- Chlorophyll a sampling occurs 3x per year (May, August and October).
- In-situ profiling, which occurs quarterly, included in a separate report.

SW - Monthly - Field

Date: 11 2021

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details											
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	pH, Field	Temperature, Field (deg C)	Technician 1	Technician 2
Field Blank	2021-11-09 08:00									J.C	A.O
Trip Blank	2021-11-10 08:00									J.C	W.M
11	2021-11-10 10:59	12.15	163.3	87.5	7.98	4.3	2.29	7.98	4.3	J.C	T.P
17	2021-11-15 12:56	12.97	153.0	193.7	7.78	1.4	1.70	7.78	1.4	J.C	W.M
1A	11/9/2021 9:53	12.13	197.5	105.4	7.73	4.0	1.15	7.73	4.0	J.C	W.M
2	2021-11-09 11:44	12.51	206.3	108.4	7.52	3.9	2.60	7.52	3.9	T.P	L.M
20	2021-11-10 14:57	12.67	223.1	135.3	7.77	3.4	0.96	7.77	3.4	J.C	W.M
20A	2021-11-09 10:56	11.72	216.7	98.8	7.44	3.3	1.02	7.44	3.3	J.C	W.M
21	2021-11-15 15:53	12.88	178.0	192.8	7.87	0.9	0.87	7.87	0.9	J.C	W.M
22A	2021-11-09 10:31	10.70	22.7	122.0	7.34	3.7	0.80	7.34	3.7	J.C	W.M
23	2021-11-09 11:18	12.38	199.9	140.3	7.77	4.3	1.50	7.77	4.3	J.C	W.M
24	2021-11-09 11:40	12.29	194.6	132.8	7.73	4.2	1.49	7.73	4.2	A.O	J.C
25	2021-11-09 13:19	10.72	279.8	193.6	7.26	4.5	0.48	7.26	4.5	J.C	W.M
26	2021-11-10 16:40	12:45	344.7	144.3	8.06	3.8	0.84	8.06	3.8	A.O	T.P
28[D]	2021-11-09 10:28	12.22	235.0	84.9	7.46	3.5	1.10	7.46	3.5	L.M	T.P
38	2021-11-10 12:16	11.64	173.4	87.5	7.77	5.0	2.29	7.77	5.0	T.P	J.C
39	2021-11-10 15:58	11.08	469.1	202.6	7.82	4.8	0.86	7.82	4.8	T.P	A.O
4	2021-11-09 12:53	12.54	251.9	90.4	7.94	4.2	2.59	7.94	4.2	T.P	L.M
40	2021-11-09 11:44	12.67	249.6	80.0	7.88	3.8	2.28	7.88	3.8	T.P	L.M
46[D]	2021-11-03 10:44	11.95	181.5	157.2	7.91	4.1	1.60	7.91	4.1	J.C	W.M
47	2021-11-09 13:50	12.16	182.4	142.0	7.86	4.9	1.70	7.86	4.9	J.C	W.M
49	2021-11-03 11:26	12.01	178.4	165.6	8.04	3.8	1.64	8.04	3.8	W.M	J.C
52	2021-11-16 10:13	12.44	207.0	112.0	8.09	3.1	1.10	8.09	3.1	J.C	W.M
53	2021-11-03 12:12	12.05	185.9	178.7	8.05	4.0	1.56	8.05	4.0	W.M	J.C
55	2021-11-09 12:37	9.71	267.7	188.3	7.11	3.8	2.17	7.11	3.8	J.C	W.M
8	2021-11-09 14:06	12.39	185.0	80.3	8.04	5.0	2.21	8.04	5.0	T.P	L.M

Legend

Not Required

Notes

SW - Monthly - Field

Date: 12 2021

EQUINOX GOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank									
Trip Blank									
11	*	*	*	*	*	*	*	*	*
17	*	*	*	*	*	*	*	*	*
1A	*	*	*	*	*	*	*	*	*
2	*	*	*	*	*	*	*	*	*
20	*	*	*	*	*	*	*	*	*
20A	*	*	*	*	*	*	*	*	*
21	*	*	*	*	*	*	*	*	*
22A	*	*	*	*	*	*	*	*	*
23	*	*	*	*	*	*	*	*	*
24	*	*	*	*	*	*	*	*	*
25	*	*	*	*	*	*	*	*	*
26	*	*	*	*	*	*	*	*	*
28	*	*	*	*	*	*	*	*	*
38	*	*	*	*	*	*	*	*	*
39	*	*	*	*	*	*	*	*	*
4	*	*	*	*	*	*	*	*	*
40	*	*	*	*	*	*	*	*	*
46	*	*	*	*	*	*	*	*	*
47	*	*	*	*	*	*	*	*	*
49	*	*	*	*	*	*	*	*	*
52	*	*	*	*	*	*	*	*	*
53	*	*	*	*	*	*	*	*	*
55	*	*	*	*	*	*	*	*	*
8	*	*	*	*	*	*	*	*	*

Legend

Not Required
* Unsafe access

Notes

SW - Monthly - Field

Date: 01 2022

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank	1/13/2022 15:42							L.M	W.M
Trip Blank	2022-01-11 09:00							W.M	L.M
11	2022-01-12 11:31	12.47	189.9	197.7	7.87	1.0	0.33	T.P	W.M
17	2022-01-13 12:50	11.64	376.5	158.8	7.66	1.2	0.64	A.O	L.M
1A	*	*	*	*	*	*	*	*	*
2	2022-01-12 14:12	7.63	247.6	161.3	7.33	2.3	4.25	T.P	W.M
20	2022-01-11 11:50	12.26	458.7	230.9	7.02	0.0	0.23	A.O	T.P
20A	2022-01-06 11:44	11.80	180.2	120.4	7.39	0.0	0.01	L.M	W.M
21	2022-01-06 12:19	9.27	186.1	184.4	7.35	0.9	0.01	L.M	W.M
22A	2022-01-06 11:10	7.38	211.5	209.8	6.60	1.3	2.33	L.M	W.M
23	2022-01-11 11:05	11.75	210.4	187.4	7.57	1.4	0.40	L.M	W.M
24	2022-01-11 11:33	11.87	211.4	197.4	7.62	0.1	0.42	L.M	W.M
25	2022-01-06 14:23	11.33	56.3	124.0	8.16	0.0	0.01	A.O	T.P
26	2022-01-17 11:36	6.18	416.9	233.8	7.07	4.7	0.35	J.C	W.M
28	2022-01-12 13:49	8.29	306.3	206.8	7.48	1.0	1.16	T.P	W.M
38	2022-01-13 11:09	11.18	396.0	146.4	7.26	0.2	0.95	A.O	L.M
39	2022-01-11 12:36	8.38	984	261.7	7.25	1.6	0.26	A.O	T.P
4	2022-01-11 15:13	15.03	597.0	165.6	7.68	0.7	0.42	A.O	T.P
40	2022-01-11 14:13	11.35	528.0	224.8	7.39	1.3	1.12	A.O	T.P
46	2022-01-11 14:43	12.61	218.4	139.2	7.72	0.4	0.41	L.M	W.M
47	2022-01-12 16:12	13.38	208.1	157.0	7.83	1.4	0.08	T.P	W.M
49	2022-01-11 15:16	12.65	217.0	168.2	7.79	1.5	0.39	L.M	W.M
52	2022-01-13 15:30	11.85	427.5	168.9	7.68	0.4	0.22	L.M	T.P
53	2022-01-12 10:27	12.10	231.2	173.2	7.85	2.3	0.32	T.P	W.M
55	2022-01-06 12:50	6.84	226.0	121.7	7.54	0.0	0.01	A.O	T.P
8	2022-01-06 11:12	13.40	171.2	119.4	7.62	0.9	0.01	A.O	T.P

Legend

Not Required
* Unsafe access

Notes

SW - Monthly - Field

Date: 02 2022

EQUINOX GOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank	2022-02-08 13:10							A.O	T.P
Trip Blank	2022-02-08 13:10							A.O	T.P
11	2022-02-01 13:52	12.45	267.7	149.8	6.53	1.0	0.50	L.M	T.P
17	2022-02-03 11:26	16.90	573.0	82.0	6.90	0.8	0.50	L.M	T.P
1A[D]	2022-02-07 11:50	12.12	284.5	189.4	7.31	0.5	0.52	J.C	T.P
2	2022-02-02 11:02	6.48	156.8	82.8	7.67	0.9	3.84	T.P	W.M
20	2022-02-07 14:14	12.81	281.5	102.4	7.47	0.0	0.25	J.C	T.P
20A	2022-02-07 12:58	12.33	290.6	129.8	7.51	0.0	10.57	J.C	T.P
21	2022-02-09 10:25	6.31	328.1	151.3	7.32	1.9	0.11	J.C	T.P
22A	2022-02-07 12:15	6.53	365.4	85.8	7.12	0.0	0.40	J.C	T.P
23	2022-02-07 13:30	11.06	247.5	153.2	7.45	0.0	1.06	J.C	T.P
24	2022-02-07 14:41	11.24	257.9	153.2	7.45	0.3	0.52	J.C	T.P
25	2022-02-08 12:27	1.71	609.0	24.9	6.44	0.3	0.20	A.O	T.P
26	2022-02-02 09:41	7.44	422.8	158.4	6.97	3.2	0.34	T.P	W.M
28[D]	2022-02-02 10:29	12.64	213.5	96.8	7.11	0.0	1.35	T.P	W.M
38	2022-02-14 14:11	10.43	215.7	246.0	7.02	0.2	1.03	J.C	T.P
39	2022-02-09 13:17	6.50	634.0	152.0	7.33	1.4	0.32	J.C	T.P
4	2022-02-01 14:49	11.54	386.3	149.5	7.11	1.5	0.50	L.M	T.P
40	2022-02-01 15:08	7.77	352.2	122.2	7.10	1.9	0.14	L.M	T.P
46	2022-02-08 11:48	12.50	275.0	69.0	7.33	0.1	0.48	A.O	T.P
47	2022-02-02 13:04	13.64	143.9	108.2	7.84	0.2	0.65	T.P	W.M
49	2022-02-02 13:54	12.05	227.8	38.1	7.46	1.0	0.47	T.P	W.M
52	2022-02-09 10:40	11.08	299.6	205.8	7.13	1.2	0.40	A.O	W.M
53	2022-02-08 13:10	12.63	310.0	36.3	7.18	0.3	0.39	A.O	T.P
55	2022-02-03 11:26	16.90	573.0	82.0	6.90	0.8	0.50	T.P	L.M
8	2022-02-01 14:16	12.44	273.8	115.0	7.21	1.6	0.50	L.M	T.P

Legend

[D] Duplicate
Not Required

Notes

SW - Monthly - Field

Date: 03 2022

EQUINOX GOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank	2022-03-07 13:00							J.C	L.M
Trip Blank	*							*	*
11	2022-03-01 19:13	11.11	210.5	148.1	7.29	1.9	0.18	J.C	L.M
17	2022-03-09 11:51	8.40	166.2	153.2	7.28	1.9	1.23	L.M	W.M
1A	2022-03-07 12:10	11.77	179.4	222.1	6.68	0.5	1.22	J.C	L.M
2[D]	2022-03-02 12:30	5.60	287.3	148.1	7.26	1.4	1.48	J.C	W.M
20	2022-03-03 14:13	13.27	179.1	87.2	7.70	0.0	0.94	L.M	J.C
20A	2022-03-07 14:00	11.90	189.2	130.2	7.34	0.2	0.78	J.C	L.M
21	2022-03-03 13:40	3.21	197.3	158.5	6.84	1.4	0.70	L.M	J.C
22A	2022-03-07 13:00	5.51	231.8	194.8	6.99	0.5	0.93	J.C	L.M
23	2022-03-03 14:45	2.01	163.2	96.8	7.64	0.0	1.17	L.M	J.C
24	2022-03-03 12:30	11.91	178.8	11.3	7.55	0.2	1.06	L.M	J.C
25	2022-03-03 11:45	1.50	404.8	-70.4	6.51	0.5	0.85	L.M	J.C
26	2022-03-02 14:25	4.80	415.5	143.2	7.35	3.5	0.39	J.C	L.M
28	2022-03-02 13:19	12.20	328.1	123.6	7.19	0.0	2.03	J.C	W.M
38	2022-03-09 10:30	8.40	179.3	148.6	7.42	0.2	1.56	L.M	W.M
39	2022-03-08 13:13	5.04	391.9	103.0	7.46	2.6	0.83	J.C	W.M
4	2022-03-01 20:10	9.00	327.2	153.7	7.17	1.9	0.60	J.C	L.M
40	2022-03-02 10:43	5.53	292.5	112.3	7.11	2.7	1.33	J.C	W.M
46	2022-03-08 10:10	10.84	183.1	124.4	7.68	0.5	1.04	J.C	W.M
47	2022-03-03 11:00	10.73	180.8	176.7	7.30	2.8	0.70	L.M	J.C
49[D]	2022-03-08 09:10	10.16	183.4	108.1	7.70	2.5	1.03	J.C	W.M
52	2022-03-09 14:11	12.05	174.7	137.4	7.66	0.2	0.71	L.M	W.M
53	2022-03-08 09:45	11.89	193.1	137.4	7.58	0.5	0.93	J.C	W.M
55	2022-03-08 11:00	2.66	414.2	-86.4	6.93	1.2	0.98	J.C	W.M
8	2022-03-02 10:10	10.27	223	122.6	7.50	3.0	0.32	J.C	W.M

Legend

[D] Duplicate

Not Required

* Trip blank not received from the lab by the time sampling was completed.

Notes

Trip blanks will now be received the 1st of every month to prevent lack of sample sets.

SW - Monthly - Field

Date: 04 2022

EQUINOX GOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank	2022-04-04 15:23							L.M	T.P
Trip Blank	2022-04-05 14:27							J.C	W.M
11	2022-04-06 10:40	9.61	192.8	92.6	7.27	1.8	0.50	J.C	W.M
17	2022-04-06 14:20	8.65	186.7	194.5	7.29	2.1	0.50	J.C	W.M
1A	*	*	*	*	*	*	*	*	*
2	2022-04-06 12:50	3.13	252.7	192.5	6.96	0.2	0.50	J.C	W.M
20	2022-04-04 12:00	12.25	282.3	124.6	7.29	0.0	0.51	J.C	L.M
20A	2022-04-05 14:51	11.47	253	192.8	7.29	0.2	0.50	J.C	W.M
21	2022-04-04 11:15	2.12	254.9	184.8	6.51	1.5	0.50	J.C	L.M
22A	2022-04-05 15:10	8.71	253	168.8	7.21	0.2	0.50	J.C	W.M
23	2022-04-05 14:20	12.35	201.9	173.7	7.46	0.7	0.50	J.C	W.M
24[D]	2022-04-05 13:36	11.52	200.7	97.1	7.45	2.2	0.50	W.M	W.M
25	2022-04-11 11:33	9.81	427	225.9	6.72	0.4	2.31	J.C	W.M
26[D]	2022-04-06 10:32	1.08	449.2	161	7.03	4.0	0.46	T.P	T.P
28	*	*	*	*	*	*	*	*	*
38	2022-04-05 11:53	11.03	224	153.7	7.33	0.7	1.75	L.M	T.P
39	2022-04-04 13:54	1.97	467.5	208.2	7.25	2.3	0.59	T.P	L.M
4	2022-04-06 11:10	4.74	284.3	175.9	7.05	1.8	0.00	J.C	W.M
40	2022-04-05 14:55	3.24	307.1	176	6.99	1.7	0.72	T.P	L.M
46	2022-04-12 16:05	13.04	193.7	131.6	7.72	0.1	3.32	M.M	W.M
47	2022-04-06 09:51	9.61	200.6	124.3	7.05	1.8	0.00	J.C	W.M
49	2022-04-12 16:55	12.09	204.5	162.6	7.39	0.4	0.47	M.M	W.M
52	2022-04-06 13:05	11.02	224.3	152.2	7.43	1.1	0.22	T.P	L.M
53	2022-04-12 15:36	9.74	224.1	195.4	7.51	2.5	5.08	M.M	W.M
55	2022-04-04 15:01	9.04	506.2	110.2	6.96	0.7	0.79	L.M	T.P
8	2022-04-05 14:55	10.73	233.7	170.3	7.39	1.0	0.20	T.P	L.M

Legend

[D] Duplicate

Not Required

*** Unsafe access - open water**

Notes

- Ice starting to open up in some parts of the lake.

SW - Monthly - Field

Date: 05 2022

EQUINOXGOLD
GREENSTONE MINE
AN _QUINOX GOLD / ORION JOINT VENTURE

Field Visit Details									
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2
Field Blank	2022-05-09 11:54							J.C	W.M
Trip Blank	2022-05-09 14:09							J.C	W.M
11	2022-05-16 13:12	10.39	144.3	271.4	7.08	6.0	0.90	J.C	L.M
17	2022-05-09 11:54	9.48	189.5	262.4	6.97	5.2	1.34	J.C	W.M
1A	2022-05-17 10:39	10.34	102.8	236.4	6.87	8.5	1.58	J.C	L.M
2	2022-05-16 11:55	8.64	85.1	272.6	6.86	11.8	0.74	J.C	L.M
20[D]	2022-05-10 11:19	9.04	131.3	191.8	6.79	6.5	1.35	L.M	W.M
20A	2022-05-11 15:31	8.95	120.0	182.5	7.17	9.8	1.36	L.M	W.M
21	2022-05-11 10:55	10.65	112.6	112.4	6.85	4.3	1.48	J.C	B.M
22A	2022-05-17 11:12	5.86	122.4	254.7	6.82	11.0	0.49	J.C	L.M
23	2022-05-17 11:38	9.91	105.8	256.0	7.07	9.3	0.99	J.C	L.M
24	2022-05-17 12:11	10.08	103.7	261.5	7.08	9.6	0.97	J.C	L.M
25	2022-05-17 12:38	6.17	210.2	238.4	6.85	11.9	0.52	J.C	L.M
26	2022-05-18 10:04	10.34	311.1	157.5	7.60	11.7	0.78	B.M	L.M
28	2022-05-16 11:27	7.60	89.3	265.7	6.65	10.9	0.85	J.C	L.M
38	2022-05-09 10:02	10.82	151.4	267.5	6.50	4.2	7.58	J.C	W.M
39	2022-05-10 14:05	7.14	333.7	220.5	7.17	5.8	1.42	L.M	W.M
4	2022-05-16 12:31	10.02	110.1	258.3	7.02	10.3	1.32	J.C	L.M
40[D]	2022-05-11 13:30	9.94	83.1	224.1	6.92	6.5	1.10	J.C	B.M
46	2022-05-03 16:39	6.37	162.9	209.7	6.40	1.0	18.50	M.M	R.V
47	2022-05-16 13:34	10.22	122.4	251.4	7.17	6.9	0.90	J.C	L.M
49	2022-05-03 17:00	10.80	123.2	151.4	7.16	2.5	0.62	M.M	R.V
52	2022-05-09 12:32	10.20	144.3	257.4	7.24	5.1	1.11	B.M	L.M
53	2022-05-17 13:51	10.31	101.9	228.8	7.19	9.5	1.05	J.C	L.M
55	2022-05-18 11:24	4.78	235.0	204.5	6.85	12.0	0.40	W.M	T.P
8	2022-05-09 14:09	10.02	244.5	259.5	7.01	4.7	1.35	J.C	W.M

Legend

[D] Duplicate
Not Required

Notes

SW - Monthly - Field

Date: 06 2022

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details										
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2	Comments
Field Blank	2022-06-23 12:46							J.C	M.F	
Trip Blank	2022-06-22 12:08							L.M	T.P	
11[D]	2022-06-22 15:26	8.69	122.2	185.4	8.23	19.7	1.37	L.M	T.P	
17	2022-06-23 12:33	8.08	119.5	235.0	7.30	20.4	4.36	J.C	M.F	
1A	2022-06-23 11:43	8.30	295.2	22.94	6.54	19.9	1.26	L.M	T.P	
2	2022-06-22 10:40	8.22	270.0	225.4	6.46	20.2	0.05	L.M	T.P	
20	2022-06-16 14:30	6.48	176.9	199.9	8.2	18.9	0.30	T.P	W.M	
20A	2022-06-23 15:21	6.12	343.1	227.9	5.72	19.4	0.96	L.M	T.P	
21	2022-06-23 15:31	8.19	129.3	210.1	7.40	21.1	0.77	J.C	M.F	
22A	2022-06-23 13:33	5.02	340.6	184.3	5.92	19.9	0.90	L.M	T.P	
23	2022-06-23 15:01	8.19	294.7	193.5	6.59	20.4	1.49	L.M	T.P	
24	2022-06-27 11:20	8.58	153.0	277.6	7.91	19.0	1.59	B.M	T.P	
25	2022-06-27 11:56	4.43	199.1	174.2	6.85	18.4	0.57	T.P	W.M	
26	2022-06-23 14:20	8.89	291.4	216.1	8.01	20.6	1.77	J.C	M.F	
28	2022-06-22 10:12	7.36	290.0	202.9	6.12	21.1	0.50	L.M	T.P	
38	2022-06-20 14:13	7.87	120.2	291.1	7.74	18.3	1.78	B.M	L.V	
39	2022-06-28 14:20	7.74	399.3	182.8	7.65	18.8	0.84	M.F	W.M	
4	2022-06-22 13:07	8.57	307.2	203.2	6.37	20.4	0.50	L.M	T.P	
40	2022-06-22 12:08	8.43	309.0	253.6	6.39	20.2	0.50	L.M	T.P	
46	2022-06-27 12:22	8.64	147.3	224.6	7.89	18.8	1.61	T.P	B.M	
47	2022-06-27 13:30	8.39	139.6	216.2	7.73	18.9	1.51	T.P	B.M	
49	2022-06-27 13:00	8.58	146.9	254.3	7.85	18.8	1.75	T.P	B.M	
52	2022-06-15 14:17	8.16	161.5	204.6	8.11	21.7	0.31	T.P	W.M	
53	2022-06-27 12:37	8.50	151.1	233.1	7.82	18.9	1.69	B.M	T.P	
55[D]	2022-06-28 11:54	2.86	294.1	197.9	6.93	17.2	1.46	M.F	W.M	
8	2022-06-16 10:14	8.40	132.9	172.2	8.78	18.3	2.70	T.P	W.M	

Legend

[D] Duplicate

Not Required

Notes

SW - Monthly - Field

Date: 07 2022

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details										
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2	Comments
Field Blank	2022-07-18 14:32							L.M	M.F	
Trip Blank	2022-07-14 16:00							T.P	L.M	
11	2022-07-13 10:15	8.56	139.0	[A]	8.02	20.3	1.20	J.C	M.F	[A] YSI does not have an ORP probe.
17	2022-07-13 14:55	8.53	137.6	[A]	7.92	22.2	27.78	J.C	M.F	
1A	2022-07-12 10:38	8.71	149.0	242.7	7.81	20.8	1.15	T.P	W.M	
2	2022-07-12 11:10	8.01	148.8	224.1	7.57	20.6	2.22	W.M	T.P	
20[D]	2022-07-14 15:29	6.71	204.9	[A]	7.44	18.9	0.84	T.P	L.M	
20A	2022-07-14 10:48	5.95	199.6	[A]	7.31	17.6	1.06	L.M	T.P	
21	2022-07-18 14:32	7.94	167.1	244.5	7.46	23.2	O.69	M.F	L.M	
22A	2022-07-14 10:07	5.78	188.6	[A]	7.24	18.6	0.95	L.M	T.P	
23	2022-07-14 10:10	8.69	164.4	[A]	8.06	22.3	0.95	L.M	T.P	
24	2022-07-13 10:59	8.44	159.8	[A]	8.04	20.2	1.44	J.C	M.F	
25	2022-07-04 11:56	4.43	199.1	174.9	6.85	18.4	0.57	W.M	S.R	
26	2022-07-18 09:58	9.00	321.1	198.8	8.23	23.3	1.22	L.M	M.F	
28	2022-07-12 10:38	7.79	144.6	187.1	7.32	19.6	1.41	T.P	W.M	
38	2022-07-13 13:07	7.86	141.3	[A]	7.80	20.8	2.95	J.C	M.F	
39[D]	2022-07-18 11:10	5.44	411.4	199.0	7.21	13.6	0.77	L.M	M.F	
4	2022-07-12 11:55	8.37	165.8	229.6	7.76	20.8	2.37	W.M	T.P	
40	2022-07-12 11:40	7.84	157.9	220.8	7.56	20.6	2.06	W.M	T.P	
46	2022-07-12 12:30	8.27	142.5	226.0	7.74	20.1	1.63	T.P	W.M	
47	2022-07-12 15:02	8.51	135.8	221.5	7.77	20.7	1.25	W.M	T.P	
49	2022-07-04 11:20	9.24	110.02	247.3	7.69	19.3	1.19	W.M	T.P	
52	2022-07-14 11:26	8.48	152.7	210.6	7.66	23.7	1.01	J.C	W.M	
53[D]	2022-07-12 14:23	8.41	176.1	246.9	7.78	20.4	1.70	W.M	T.P	
55	2022-07-19 09:16	6.80	360.2	218.0	6.80	22.2	1.17	W.M	T.P	
8	2022-07-13 09:58	8.53	150.8	[A]	8.04	20.3	1.22	J.C	M.F	

Legend

[D] Duplicate

Not Required

Notes

SW - Monthly - Field

Date: 08 2022

EQUINOXGOLD
GREENSTONE MINE
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Field Visit Details										
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2	Comments
Field Blank	2022-08-11 15:36							B.M	W.M	
Trip Blank	2022-08-08 08:00							W.M	B.M	
11	2022-08-08 14:04	8.63	144.1	[A]	8.10	21.1	0.87	W.M	B.M	[A] YSI does not have an ORP probe.
17	2022-08-03 15:36	8.62	145.6	246.5	7.70	20.6	1.27	B.M	L.M	
1A	2022-08-04 10:18	8.20	180.7	[A]	7.89	19.3	0.89	W.M	M.F	
2	2022-08-03 10:55	8.27	180.4	[A]	7.90	19.6	2.03	W.M	S.R	
20	2022-08-08 10:34	7.18	195.8	[A]	7.38	17.6	0.91	B.M	W.M	
20A	2022-08-04 10:46	5.18	223.1	[A]	7.27	18.5	1.25	W.M	M.F	
21[D]	2022-08-11 11:24	7.93	173.4	[A]	7.90	20.5	0.55	W.M	W.M	
22A	2022-08-04 11:13	6.04	237.8	[A]	7.17	19.5	0.76	W.M	M.F	
23[D]	2022-08-04 12:23	8.33	179.7	[A]	7.98	20.0	1.00	W.M	M.F	
24	2022-08-02 13:15	8.14	170.9	218.5	7.72	19.7	1.45	B.M	T.P	
25	2022-08-04 12:59	7.22	351.3	[A]	7.44	21.0	0.30	W.M	M.F	
26	2022-08-11 15:36	9.12	311.2	[A]	8.53	21.2	0.87	B.M	W.M	
28	2022-08-03 10:29	8.05	191.0	[A]	7.72	19.8	1.46	W.M	S.R	
38	2022-08-03 14:25	6.88	152.3	236.4	7.37	20.5	1.51	B.M	L.M	
39	2022-08-11 14:04	7.90	414.6	[A]	7.99	21.2	0.31	B.M	W.M	
4	2022-08-03 09:22	8.31	206.6	[A]	7.94	19.4	2.02	W.M	S.R	
40	2022-08-03 09:48	8.04	192.8	[A]	7.85	19.7	1.91	W.M	S.R	
46	2022-08-02 12:23	8.67	162.8	[A]	8.14	21.7	0.80	W.M	B.M	
47	2022-08-04 15:14	8.64	160.4	[A]	8.05	20.8	1.27	W.M	T.P	
49	2022-08-02 13:50	8.67	157.7	[A]	8.13	21.8	1.02	B.M	W.M	
52	2022-08-10 12:42	8.51	165.5	[A]	8.06	22.0	0.98	B.M	S.R	
53	2022-08-02 11:20	8.31	175.2	251.9	7.78	19.6	1.29	B.M	T.P	
55	2022-08-08 12:07	4.55	366.9	[A]	7.05	19.5	0.16	W.M	B.M	
8	2022-08-04 14:48	8.55	159.6	[A]	8.04	20.7	1.22	W.M	M.F	

Legend

[D] Duplicate
Not Required

Notes

SW - Monthly - Field

Date: 09 2022

EQUINOXGOLD
GREENSTONE MINE
AN EQUINOX GOLD / ORION JOINT VENTURE

Field Visit Details										
ID	Date	Dissolved Oxygen, Field (mg/l)	Conductivity, Field (us/cm)	Oxidation Reduction Potential (millivolts (mV))	pH, Field	Temperature, Field (deg C)	Turbidity, Field (NTU)	Technician 1	Technician 2	Comments
Field Blank	2022-09-08 09:37							J.C	T.P	
Trip Blank	2022-09-06 14:21							L.M	T.P	
11	2022-09-07 10:25	9.12	146.2	249.2	8.15	17.8	0.66	J.C	M.F	
17	2022-09-07 13:12	8.92	147.0	[A]	7.94	19.2	0.92	L.M	T.P	[A] YSI does not have an ORP probe.
1A	2022-09-06 13:54	8.52	182.9	265.0	8.06	17.1	0.04	J.C	W.M	
2	2022-09-07 11:44	8.84	191.6	256.0	8.06	19.0	1.76	J.C	M.F	
20	2022-09-06 14:21	9.83	234.8	[A]	7.74	13.3	0.16	T.P	L.M	
20A	2022-09-06 14:41	8.19	235.8	235.4	7.58	17.4	0.58	J.C	W.M	
21	2022-09-08 10:12	8.77	182.4	205.8	8.05	17.8	0.00	J.C	M.F	
22A	2022-09-06 14:26	8.89	242.0	263.5	7.62	17.3	0.00	J.C	W.M	
23	2022-09-06 13:17	8.88	175.1	227.2	8.12	17.3	0.40	J.C	W.M	
24	2022-09-06 12:59	8.93	169.2	249.1	8.16	17.4	0.72	J.C	W.M	
25	2022-09-06 11:54	8.62	187.5	251.0	7.68	16.7	0.00	J.C	W.M	
26	2022-09-07 13:12	9.61	314.1	[A]	8.34	18.5	0.55	L.M	T.P	
28	2022-09-07 12:08	8.35	246.0	267.8	7.80	16.8	1.70	J.C	M.F	
38	2022-09-07 10:46	8.03	157.0	[A]	7.80	17.7	1.02	T.P	L.M	
39	2022-09-06 15:29	8.51	412.5	[A]	7.99	18.3	0.29	L.M	T.P	
4[D]	2022-09-07 10:55	8.80	213.1	261.2	8.08	17.8	1.45	J.C	M.F	
40	2022-09-07 11:19	8.70	205.9	256.9	8.04	18.0	1.81	J.C	M.F	
46	2022-09-06 11:31	9.05	166.4	242.0	8.20	17.4	0.37	J.C	W.M	
47	2022-09-07 09:44	8.82	159.9	233.9	8.04	18.0	0.51	J.C	M.F	
49	2022-09-06 10:40	8.98	163.8	291.9	8.07	17.6	0.43	J.C	W.M	
52	2022-09-12 13:37	8.90	170.2	218.5	7.94	19.2	2.45	J.C	M.F	
53[D]	2022-09-06 11:08	9.12	172.3	260.9	8.15	17.7	0.64	J.C	W.M	
55	2022-09-06 13:07	0.30	480.2	[A]	6.75	12.4	1.34	T.P	L.M	
8	2022-09-07 10:01	8.89	160.2	213.2	8.04	18.1	0.88	J.C	M.F	

Legend

[D] Duplicate

Not Required

Notes

EQUINOXGOLD
GREENSTONE GOLD MINES
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A-2
Summary of Surface Water Quality Analytical Results

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		1A										2											
Sample Date		**18-Oct-21**	**9-Nov-21**	**7-Feb-22**	**7-Mar-22**	**17-May-22**	**23-Jun-22**	**12-Jul-22**	**4-Aug-22**	**22-Aug-22**	**6-Sep-22**	**20-Oct-21**	**9-Nov-21**	**12-Jan-22**	**2-Feb-22**	**2-Mar-22**	**2-Mar-22**	**6-Apr-22**	**16-May-22**	**22-Jun-22**	**12-Jul-22**	**3-Aug-22**	**7-Sep-22**
Sample ID		**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**2**	**2**	**2**	**2**	**2**	**duplicate1**	**2**	**2**	**2**	**2**	**2**	**2**
Sampling Company		**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**
Laboratory		**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**
Laboratory Work Order		**L2652895**	**L2661577**	**454738**	**456829**	**463246**	**467471**	**469370**	**472756**	**474476**	**475972**	**L2654108**	**L2661574**	**452991**	**454449**	**456456**	**456456**	**459292**	**462997**	**467331**	**469370**	**472528**	**476124**
Laboratory Sample ID		**L2652895-1**	**L2661577-1**	**1727354**	**1734414**	**1755254**	**1770087**	**1776570**	**1785254**	**1791510**	**1796472**	**L2654108-2**	**L2661574-3**	**1721235**	**1726471**	**1733149**	**1733150**	**1742231**	**1754542**	**1769690**	**1776566**	**1784520**	**1796953**
Sample Type	**Units**																**Field Duplicate**						
Field Parameters																							
Dissolved oxygen, Field	mg/L	9.99	12.13	-	-	-	-	-	-	-	-	10.14	12.51	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	211.7	197.5	-	-	-	-	-	-	-	-	193.0	206.3	-	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.7	7.73	7.31	6.68	6.87	7.54	7.81	7.89	-	8.06	7.92	7.52	7.33	7.67	7.26	7.26	7.29	6.86	6.46	7.57	7.9	8.06
Temperature, Field	deg C	9.5	4	0.5	0.5	8.5	19.9	20.8	19.3	-	17.1	10.1	3.9	2.3	0.9	1.4	1.4	0.2	11.8	20.2	20.6	19.6	19
Turbidity, Field	NTU	2.66	1.15	-	-	-	-	-	-	-	-	3.26	2.60	-	-	-	-	-	-	-	-	-	-
General Chemistry																							
Acidity as CaCO3	mg/L	<2.0	<2.0	12	9	4	5	7	3	-	3	2.1	2.1	5	6	9	10	5	6	2	5	3	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	119	108	112	116	51	79	85	89	-	101	86.6	86.7	108	113	117	101	110	34	59	68	70	66
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	-	<1	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00502	0.00956	0.00363	0.00589	0.00479	0.0135	-	0.0132	<2.0	<2.0	0.00742	0.00603	0.00427	0.00742	0.00646	0.00219	0.00892	0.00468	0.0112	0.0118
Alkalinity, Total (as CaCO3)	mg/L	119	108	112	117	51	80	85	90	-	102	86.6	86.7	108	113	117	101	110	34	59	69	71	67
Ammonia (as N)	mg/L	0.0105	0.0100	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.25	0.0361	0.0646	0.05	0.04	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	0.009	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	<0.5	4	-	1.3	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	42	38	-	38	-	26	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	0.3	0.4	0.4	0.3	-	0.5	-	-	-	-	-	-	16	3.4	7.1	8.6	6.6	10.9
Chlorophyll a	µg/L	-	-	-	-	-	<0.5	-	-	60.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	34.2	26.2	19	22.2	81.9	53.7	47.3	34.5	-	27	36.1	33.6	41.3	40.3	44.3	37.2	36.8	136	117	113	90.3	65.4
Cyanide	mg/L	<0.0020	<0.0020	<0.002	0.004	<0.002	<0.002	<0.002	0.002	-	<0.002	<0.0020	<0.0020	<0.002	0.003	<0.002	<0.002	0.004	0.003	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	0.002	0.002	0.004	<0.001	0.002	<0.001	-	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	11.1	11.1	9.6	8.8	14	9.8	11.7	10.1	-	10	13.5	12.3	12.9	14	13.8	13.6	11.9	15.1	17.8	17.4	17.6	18.3
Electrical Conductivity, Lab	µS/cm	215	200	217	220	103	155	160	214	-	192	197	204	256	269	293	300	274	88	145	158	181	145
Fluoride	mg/L	-	-	-	-	0.07	<0.05	<0.05	<0.05	-	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	112	104	115	128	56.2	80.3	86.5	97.8	-	91.8	85.2	93.4	119	129	154	156	136	44.7	64.4	77.7	84.2	90.1
Nitrate (as N)	mg/L	<0.020	<0.020	0.07	0.12	0.04	<0.02	<0.02	<0.02	-	<0.02	<0.020	0.023	0.07	0.17	0.17	0.22	0.14	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	4	2	-	1	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.88	7.92	7.47	7.75	7.33	7.54	7.45	7.9	-	7.89	7.86	7.81	7.64	7.55	7.4	7.64	7.58	7.11	7.72	7.44	7.82	7.84
Phaeophytin A	µg/L	-	-	-	-	-	92.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	0.021	<0.002	-	0.005	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0101	0.0068	0.004	0.003	0.008	0.146	0.006	0.042	-	0.004	0.0185	0.0264	0.018	0.103	0.018	0.019	0.006	0.009	0.011	0.015	<0.001	0.018
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.37	1.07	1.4	1.7	1.2	1.1	1	0.5	-	1.1	5.07	6.05	8.4	8.5	6.4	10.9	10.4	2	2.7	2.7	2.2	4.4
Total Dissolved Solids	mg/L	138	120	130	140	130	140	160	150	-	130	127	108	180	205	180	185	175	170	145	160	160	205
Total Kjeldahl Nitrogen	mg/L	0.477	0.333	0.52	0.29	0.68	0.71	3.17	<0.04	-	<1	0.568	0.730	0.54	0.51	0.43	0.38	0.56	0.75	0.92	4.1	<0.04	<1
Total Organic Carbon	mg/L	11.3	11.4	9.6	8.9	14.6	10.8	12.5	10.7	-	10.5	13.5	13.9	13.1	14	13.6	13.5	13.4	16.4	19.3	18.3	19.1	18.5
Total Suspended Solids	mg/L	<3.0	<3.0	<2	2.7	3	2.5	3	<0.67	-	2	<3.0	3.4	2	<2	1	<0.67	<0.67	1	2.5	7.33	4	2.7
Turbidity, Lab	NTU	1.62	1.19	1.1	1.4	1.6	1.6	1.2	1.3	-	1.5	3.51	4.19	2.1	2.3	1.6	1.7	1.8	0.8	3.5	3.9	2.8	5.1
Speciated Metals																							
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		1A										2											
Sample Date		**18-Oct-21**	**9-Nov-21**	**7-Feb-22**	**7-Mar-22**	**17-May-22**	**23-Jun-22**	**12-Jul-22**	**4-Aug-22**	**22-Aug-22**	**6-Sep-22**	**20-Oct-21**	**9-Nov-21**	**12-Jan-22**	**2-Feb-22**	**2-Mar-22**	**2-Mar-22**	**6-Apr-22**	**16-May-22**	**22-Jun-22**	**12-Jul-22**	**3-Aug-22**	**7-Sep-22**
Sample ID		**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**1A**	**2**	**2**	**2**	**2**	**2**	**duplicate1**	**2**	**2**	**2**	**2**	**2**	**2**
Sampling Company		**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**
Laboratory		**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**
Laboratory Work Order		**L2652895**	**L2661577**	**454738**	**456829**	**463246**	**467471**	**469370**	**472756**	**474476**	**475972**	**L2654108**	**L2661574**	**452991**	**454449**	**456456**	**456456**	**459292**	**462997**	**467331**	**469370**	**472528**	**476124**
Laboratory Sample ID		**L2652895-1**	**L2661577-1**	**1727354**	**1734414**	**1755254**	**1770087**	**1776570**	**1785254**	**1791510**	**1796472**	**L2654108-2**	**L2661574-3**	**1721235**	**1726471**	**1733149**	**1733150**	**1742231**	**1754542**	**1769690**	**1776566**	**1784520**	**1796953**
Sample Type	**Units**																**Field Duplicate**						
Metals, Dissolved																							
Aluminum	µg/L	5.4	2.7	2	6	21	7	8	17	-	5	3.8	3.1	4	4	5	4	3	23	10	9	5	5
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.76	0.73	0.7	0.8	0.8	0.8	0.7	<0.1	0.2	0.2	0.3	0.5
Arsenic	µg/L	1.68	0.88	0.8	0.8	1	1.1	1.5	1.3	-	1.4	29.4	24.4	23.3	18.9	15.4	14.4	14.3	13.8	23.5	35	53	67.4
Barium	µg/L	14.7	12.3	13.4	12.9	7.7	10.6	12	12.5	-	12.6	7.31	7.08	9.1	9.8	11.1	10.7	11.5	5.4	6.5	6.6	7.6	8.7
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	-	<2	<10	<10	2	<2	2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.01	0.09	-	0.008	<0.005	<0.005	0.005	0.007	<0.005	<0.005	<0.005	0.01	<0.005	0.009	0.009	0.01
Calcium	mg/L	33.5	31.2	34.7	37	15.4	23.6	25	29.5	-	29.5	25.6	28.2	34.9	38.5	42.7	44.5	38	12.5	19.4	21.1	26.3	25.7
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.16	<0.1	0.2	0.4	0.5	1.1	0.5	0.5	-	0.8	0.1	0.15	<0.1	<0.1	0.2	0.1	0.2	0.5	1.1	0.5	0.6	0.9
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	-	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1
Copper	µg/L	0.47	0.26	0.4	0.5	0.9	0.5	0.6	0.4	-	0.4	1.74	1.79	1.1	1.9	2.4	2.2	2.4	1.3	1.7	1.4	1.6	2.1
Iron	µg/L	50	39	<10	30	70	140	70	90	-	70	95	60	270	100	100	80	<10	80	210	140	110	120
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	0.069	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.1	0.19	0.08	0.08
Lithium	µg/L	1.2	<1	<1	1	<1	<1	<1	<1	-	<1	<1	<1	1	<1	1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.96	6.24	7.3	7.11	3.5	5.08	4.52	6.34	-	5.97	5.16	5.59	7.78	8.07	9.32	9.04	8.08	2.64	3.96	3.98	5.7	5.23
Manganese	µg/L	5.76	4.1	3.8	7	4.4	3.3	3.9	4.1	-	5.5	6.01	6.37	17.5	24.4	10.2	8.9	26.8	3.8	3.7	2	2.8	3.1
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.14	0.101	0.1	0.12	0.11	0.11	0.52	0.6	-	0.12	0.079	0.109	0.09	0.09	<0.05	<0.05	0.07	1.03	0.08	0.09	0.11	0.1
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.8	0.8	-	0.7	0.58	0.58	0.7	0.7	1	1	1	0.7	1	1.1	1.2	1.3
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	-	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.949	0.817	0.85	0.8	0.56	0.66	0.62	0.71	-	0.69	0.465	0.503	0.62	0.63	0.71	0.7	0.61	0.38	0.35	0.21	0.25	0.37
Rubidium	µg/L	2.21	1.81	2	1.9	1.6	1.8	1.8	1.9	-	2	1.01	0.97	1.2	1.2	1.3	1.2	1.3	1.1	0.9	0.6	0.8	1.1
Selenium	µg/L	0.054	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.07	0.052	0.057	0.06	0.35	0.22	0.11	0.18	<0.05	0.14	0.16	<0.05	0.12
Silicon	µg/L	3,290	2,900	3,770	3,680	1,770	1,890	-	2,050	-	1,470	3,100	2,940	4,180	4,700	5,520	5,520	4,940	1,110	1,190	-	1,790	1,510
Silicon	mg/L	-	-	-	-	-	-	1.64	-	-	-	-	-	-	-	-	-	-	-	-	1.09	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	0.773	0.780	0.84	0.86	0.42	0.61	0.53	0.69	-	0.65	5.78	6.14	7.88	7.87	9.52	9.34	8.22	2.05	4.13	4.65	6.22	6.09
Strontium	µg/L	31.9	29.4	29.9	30.1	14.8	20.3	22.9	19.7	-	20.7	39.1	42.6	47.3	47.3	51.2	48.9	50.7	13.9	24	26	27.3	28.8
Sulfur	µg/L	<500	<500	500	1,800	<500	3,600	800	2,300	-	<500	1,500	1,820	2,700	2,400	4,500	4,000	4,700	<500	4,000	500	1,700	1,100
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3
Titanium	µg/L	<0.3	<0.3	1	1	0.8	0.6	0.6	0.8	-	0.5	<0.3	<0.3	1.1	1.4	1	1	0.8	0.6	0.6	0.5	0.6	0.5
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.21	0.18	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Uranium	µg/L	0.305	0.274	0.28	0.29	0.08	0.17	0.17	0.21	-	0.27	0.04	0.041	0.05	0.05	0.05	0.05	0.04	0.01	0.02	0.02	0.02	0.04
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<1	<1	<1	<1	1	<1	1	<1	-	<1	<1	<1	<1	1	4	4	2	2	1	2	1	<1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	3.3	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																							
Aluminum	µg/L	15.3	8.5	8	10	62	24	21	13	-	10	38.9	81.6	11	11	9	9	10	36	55	46	42	22
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.8	0.75	1.2	0.7	0.6	0.6	0.6	<0.1	0.3	0.2	0.3	0.5
Arsenic	µg/L	2.84	0.97	0.7	0.8	0.9	1.1	1.3	1.2	-	1.2	34.9	36.8	22.2	20.3	17.1	17.6	14.3	13.4	26.9	36.2	55.8	63.3
Barium	µg/L	15.4	12.9	12.7	13.3	7.9	11.2	12	12.8	-	12.5	8.36	8.35	9.2	10.1	10.1	10.4	10.4	4.6	6.9	7.3	8.1	8.1
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	-	<2	<10	<10	<2	<2	<2	2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	0.01	0.008	-	<0.005	<0.005	0.0061	0.007	0.006	<0.005	<0.005	0.005	<0.005	0.008	0.01	0.008	0.01
Calcium	mg/L	34.0	31.9	34.5	39.3	15.1	24.5	23.6	29.6	-	30.6	26.8	27.7	35.7	39.5	42.5	40.9	37.8	12.9	19.5	21.8	23.1	30.7
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	-	<0.01	0.013	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Chromium	µg/L	0.19	0.14	0.3	0.5	0.6	0.6	0.5	0.4	-	0.2	0.2	0.34	0.4	0.2	0.3	0.4	0.3	0.6	0.6	0.8	0.6	0.7
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.1	-	<0.1	<0.1	0.15	0.1	0.1	0.1	<0.1	0.1	<0.1	0.2	0.3	0.1	0.2
Copper	µg/L	0.7	<0.5	0.4	0.6	0.9	0.7	0.8	1	-	0.8	2.01	2.37	2.3	2.1	2.2	2.3	2.3	1	2	2.6	2	2.9
Iron	µg/L	132	107	60	140	190	190	160	210	-	160	280	430	380	230	250	240	140	160	330	290	340	290
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	0.11	0.08	0.13	<0.05	-	0.07	0.246	0.42	0.17	0.12	0.06	0.06	0.08	0.13	0.29	0.85	0.24	0.21
Lithium	µg/L	1.2	<1	1	2	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	7.13	6.55	6.71	7.34	3.44	4.82	4.56	6.4	-	6.06	5.48	5.99	7.53	7.66	9.03	8.24	7.95	2.81	3.85	4.16	4.46	6
Manganese	µg/L	17.1	10.7	5.7	7.3	10.5	20.5	21.7	19.8	-	13.2	17.3	22.5	18.4	27.3	10.6	10.7	27.5	5.9	12.7	18.8	15.6	15.7
Mercury	µg/L	-	-	0.0006	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	0.0005	0.002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.132	0.124	0.09	0.13	0.06	0.12	0.17	0.12	-	0.16	0.077	0.087	0.11	0.08	0.1	0.1	0.1	0.1	0.11	0.2	0.12	0.16
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	-	<0.5	0.71	0.92	<0.5	<0.5	0.6	0.5	0.6	<0.5	0.5	0.9	1.7	1
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	-	-	<30	<30	-	<50	<50	<50	<50	-	<50	<50	50	<50
Potassium	mg/L	0.949	0.832	0.8	0.85	0.55	0.67	0.58	0.74	-	0.71	0.493	0.532	0.6	0.61	0.66	0.66	0.59	0.39	0.37	0.23	0.25	0.43
Rubidium	µg/L	2.29	1.81	1.9	2	1.6	1.9	1.8	2	-	2	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.1	1	0.8	1	1.2
Selenium	µg/L	0.05	0.058	<0.05	0.09	<0.05	0.1	<0.05	0.08	-	<0.05	0.084	0.07	0.08	0.37	0.19	0.07	<0.05	<0.05	0.27	<0.05	<0.05	0.21
Silicon	µg/L	3,400	3,030	3,280	4,020	1,940	2,080	-	2,370	-	1,600	3,040	3,170	4,020	4,750	5,110	5,210	4,990	1,490	1,410	-	1,870	1,760
Silicon	mg/L	-	-	-	-	-	-	1.96	-	-	-	-	-	-	-	-	-	-	-	-	1.59	-	-
Silver	µg/L	<0.01	<0.01	0.02	<0.01	0.09	<0.01	0.02	0.04	-	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.04	0.04
Sodium	mg/L	0.795	0.794	0.8	0.86	0.41	0.57	0.53	0.72	-	0.73	5.54	6.34	7.52	7.9	9.12	9.25	8.32	2.2	4.13	5.05	5.35	6.98
Strontium	µg/L	32.3	29.7	29.5	31.2	14.1	23.5	24.8	19.7	-	20.2	42.1	43.7	46.2	46.6	49.6	50.9	51.1	14.5	25.8	27.4	30.8	31.1
Sulfur	µg/L	<500	<500	<500	2,600	<500	800	700	800	-	<500	1,600	2,100	2,300	2,500	3,600	4,000	4,400	1,300	1,100	800	1,300	1,500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.4
Titanium	µg/L	0.49	0.33	1.2	1.3	3.1	1.4	1.1	1.3	-	0.9	1.03	2.11	1.4	1.4	1.2	1.4	1.3	1.1	1.7	1.4	1.6	1.3
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.4	0.69	0.1	0.1	0.1	0.1	<0.1	<0.1	0.2	0.2	0.3	0.3
Uranium	µg/L	0.313	0.289	0.29	0.3	0.09	0.16	0.18	0.23	-	0.28	0.041	0.058	0.05	0.05	0.05	0.05	0.04	0.01	0.02	0.02	0.03	0.05
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<1	<1	1	1	1	<1	-	2	<3	<3	1	1	1	1	2	2	2	2	1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		4												8										
Sample Date		**20-Oct-21**	**9-Nov-21**	**11-Jan-22**	**1-Feb-22**	**1-Mar-22**	**6-Apr-22**	**16-May-22**	**22-Jun-22**	**12-Jul-22**	**3-Aug-22**	**7-Sep-22**	**7-Sep-22**	**19-Oct-21**	**19-Oct-21**	**9-Nov-21**	**6-Jan-22**	**1-Feb-22**	**2-Mar-22**	**5-Apr-22**	**9-May-22**	**16-Jun-22**	**13-Jul-22**	**4-Aug-22**	**7-Sep-22**
Sample ID		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**Duplicate 2**	**8**	**SW DUPLIACTE 2**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**
Sampling Company		**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**	**GGM**
Laboratory		**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**ALS**	**ALS**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**	**TESTMARK**
Laboratory Work Order		**L2654108**	**L2661574**	**452852**	**454370**	**456382**	**459292**	**462997**	**467331**	**469370**	**472528**	**476124**	**476124**	**L2653518**	**L2653518**	**L2661574**	**452488**	**454370**	**456456**	**459163**	**462299**	**466677**	**470538**	**472756**	**476124**
Laboratory Sample ID		**L2654108-3**	**L2661574-5**	**1720824**	**1726172**	**1732933**	**1742230**	**1754543**	**1769688**	**1776568**	**1784517**	**1796950**	**1796951**	**L2653518-6**	**L2653518-10**	**L2661574-6**	**1719649**	**1726171**	**1733147**	**1741853**	**1752059**	**1767365**	**1777265**	**1785259**	**1796948**
Sample Type	**Units**												**Field Duplicate**		**Field Duplicate**									**Field Duplicate**	
Field Parameters																									
Dissolved oxygen, Field	mg/L	10.31	12.54	-	-	-	-	-	-	-	-	-	-	9.60	-	12.39	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	243.9	251.9	-	-	-	-	-	-	-	-	-	-	166.9	-	185.0	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	8.05	7.94	7.68	7.11	7.17	7.05	7.02	6.37	7.76	7.94	8.08	-	7.93	-	8.04	7.62	7.21	7.5	7.39	7.01	8.78	8.04	8.04	8.04
Temperature, Field	deg C	10.2	4.2	0.7	1.5	1.9	1.8	10.3	20.4	20.8	19.4	17.8	-	12	-	5	0.9	1.6	3	1	4.7	18.3	20.3	20.7	18.1
Turbidity, Field	NTU	4.38	2.59	-	-	-	-	-	-	-	-	-	-	3.07	-	2.21	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	2.1	2.2	10	4	10	7	6	<2	6	3	4	4	<2.0	<2.0	<2.0	12	2	9	3	7	6	4	<2	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	92.5	91.8	107	124	124	126	33	63	68	68	72	76	84.8	83.5	90.4	97	111	117	122	92	62	72	70	68
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<2.0	<1	<1	<1	1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.0049	0.011	0.00563	0.00742	0.0017	0.01	0.00408	0.0107	0.0118	0.0115	<2.0	<2.0	<2.0	0.00347	0.0159	0.00852	0.02	0.00399	0.00363	0.00617	0.0155	0.0105
Alkalinity, Total (as CaCO3)	mg/L	92.5	91.8	107	125	124	127	33	63	68	68	73	77	84.8	83.5	90.4	97	112	118	123	93	62	72	70	68
Ammonia (as N)	mg/L	0.0163	0.0110	0.03	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0050	0.0068	0.0077	0.05	0.12	<0.01	<0.01	<0.01	0.02	0.03	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.010	-	<0.010	<0.002	<0.002	<0.002	-	<0.002	0.004	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	18	7	9.3	10.9	10.8	12.6	12.4	-	-	-	-	-	-	-	1.7	6.1	2.3	2.8	0.8	3.4
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	187	-
Color, True	TCU	28.6	26.5	28.3	34.1	33.3	41	104	146	107	79.2	57.6	53.3	22.2	22.5	21.9	30.5	19.9	27.4	30.1	42.6	68.1	73.8	50.7	48.1
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	<0.002	0.007	0.003	0.004	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	0.003	<0.002	0.01	0.007	<0.002	0.004	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	<0.001	0.002	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	12.2	12.2	14.3	14.7	13.8	12.9	15.4	17.2	18	14.9	16.7	16.6	12.1	12.4	11.2	11	10.8	11	9.9	11.5	15.1	13.8	12	13.9
Electrical Conductivity, Lab	µS/cm	247	249	267	306	176	335	112	163	179	208	182	237	167	169	184	206	223	249	242	204	99	153	163	141
Fluoride	mg/L	-	-	-	-	-	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	102	108	129	145	167	154	49.1	71.1	78.4	93	91.9	94.2	81.3	82.5	93.9	117	121	141	124	99.6	65.1	76.6	81.4	81.1
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	0.1	0.42	0.3	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	<0.020	<0.02	<0.02	0.1	0.09	0.16	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.89	7.87	7.46	7.81	7.52	7.64	7	7.77	7.38	7.8	7.84	7.83	7.63	7.64	7.90	7.31	7.97	7.7	8.07	7.37	7.33	7.56	7.96	7.79
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	13.4	-	-	-	-	-	-	-	-	-	-	-	-	551	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0306	0.0203	0.008	0.028	0.029	0.013	0.012	0.032	0.027	0.028	0.038	0.067	0.0187	0.0171	0.0148	<0.001	0.007	0.013	0.005	0.002	0.008	0.02	1.26	0.012
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	16.9	18.5	13	15.5	20.4	17.3	7.1	8	7.7	7.4	11	10.9	2.36	2.48	3.33	4.2	3.8	4.8	2.5	5.5	2.5	3.2	0.9	3.8
Total Dissolved Solids	mg/L	148	161	350	210	220	205	200	155	175	155	165	150	103	104	111	125	130	130	90	130	125	140	90	155
Total Kjeldahl Nitrogen	mg/L	0.544	0.493	0.88	0.49	0.36	0.52	0.64	1.23	3.82	0.49	<1	<1	0.400	0.387	0.424	0.41	0.45	0.32	0.27	0.51	0.48	3.28	<0.04	<1
Total Organic Carbon	mg/L	13.2	12.3	15.1	14.1	14.9	12.6	16.2	18.1	18.4	17	17	16.7	12.6	12.3	11.7	10.2	10.6	10.6	9.6	11.8	16.8	13.9	13.2	13.9
Total Suspended Solids	mg/L	5.9	3.8	<2	<2	<0.67	<0.67	<0.67	176	5.3	3.5	3.7	4	<3.0	<3.0	4.8	<2	<2	<0.67	<0.67	<0.67	4	1.7	2.7	3
Turbidity, Lab	NTU	4.62	3.01	0.6	0.8	0.6	0.8	1.6	7.8	2.9	5.1	2.3	2.2	2.07	1.96	2.19	0.5	0.4	0.8	0.4	1.5	0.8	0.8	1.9	1.2
Speciated Metals																									
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		4												8											
Sample Date		20-Oct-21	9-Nov-21	11-Jan-22	1-Feb-22	1-Mar-22	6-Apr-22	16-May-22	22-Jun-22	12-Jul-22	3-Aug-22	7-Sep-22	7-Sep-22	19-Oct-21	19-Oct-21	9-Nov-21	6-Jan-22	1-Feb-22	2-Mar-22	5-Apr-22	9-May-22	16-Jun-22	13-Jul-22	4-Aug-22	7-Sep-22
Sample ID		4	4	4	4	4	4	4	4	4	4	4	Duplicate 2	8	SW DUPLIACTE 2	8	8	8	8	8	8	8	8	8	8
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654108	L2661574	452852	454370	456382	459292	462997	467331	469370	472528	476124	476124	L2653518	L2653518	L2661574	452488	454370	456456	459163	462299	466677	470538	472756	476124
Laboratory Sample ID		L2654108-3	L2661574-5	1720824	1726172	1732933	1742230	1754543	1769688	1776568	1784517	1796950	1796951	L2653518-6	L2653518-10	L2661574-6	1719649	1726171	1733147	1741853	1752059	1767365	1777265	1785259	1796948
Sample Type	Units												Field Duplicate		Field Duplicate										Field Duplicate	
Metals, Dissolved																									
Aluminum	µg/L	8.5	2	2	3	4	3	17	10	5	3	4	6	2	2.6	1.1	2	1	3	<1	9	10	4	3	4
Antimony	µg/L	0.9	0.81	0.5	0.7	0.8	0.6	0.1	0.3	0.3	0.3	0.6	0.6	0.15	0.16	0.22	0.2	0.1	0.1	<0.1	0.1	<0.1	0.1	0.1	0.2
Arsenic	µg/L	55.9	45.1	31.7	32.8	27.6	19.1	15.4	44.3	46.6	90.1	128	135	12.8	15.2	17.1	12.9	8.3	6.2	5.5	5.4	8.6	14.4	16.1	29.7
Barium	µg/L	8.07	7.9	12	11.8	11.2	13.1	4.1	6.6	6.6	9.4	9	8.4	8.7	8.82	10	12.6	12.2	14.7	13.5	11.8	9	9.1	9.8	10.2
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	3	3	6	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	3	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.006	<0.005	0.01	0.006	0.006	0.01	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.007	<0.005	0.01	0.02	0.01
Calcium	mg/L	29.9	31.8	36.1	42	51.8	43.7	13.6	21.1	22.5	27	27.6	30.9	23.7	24.3	28.2	32.6	35.5	40	35.2	28.6	20.7	22.4	24.3	26.7
Cesium	µg/L	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.12	<0.1	<0.1	0.6	0.2	0.2	0.4	1.3	0.6	0.5	0.9	1.5	0.16	0.13	<0.1	0.3	0.3	0.2	0.2	0.5	0.4	0.5	0.6	1.5
Cobalt	µg/L	<0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	<0.1
Copper	µg/L	3.57	3.45	1.6	3	3.3	2.6	1	3.5	3	3.9	4.2	4.5	1.08	1.1	1.37	1.1	0.8	1.3	1.7	2.3	1.1	2.1	1.3	1.8
Iron	µg/L	38	25	220	<10	60	20	70	230	100	80	90	100	12	15	21	48	<10	40	<10	70	140	60	70	60
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.11	0.07	0.05	0.08	0.15	<0.05	<0.05	<0.05	0.2	<0.05	0.35	<0.05	<0.05	<0.05	0.09	<0.05	0.11
Lithium	µg/L	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	2	1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.70	6.99	8.41	9	9.17	9.15	3.05	4.64	4.35	6.23	5.97	6.46	5.35	5.31	5.74	7.34	7.42	8.57	7.03	6.07	4.07	4.63	5.45	5.58
Manganese	µg/L	2.24	3.66	3.1	8.6	13.6	71.3	6.7	5.3	0.8	1.1	2.9	4.2	0.77	0.9	2.22	1.9	1.6	0.8	1.2	13.1	2.6	0.7	1.1	1
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.115	0.129	0.11	0.14	<0.05	0.1	0.09	0.1	0.09	0.13	0.26	0.12	0.088	0.088	0.12	0.15	0.12	<0.05	0.12	0.12	0.1	0.16	0.09	0.19
Nickel	µg/L	1.04	0.93	0.8	1.2	1.3	1.1	0.8	1.6	1.4	1.6	1.8	1.7	<0.5	<0.5	<0.5	0.6	0.5	0.6	<0.5	1	0.8	1.3	1	0.9
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	60	<50	<50	<50	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.900	0.906	0.98	1.02	1.21	0.74	0.45	0.6	0.48	0.57	0.64	0.71	0.588	0.592	0.709	0.91	0.96	1.12	0.87	0.79	0.68	0.69	0.72	0.72
Rubidium	µg/L	1.46	1.42	1.9	1.8	1.8	1.5	0.9	1.2	1.1	1.2	1.7	1.7	1.45	1.42	1.42	1.9	1.9	2.2	2.1	1.8	1.6	1.6	1.7	2
Selenium	µg/L	0.083	0.061	0.15	0.09	0.11	<0.05	<0.05	0.08	0.06	0.19	0.19	0.12	<0.05	0.074	0.062	<0.05	<0.05	0.06	0.08	0.11	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	3,080	2,590	3,080	4,210	5,120	5,360	1,010	1,140	-	1,580	1,720	1,920	2,770	2,660	2,320	3,160	3,480	4,440	3,700	2,890	1,450	-	1,640	1,790
Silicon	mg/L	-	-	-	-	-	-	-	-	0.79	-	-	-	-	-	-	-	-	-	-	-	-	1.33	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	8.46	8.23	5.63	8.37	14.8	9.3	3.97	5.65	5.56	8.18	7.12	7.86	2.19	2.24	2.53	2.36	2.07	2.2	1.68	4.47	1.61	1.98	2.27	2.47
Strontium	µg/L	56.3	57.9	49.4	59.4	60.5	60.7	19.3	32.6	34.8	35.5	36.7	36.7	27.4	28.2	32.7	34.6	35.4	35.4	33.5	29.8	20.3	22.7	20.4	22.2
Sulfur	µg/L	5,800	5,410	3,700	5,000	7,400	6,600	2,300	5,700	3,000	3,400	2,600	3,000	590	750	1,120	2,300	600	2,800	900	2,300	1,400	1,800	3,200	1,200
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	<0.1
Titanium	µg/L	<0.3	<0.3	0.8	0.7	1	0.9	0.4	0.6	0.7	0.6	0.6	0.7	<0.3	<0.3	<0.3	0.7	0.6	1	0.7	0.7	0.6	0.5	0.6	0.6
Tungsten	µg/L	0.17	0.14	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.073	0.095	0.18	0.14	0.08	0.06	0.02	0.03	0.03	0.02	0.06	0.06	0.123	0.132	0.186	0.21	0.24	0.26	0.23	0.17	0.07	0.11	0.11	0.13
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8
Zinc	µg/L	<1	<1	<1	2	3	2	2	<1	1	<1	2	2	<1	<1	<1	<1	<1	4	<1	2	<1	1	<1	<1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	119	61.2	6	12	8	7	66	213	6	63	42	43	24.3	24.7	40.5	5	4	10	2	27	30	20	23	23
Antimony	µg/L	0.94	0.8	0.5	0.8	0.7	0.6	0.3	0.3	0.3	0.4	0.6	0.6	0.16	0.17	0.21	0.2	0.1	0.1	0.3	<0.1	<0.1	0.1	0.1	0.1
Arsenic	µg/L	65	52.6	29.2	31.2	27.4	18.9	16.8	53.8	37.1	91.3	109	107	19	19.2	19.2	10.9	7.4	7.1	5	5.3	7.1	12.8	14.1	24.6
Barium	µg/L	9.52	8.88	12.3	12.5	10.8	11.7	4.4	7.6	6.7	8	9.3	9	9.89	9.78	10.5	11.9	12.4	13.2	13.6	11	8.2	9.8	11.9	10.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	3	5	3	<2	<2	<2	<2	<2	<2	<2	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.005	0.009	<0.005	<0.005	0.009	0.01	0.008	0.006	<0.005	0.01	0.005	<0.005	0.0051	0.006	0.005	<0.005	<0.005	<0.005	0.008	0.007	<0.005	<0.005
Calcium	mg/L	32.2	32.4	39.3	40.7	43.4	44.9	15	20.7	23	25	29.5	28.3	25.7	25.3	27.4	32.5	48.8	37.8	36.2	29.2	20.5	23.1	24.6	27.7
Cesium	µg/L	0.031	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Chromium	µg/L	0.61	0.4	0.2	0.3	0.3	0.3	0.7	1.2	0.6	0.9	0.8	0.5	0.24	0.18	0.23	0.2	0.1	0.3	0.1	0.5	1	0.6	0.5	0.6
Cobalt	µg/L	0.21	0.15	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.2	0.1	0.1
Copper	µg/L	4.53	3.74	2.8	4.4	3.1	2.4	1.1	5	2.9	4.3	4.8	4.7	1.35	1.27	1.62	1.2	1	1.4	0.9	1.1	1.5	1.4	1.3	2
Iron	µg/L	408	251	260	120	170	130	240	730	150	350	280	270	117	115	144	52	<10	120	80	180	220	150	180	190
Lead	µg/L	0.3	0.181	0.13	0.11	<0.05	<0.05	0.16	0.45	0.07	0.17	0.22	0.18	0.094	0.077	0.12	0.76	<0.05	1.97	<0.05	0.1	0.21	0.12	0.09	0.13
Lithium	µg/L	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.84	7.31	8.32	9.82	9.21	8.86	3.4	4.48	4.54	5.19	6.3	6.01	5.28	5.37	5.96	6.74	7.59	7.86	7.08	6.31	4.1	4.77	5.43	5.6
Manganese	µg/L	11.9	9.66	4.3	11.1	10.4	74.1	10.1	17.1	0.8	10.9	10.4	9.9	34.9	28.7	14.9	3.4	3.2	4	3	22.8	12.1	9.8	17.5	17.7
Mercury	µg/L	-	-	<0.1	0.002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	0.00023	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.13	0.113	0.14	0.14	0.12	0.14	0.1	0.14	0.12	0.27	0.18	0.13	0.091	0.101	0.102	0.12	0.14	0.14	0.12	0.13	0.18	0.19	0.12	0.14
Nickel	µg/L	1.5	1.34	<0.5	1.2	0.9	0.6	<0.5	1.8	0.9	1.3	1.6	1.6	0.52	0.51	0.62	<0.5	<0.5	<0.5	<0.5	<0.5	1	0.8	<0.5	0.6
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	-	<50	100	60	<50	<50	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.953	0.938	0.98	1.06	0.98	0.73	0.48	0.62	0.52	0.5	0.7	0.68	0.628	0.617	0.707	0.86	1	0.99	0.87	0.83	0.69	0.72	0.75	0.74
Rubidium	µg/L	1.7	1.45	2	1.8	1.6	1.5	1	1.5	1.1	1.3	1.7	1.7	1.57	1.51	1.6	1.8	1.9	2.1	2.1	1.8	1.5	1.7	1.8	2.1
Selenium	µg/L	0.09	0.066	0.16	0.17	<0.05	0.19	<0.05	0.25	0.11	0.06	0.27	0.2	0.073	0.071	0.06	<0.05	<0.05	0.12	<0.05	0.15	0.22	<0.05	0.11	<0.05
Silicon	µg/L	3,220	2,810	3,150	4,390	4,620	4,550	1,500	1,540	-	1,830	1,810	1,780	2,920	2,780	2,350	2,990	3,730	4,000	3,830	3,160	1,870	-	2,000	1,710
Silicon	mg/L	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-	-	-	-	-	-	-	1.66	-	-
Silver	µg/L	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.05	0.04	0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	0.04	0.04	0.05
Sodium	mg/L	8.27	8.21	5.81	8.98	10.9	9.11	4.27	5.05	5.54	6.95	7.77	7.9	2.32	2.31	2.60	2.32	2.17	2.08	1.59	4.01	1.6	2.03	2.36	2.44
Strontium	µg/L	61.3	59.2	51.4	59.4	56.1	59.1	20.7	34.2	33.1	39.6	37.2	35.7	29.1	28.7	32.9	33	35.4	33.6	33.4	29.4	19.9	23.1	20.1	22.7
Sulfur	µg/L	5,530	6,150	3,400	6,100	5,400	6,200	3,000	2,300	2,700	3,500	2,400	2,300	1,000	1,230	1,080	1,900	1,400	1,600	800	2,400	4,300	2,200	1,600	1,400
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1
Titanium	µg/L	4.01	2.22	1	1.1	1.2	1.1	1.8	7.1	1	2.5	2.1	2.2	0.76	0.78	1.47	0.9	0.7	1.2	0.9	1.5	1.6	1.2	2	1.4
Tungsten	µg/L	0.31	0.23	<0.1	0.1	0.1	<0.1	<0.1	0.3	<0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.08	0.1	0.19	0.15	0.09	0.07	0.02	0.03	0.03	0.04	0.07	0.06	0.133	0.139	0.195	0.22	0.27	0.26	0.25	0.18	0.08	0.11	0.11	0.15
Vanadium	µg/L	0.69	0.54	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	0.5	0.6	0.5	<0.5	<0.5	0.57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
Zinc	µg/L	<3	<3	<1	2	1	1	2	4	<1	3	2	2	<3	<3	<3	<1	<1	2	2	1	<1	<1	<1	1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								11											17						
Sample Date		19-Oct-21	10-Nov-21	12-Jan-22	12-Jan-22	1-Feb-22	1-Mar-22	6-Apr-22	16-May-22	22-Jun-22	22-Jun-22	13-Jul-22	8-Aug-22	7-Sep-22	21-Oct-21	15-Nov-21	13-Jan-22	3-Feb-22	9-Mar-22	6-Apr-22	9-May-22	23-Jun-22	13-Jul-22	3-Aug-22	7-Sep-22
Sample ID		11	11	11	duplicate 2	11	11	11	11	11	Duplicate 1	11	11	11	17	17	17	17	17	17	17	17	17	17	17
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2661849	452991	452991	454370	456382	459292	462997	467331	467331	470538	473037	476124	L2654721	L2663309	452993	454524	457039	459292	462299	467471	470538	472604	476124
Laboratory Sample ID		L2653518-7	L2661849-1	1721233	1721236	1726170	1732932	1742229	1754544	1769687	1769693	1777266	1786348	1796949	L2654721-7	L2663309-1	1721240	1726664	1735005	1742232	1752058	1770083	1777269	1784748	1796956
Sample Type	Units				Field Duplicate						Field Duplicate														
Field Parameters																									
Dissolved oxygen, Field	mg/L	9.91	12.15	-	-	-	-	-	-	-	-	-	-	-	10.50	12.97	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	160.9	163.3	-	-	-	-	-	-	-	-	-	-	-	156.2	153.0	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	8.01	7.98	7.87	-	6.35	7.29	7.27	7.08	8.23	-	8.02	8.1	8.15	7.88	7.78	7.66	7.4	7.28	7.29	6.97	7.3	7.92	7.7	7.92
Temperature, Field	deg C	11.7	4.3	1	-	1	1.9	1.8	8	19.7	-	20.3	21.1	17.8	8.8	1.4	1.2	1.7	1.9	2.1	5.2	20.4	22.2	20.6	19.2
Turbidity, Field	NTU	3.13	2.29	-	-	-	-	-	-	-	-	-	-	-	3.60	1.70	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	<2.0	<2.0	3	3	3	9	5	4	<2	2	5	5	4	2.8	2.5	4	7	9	5	6	3	<2	2	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	85.5	83.6	94	93	101	103	105	59	65	63	66	65	61	79.4	77.0	87	93	97	102	83	61	67	66	44
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00978	0.0112	0.012	0.00709	0.00872	0.00458	0.0107	0.00934	0.00372	0.00589	0.00978	<2.0	<2.0	0.00759	0.0105	0.00502	0.00892	0.00372	0.00814	0.0129	0.0123	0.01
Alkalinity, Total (as CaCO3)	mg/L	85.5	83.6	94	93	102	103	106	59	66	63	66	65	62	79.4	77.0	88	94	97	103	83	62	68	67	44
Ammonia (as N)	mg/L	0.0064	0.0651	0.04	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.0065	0.0100	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	3	6.2	2.4	2.6	2.4	3.6	3	-	-	-	-	4.3	3.6	6.9	3.9	3.2	0.5	4
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	200	-
Color, True	TCU	22.8	21.1	26.3	44.1	22.3	21.7	24.9	66.9	66.8	67	61.9	50.7	40.6	29.4	26.9	36.6	29.3	26.3	24.6	47.8	77.9	77.1	47.5	40.7
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	<0.002	0.003	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	<0.001	0.002	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	10.5	12.1	9.9	10.1	12.2	10.5	9.7	10.9	12.7	12.3	12.7	7.3	13.7	12.7	12.4	9.7	11	10.3	9.5	11.9	13.6	12.7	12.3	12.9
Electrical Conductivity, Lab	µS/cm	169	169	197	198	208	221	228	147	133	131	142	145	164	160	167	186	197	204	218	191	136	138	148	18
Fluoride	mg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	82.7	87.9	99	98.5	108	127	115	70.7	66.1	68.6	65.1	77.3	75.8	79.1	79.2	91.9	101	121	110	93	66	66.9	73.2	71
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	<0.02	<0.02	0.08	0.09	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.10 DLDS	0.02	0.04	<0.02	0.09	0.09	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.050 DLDS	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.63	7.86	7.76	7.82	7.85	7.62	7.71	7.43	7.8	7.74	7.34	7.54	7.76	7.75	7.75	7.65	7.79	7.47	7.72	7.34	7.68	7.88	7.86	7.77
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	338	-	588	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0188	0.0115	0.018	0.013	0.011	0.006	0.005	0.006	0.005	0.004	0.019	0.049	0.009	0.0143	0.0195	0.015	0.008	0.007	0.03	0.006	0.036	0.021	<0.001	0.01
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	2.49	2.51	3.9	4	4	4.3	3.8	4.9	2.6	2.7	2.7	4	3	2.06	2.8	3.4	3.6	4.2	3.8	4.7	2.2	2.7	0.3	2.9
Total Dissolved Solids	mg/L	102	109	130	155	145	130	135	130	100	95	165	100	120	98	108	140	155	165	135	155	155	90	105	200
Total Kjeldahl Nitrogen	mg/L	0.393	0.597	0.39	0.45	0.51	0.32	0.42	0.57	0.74	<0.04	3	<0.04	<1	0.445	0.374	0.4	0.36	0.36	0.62	0.58	1.25	3.08	<0.04	<1
Total Organic Carbon	mg/L	12.9	11.2	10.1	10.3	12.1	10.9	9.6	11.4	13.5	13.2	13.1	12.7	13.3	13.8	12.3	10.1	10.5	10.5	9.8	12.1	15	13.3	12.9	13
Total Suspended Solids	mg/L	<3.0	<3.0	<2	<4	150	<0.67	<0.67	1.3	1.2	1.5	<0.67	2.3	2.3	<3.0	<3.0	2	<2	1.7	1.7	4	68	6	2.7	2
Turbidity, Lab	NTU	1.96	1.35	1	1	0.6	0.5	0.7	1.5	1.7	1.8	0.2	1.5	1.9	2.72	1.54	1.1	0.9	1.1	9.8	6.8	12	1.5	2.1	2.4
Speciated Metals																									
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location									11											17					
Sample Date		19-Oct-21	10-Nov-21	12-Jan-22	12-Jan-22	1-Feb-22	1-Mar-22	6-Apr-22	16-May-22	22-Jun-22	22-Jun-22	13-Jul-22	8-Aug-22	7-Sep-22	21-Oct-21	15-Nov-21	13-Jan-22	3-Feb-22	9-Mar-22	6-Apr-22	9-May-22	23-Jun-22	13-Jul-22	3-Aug-22	7-Sep-22
Sample ID		11	11	11	duplicate 2	11	11	11	11	11	Duplicate 1	11	11	11	17	17	17	17	17	17	17	17	17	17	17
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2661849	452991	452991	454370	456382	459292	462997	467331	467331	470538	473037	476124	L2654721	L2663309	452993	454524	457039	459292	462299	467471	470538	472604	476124
Laboratory Sample ID		L2653518-7	L2661849-1	1721233	1721236	1726170	1732932	1742229	1754544	1769687	1769693	1777266	1786348	1796949	L2654721-7	L2663309-1	1721240	1726664	1735005	1742232	1752058	1770083	1777269	1784748	1796956
Sample Type	Units				Field Duplicate						Field Duplicate														
Metals, Dissolved																									
Aluminum	µg/L	2.4	<1	2	1	1	3	2	13	6	6	4	2	3	3.8	2.9	2	2	2	3	7	7	6	5	6
Antimony	µg/L	0.16	0.16	0.2	0.2	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.12	0.11	0.2	0.2	0.2	0.1	0.1	<0.1	0.3	0.1	0.1
Arsenic	µg/L	15.2	13	14.9	15.1	13.1	10	10	6.1	8.2	8.3	10.8	14.4	21.5	7.23	6.72	12.3	12.1	10.2	8.8	5.3	8.6	11.5	14.6	17.3
Barium	µg/L	8.95	8.54	10.3	10.2	11.1	12.5	13.1	7.2	8.4	8.3	8.5	9.7	8.9	8.37	8.08	9.8	11	11.9	11.5	9.2	8.6	8.7	8.8	8.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.02	0.008
Calcium	mg/L	24.3	26.2	29.5	28.5	32.8	37.6	32.2	19.8	19.5	19.4	20.7	22.9	24.1	23.6	23.7	27.1	30.2	34.5	31.2	25.9	18.2	20.1	21.9	23
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.12	<0.1	<0.1	<0.1	0.4	0.2	0.2	0.4	1	1.1	0.6	1	1.5	0.11	<0.1	<0.1	0.1	0.3	0.2	0.4	1	0.4	0.6	2.3
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1.15	1.1	0.4	0.4	1.5	1.3	1.1	1	1	1	2.7	1.2	1.3	1.45	1.17	0.3	1.7	1.3	1.1	1	1	3	1.2	1.1
Iron	µg/L	15	13	170	170	<10	30	<10	60	150	160	50	30	50	47	27	180	<10	<10	<10	50	170	60	80	80
Lead	µg/L	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.08	0.06	0.051	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05
Lithium	µg/L	<1	<1	1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	5.34	5.45	6.42	6.49	6.82	7.43	6.93	4.18	4.12	4.11	4.25	5.06	5.07	4.92	4.86	6.05	6.33	6.88	6.52	5.51	3.96	4.13	4.59	4.86
Manganese	µg/L	0.91	1.69	4.6	4.7	4.4	0.5	1.9	12.8	7.3	7.1	0.6	1	1.6	2.72	2.39	11.8	12.2	5	13.4	17.9	11.8	2.1	1.6	3.1
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.084	0.151	0.08	0.07	0.17	<0.05	0.12	1.52	0.11	0.07	0.09	0.11	0.13	0.074	0.149	0.07	0.28	0.12	0.11	0.09	0.07	0.1	0.11	0.11
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.6	0.6	0.6	0.8	0.7	0.7	1	1	0.8	<0.5	<0.5	<0.5	<0.5	0.8	0.5	0.7	0.8	1.1	0.9	0.7
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.597	0.581	0.72	0.72	0.82	0.9	0.78	0.58	0.61	0.61	0.67	0.67	0.68	0.590	0.545	0.65	0.7	0.78	0.74	0.67	0.59	0.64	0.64	0.63
Rubidium	µg/L	1.41	1.32	1.6	1.7	1.7	1.7	1.9	1.4	1.5	1.5	1.5	1.7	1.9	1.28	1.22	1.5	1.6	1.7	1.7	1.4	1.4	1.6	1.7	1.6
Selenium	µg/L	0.058	0.057	0.08	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.062	<0.05	0.05	0.11	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	2,650	2,620	2,760	2,700	3,180	3,730	3,570	1,740	1,610	1,610	-	1,750	1,690	2,950	2,770	2,850	3,100	3,560	3,510	2,520	1,470	-	1,720	1,870
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	1.23	-	-	-	-	-	-	-	-	-	-	1.19	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	2.24	2.27	2.49	2.52	2.41	2.64	2.09	3.08	1.66	1.69	1.75	2.07	2.08	2.61	2.74	2.57	2.55	2.8	2.24	3.71	2.49	2.16	2.32	2.41
Strontium	µg/L	28.3	29	31.3	31	34.1	32.7	34.1	21.7	19.6	19.3	19.9	18.5	19.3	25.7	26.6	29.2	30.3	33.7	32.3	26.6	18.3	19.5	18.3	18.1
Sulfur	µg/L	770	510	800	1,000	800	2,200	2,300	1,600	3,700	4,100	1,700	1,700	1,100	530	<500	700	600	1,600	2,000	2,000	3,900	1,800	2,700	900
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3
Titanium	µg/L	<0.3	<0.3	0.9	0.7	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.6	<0.3	<0.3	0.7	0.7	0.6	0.7	0.6	0.6	0.5	0.6	0.6
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.127	0.123	0.16	0.16	0.19	0.22	0.2	0.09	0.08	0.08	0.08	0.09	0.11	0.11	0.113	0.13	0.15	0.17	0.18	0.13	0.06	0.08	0.1	0.12
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.7
Zinc	µg/L	<1	<1	2	<1	1	2	<1	2	<1	<1	1	<1	2	<1	<1	<1	1	1	<1	<1	1	3	<1	3
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	28.1	14.5	6	5	5	4	5	32	32	32	21	14	19	28.9	10.6	34	51	11	319	229	345	30	28	20
Antimony	µg/L	0.17	0.15	0.3	0.4	0.2	0.1	0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.13	0.11	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Arsenic	µg/L	19.2	15.1	13	13.2	12.3	9.7	8.9	6.4	8.6	8.4	10	14.7	18.8	11.6	8.7	11.4	12.5	11.2	11	6.6	11.8	9.9	12.8	14.4
Barium	µg/L	9.66	9.5	10.7	10.7	11.5	11.9	12.7	7.6	8.9	8.7	9.5	9.8	9	8.87	8.72	10.2	11.8	12.3	14.8	11.7	12.5	9.1	9.2	9.5
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.005	0.006	0.008	0.007	<0.005	0.007	0.006	0.005	<0.005	0.009	<0.005	<0.005	<0.005	0.02	0.01	0.006	0.02	0.01	0.02	<0.005	<0.005	<0.005
Calcium	mg/L	25.5	25.0	29.4	29.6	41.5	34.5	32.8	20.8	19.1	19.3	22.2	20.4	24.5	23.0	23.8	27.5	31.7	36.8	35.1	28.1	19.9	20.6	21.4	22.5
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.03	0.05	<0.01	<0.01	<0.01
Chromium	µg/L	0.18	0.15	0.4	0.2	<0.1	0.3	0.2	0.5	0.3	0.6	0.6	0.3	0.7	0.17	0.14	0.4	0.2	0.2	0.9	1	1.3	0.7	0.5	0.4
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.3	0.3	0.3	0.2	0.1	<0.1
Copper	µg/L	1.35	1.12	1.4	1.5	1.4	1.3	1.1	0.8	1.1	1.3	1.2	1.5	1.6	0.8	0.82	1.2	1.7	1.5	2.4	1.9	2.8	1.8	1.1	2.1
Iron	µg/L	143	81	210	210	<10	100	50	160	200	210	160	140	180	169	111	240	120	150	540	450	770	180	200	220
Lead	µg/L	0.094	0.05	0.75	0.09	<0.05	<0.05	<0.05	0.08	0.11	0.12	0.13	0.08	0.1	0.107	<0.05	0.45	0.15	<0.05	0.4	0.41	0.72	0.16	0.1	0.13
Lithium	µg/L	<1	<1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1	<1	<1
Magnesium	mg/L	5.34	5.21	6.21	6.28	7.16	7.47	6.75	4.3	3.88	3.93	4.32	4.15	5.13	4.84	4.90	6.23	6.51	7.1	6.95	6.21	4.31	4.13	3.9	4.61
Manganese	µg/L	29.8	15.6	6.5	6.5	7.3	4.8	3.2	19.2	15.6	15.5	13.8	16.1	25.1	34.5	14.8	13.5	21.6	19.6	57.4	33.6	62.5	18.8	24.3	18.1
Mercury	µg/L	-	-	0.0003	0.0004	0.0008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	0.0003	0.002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.107	0.089	0.12	0.11	0.14	0.12	0.13	0.1	0.1	0.11	0.15	0.09	0.1	0.072	0.067	0.11	1.54	0.13	0.13	0.12	0.17	0.12	0.11	0.14
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	1.2	1.2	0.7	0.5	<0.5
Phosphorus	µg/L	<30	<30	-	-	<50	<50	<50	-	<50	<50	<50	-	<50	<30	<30	-	<50	<50	60	<50	60	<50	<50	<50
Potassium	mg/L	0.640	0.593	0.72	0.72	0.83	0.89	0.75	0.61	0.6	0.6	0.71	0.59	0.7	0.543	0.552	0.66	0.75	0.83	0.79	0.77	0.69	0.66	0.63	0.6
Rubidium	µg/L	1.54	1.4	1.6	1.7	1.8	1.8	1.8	1.4	1.6	1.6	1.7	1.8	1.9	1.29	1.26	1.6	1.6	1.8	2.2	1.9	2.2	1.6	1.7	1.6
Selenium	µg/L	0.077	0.066	0.07	0.1	<0.05	<0.05	0.11	0.12	<0.05	0.07	<0.05	0.06	<0.05	0.091	0.064	0.06	0.12	0.14	0.06	0.18	0.07	<0.05	0.12	0.14
Silicon	µg/L	2,760	2,700	2,740	2,790	3,500	3,580	3,550	2,120	1,780	1,770	-	1,700	1,670	3,000	2,950	2,970	3,350	3,830	4,180	3,270	2,230	-	1,980	1,830
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	1.63	-	-	-	-	-	-	-	-	-	-	1.58	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.37	<0.01	<0.01	0.04	0.04	0.05
Sodium	mg/L	2.35	2.22	2.48	2.46	2.67	2.45	2.04	3.07	1.59	1.59	1.76	1.8	2.14	2.53	2.81	2.57	2.62	3.03	2.35	3.86	2.54	2.04	2.3	2.4
Strontium	µg/L	29.4	28.8	31.1	31.5	35	33.7	32.8	21.3	21.4	21.6	20.6	22.9	19.7	25.8	27.2	29.4	31.3	34.9	39.6	29.2	23.7	19.2	17.2	17.6
Sulfur	µg/L	1,020	740	700	800	1,700	1,600	2,000	1,900	600	700	2,300	<500	1,100	550	860	700	1,100	2,200	2,000	2,300	1,200	2,000	1,100	600
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.2
Titanium	µg/L	0.8	<0.48 DM	0.9	0.9	0.7	0.8	0.8	1.4	1.6	1.5	1.4	1.3	1.3	1.06	0.3	1.1	2.8	1.1	14.2	8.6	15.5	1.5	1.5	1.3
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.129	0.134	0.17	0.17	0.2	0.21	0.22	0.1	0.08	0.08	0.09	0.09	0.12	0.122	0.121	0.15	0.15	0.18	0.22	0.17	0.11	0.09	0.1	0.12
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.66	<0.5	<0.5	<0.5	0.9	0.6	1.1	<0.5	<0.5	<0.5
Zinc	µg/L	20.7	<3	1	1	<1	<1	<1	<1	1	1	<1	<1	2	<3	<3	<1	2	<1	3	3	4	3	<1	3
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								20											20A						
Sample Date		21-Oct-21	10-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	4-Apr-22	10-May-22	10-May-22	16-Jun-22	14-Jul-22	14-Jul-22	8-Aug-22	6-Sep-22	18-Oct-21	9-Nov-21	6-Jan-22	7-Feb-22	7-Mar-22	5-Apr-22	11-May-22	23-Jun-22	14-Jul-22	4-Aug-22	6-Sep-22
Sample ID		20	20	20	20	20	20	20	Duplicate 1	20	20	Duplicate 1	20	20	20A	20A	20A	20A	20A	20A	20A	20A	20a	20A	20A
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2661849	452852	454738	456529	459000	462464	462464	466677	470645	470645	473037	475972	L2652895	L2661577	452488	454738	456829	459163	462595	467471	470645	472756	475972
Laboratory Sample ID		L2654721-4	L2661849-3	1720821	1727359	1733451	1741311	1752553	1752555	1767366	1777721	1777722	1786346	1796476	L2652895-3	L2661577-3	1719647	1727357	1734417	1741859	1753069	1770088	1777718	1785255	1796474
Sample Type	Units								Field Duplicate			Field Duplicate													
Field Parameters																									
Dissolved oxygen, Field	mg/L	11.59	12.67	-	-	-	-	-	-	-	-	-	-	-	9.96	11.72	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	195.7	223.1	-	-	-	-	-	-	-	-	-	-	-	195.8	216.7	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.6	7.77	7.02	7.47	7.7	7.29	6.79	-	8.2	7.44	-	7.38	7.74	7.42	7.44	7.39	7.51	7.34	7.29	7.17	6.72	7.31	7.27	7.58
Temperature, Field	deg C	5.4	3.4	0	0	0	0	6.5	-	18.9	18.9	-	17.6	13.3	8.9	3.3	0	0	0.2	0.2	9.8	19.4	17.6	18.5	17.4
Turbidity, Field	NTU	1.98	0.96	-	-	-	-	-	-	-	-	-	-	-	2.16	1.02	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	2.5	<2.0	7	4	10	10	6	8	7	11	14	10	5	<2.0	2.0	10	5	9	3	6	7	12	5	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	111	118	113	120	118	145	65	63	92	104	105	93	95	110	118	114	123	119	158	57	94	101	114	109
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	2	<1	<1	<1	1	1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00525	0.011	0.00725	0.0105	0.00246	0.00159	0.00408	0.00339	0.002	0.00389	0.0178	<2.0	<2.0	0.00437	0.00892	0.01	0.0224	0.00246	0.00372	0.00224	0.0166	0.0195
Alkalinity, Total (as CaCO3)	mg/L	111	118	113	121	118	146	65	63	92	104	105	93	96	110	118	114	124	120	160	57	94	101	115	110
Ammonia (as N)	mg/L	0.0148	0.0307	0.1	0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.07	0.03	0.02	0.0117	0.0172	0.06	0.09	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	0.6	1.6	-	0.5	1.4	1.7	1.4	<0.5	-	-	-	-	-	1	1.7	3.4	1.2	2	1
Chemical Oxygen Demand	mg/L	-	-	-	-	-	30	38	-	38	45	45	49	34	-	-	-	-	-	30	45	52	45	59	42
Chloride	mg/L	-	-	-	-	-	1.2	0.6	0.5	0.5	1	0.9	1	0.8	-	-	-	-	-	0.8	0.5	0.5	0.6	0.4	0.7
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	36.4	27.0	19.6	17.5	23	31.2	68.4	64.4	71	120	119	79.6	49	45.3	29.4	22.5	16.5	21.2	34	75.7	90.5	65.8	67.7	45.6
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	14.8	12.3	10.6	9.3	8.7	10.6	15.6	14.9	16.3	19.3	19.4	8.4	13.7	15.0	12.3	9.4	9.5	8.7	9.7	16.2	16.4	18.5	16.9	14.3
Electrical Conductivity, Lab	µS/cm	200	218	225	220	239	284	132	128	117	134	189	198	119	202	219	220	228	235	300	118	179	180	203	241
Fluoride	mg/L	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	106	115	120	124	141	153	69.3	73.2	92.1	112	109	111	122	104	115	130	122	130	155	67.1	95.7	107	126	121
Nitrate (as N)	mg/L	0.030	0.050	0.12	0.21	0.26	<0.02	0.16	0.15	0.03	<0.02	<0.02	<0.02	<0.02	0.041	0.046	0.11	0.2	0.26	0.16	0.13	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	<1	<1	-	1	<1	-	1	2	-	-	-	-	-	<1	<1	<1	<1	1	2
pH, lab	S.U.	7.88	7.91	7.49	7.81	7.63	7.79	7.16	6.97	7.38	7.3	7.07	7.36	8.02	7.78	7.78	7.41	7.72	7.77	8.12	7.16	7.34	7.12	7.99	8.06
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	0.004	<0.002	-	0.002	0.021	0.055	0.017	<0.002	-	-	-	-	-	0.004	0.008	0.007	0.004	0.055	<0.002
Phosphorus, Total	mg/L	0.0076	0.0059	<0.001	0.005	0.009	0.008	0.004	0.003	0.011	0.033	0.034	0.052	0.024	0.0109	0.0069	<0.001	0.01	0.003	0.007	0.007	0.007	0.021	0.053	0.011
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.65	1.57	2.2	2.2	2.5	2.4	1.7	1.5	1.1	0.4	1.2	1.5	0.8	1.78	1.57	2.3	2.2	2.5	1.8	1.4	0.8	1.2	0.4	1.1
Total Dissolved Solids	mg/L	129	138	125	110	120	65	115	130	125	215	155	180	190	137	130	160	185	180	90	40	155	155	165	200
Total Kjeldahl Nitrogen	mg/L	0.432	0.456	0.79	0.49	0.27	0.56	<0.04	0.64	0.54	0.96	0.97	<0.04	<1	0.490	0.410	0.49	0.46	0.41	0.39	0.63	0.1	0.76	0.11	<1
Total Organic Carbon	mg/L	14.4	11.7	10.5	9.1	8.7	9.5	15.3	14.7	15	19.6	20.5	18.2	15	14.6	12.6	9.7	9.3	8.5	9.6	15.2	16.1	19	18.4	15.1
Total Suspended Solids	mg/L	<3.0	<3.0	2	4	1.7	<0.67	3.7	6.7	3	2.7	1.7	1.7	15	<3.0	<3.0	<2	2	<0.67	2.3	<0.67	2.5	<0.67	1.3	2.7
Turbidity, Lab	NTU	0.53	0.82	0.5	0.7	0.7	0.9	1.9	1.8	0.8	1.2	0.9	1.6	1.2	0.95	1.05	0.6	2.2	0.5	1.5	1.2	1	1.6	1.4	1.4
Speciated Metals																									
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
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2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								20											20A						
Sample Date		21-Oct-21	10-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	4-Apr-22	10-May-22	10-May-22	16-Jun-22	14-Jul-22	14-Jul-22	8-Aug-22	6-Sep-22	18-Oct-21	9-Nov-21	6-Jan-22	7-Feb-22	7-Mar-22	5-Apr-22	11-May-22	23-Jun-22	14-Jul-22	4-Aug-22	6-Sep-22
Sample ID		20	20	20	20	20	20	20	Duplicate 1	20	20	Duplicate 1	20	20	20A	20A	20A	20A	20A	20A	20A	20A	20a	20A	20A
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2661849	452852	454738	456529	459000	462464	462464	466677	470645	470645	473037	475972	L2652895	L2661577	452488	454738	456829	459163	462595	467471	470645	472756	475972
Laboratory Sample ID		L2654721-4	L2661849-3	1720821	1727359	1733451	1741311	1752553	1752555	1767366	1777721	1777722	1786346	1796476	L2652895-3	L2661577-3	1719647	1727357	1734417	1741859	1753069	1770088	1777718	1785255	1796474
Sample Type	Units								Field Duplicate			Field Duplicate													
Metals, Dissolved																									
Aluminum	µg/L	6.1	4	3	3	4	7	20	19	9	10	10	7	5	5.8	5.7	4	4	5	4	21	8	9	5	5
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	5.6	4.08	3.7	3.4	3.5	4.3	3.3	3.1	16	43	43.5	18	13.3	5.59	3.43	4	3.5	3.3	5.6	3.2	22.7	24.9	18.5	9
Barium	µg/L	9.02	9.54	11.9	13.1	13.3	11.6	11.4	7.7	11.7	12	11.7	9.6	8.3	9.43	10.5	12.4	12.8	12.1	13.9	7.6	12.6	11.2	11.7	11.3
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	9	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	0.01	0.01	<0.005	0.02	<0.005	<0.005	0.006	0.005	0.009	<0.005	0.007	<0.005	0.006	0.02	0.01
Calcium	mg/L	32.2	34.5	35.1	39.7	42	44.5	20.1	20	29.2	33.7	33.7	33.8	38.2	31.2	34.8	38.7	39.3	38	45.9	19.8	29.4	32.6	39.6	37.6
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Chromium	µg/L	0.13	<0.1	<0.1	0.2	0.2	0.3	0.6	0.5	0.3	0.5	0.7	1.4	1.7	0.15	0.1	0.3	0.3	0.4	0.3	0.7	1.3	0.5	0.6	0.9
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.2	0.2	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.4	0.5	0.3	0.2
Copper	µg/L	0.49	0.6	<0.2	2.4	0.6	0.6	2.7	0.7	0.6	4.8	5	0.6	0.3	0.4	0.35	0.6	0.4	0.4	1.3	1.3	0.7	2.1	0.4	0.6
Iron	µg/L	79	81	260	30	60	160	50	60	210	400	400	310	230	88	81	48	40	30	120	70	260	260	200	130
Lead	µg/L	0.071	<0.05	<0.05	0.2	<0.05	<0.05	0.16	0.08	<0.05	0.09	0.1	<0.05	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	0.08	<0.05	<0.05
Lithium	µg/L	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.18	6.97	7.19	7.38	8.03	8.25	4.31	4.24	5.03	6.46	6.44	6.45	7.23	6.40	6.74	7.39	7.44	6.45	8.53	4.02	5.71	6.33	7.69	7.17
Manganese	µg/L	7.05	16	15.6	14.3	14.1	65.3	5.1	4.2	42.5	279	274	88.2	41.2	9.64	11.2	16.1	15.6	13.2	69.6	4.2	58.5	124	50	18.6
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.125	0.145	0.16	0.24	<0.05	0.15	0.12	0.08	0.14	0.22	0.22	0.45	0.12	0.128	0.141	0.2	0.13	0.16	0.3	0.15	0.16	0.15	0.18	0.14
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.6	0.8	0.8	0.6	0.8	1.8	1.7	1.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	1.4	1.1	1.5	1.2	1
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.708	0.727	0.79	0.83	0.86	0.93	0.81	0.78	0.91	1.25	1.25	1.01	1.08	0.710	0.718	0.801	0.81	0.74	0.95	0.68	0.88	0.92	1.22	0.88
Rubidium	µg/L	1.6	1.58	1.8	1.8	1.7	2.3	2.1	2	2.4	3.3	3.4	2.7	3	1.56	1.54	1.8	1.7	1.7	2.5	1.8	2.2	2.2	2.9	2.4
Selenium	µg/L	0.064	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.078	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12
Silicon	µg/L	2,950	2,860	3,850	4,160	4,690	4,460	2,410	2,260	1,770	-	-	2,410	1,900	3,170	2,910	4,050	4,160	3,950	4,370	2,240	2,480	-	2,980	1,770
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.48	2.52	-	-	-	-	-	-	-	-	-	-	2.38	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	0.789	0.841	0.82	0.85	0.99	0.98	0.79	0.51	0.6	0.78	0.79	0.78	0.9	0.830	0.899	0.85	0.82	0.78	0.93	0.53	0.71	0.72	0.92	0.84
Strontium	µg/L	33.6	34.6	33.4	33.8	34.5	38	20.6	19.4	27.6	31	31.2	26.2	30	32.1	34.3	35.1	34.2	33.1	42	18.8	27.2	27.5	29.3	28.7
Sulfur	µg/L	<500	<500	<500	600	1,800	<500	800	900	700	1,300	1,400	800	<500	<500	<500	1,400	<500	2,000	<500	1,000	3,600	1,200	2,500	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	0.6	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
Titanium	µg/L	<0.3	<0.3	0.9	0.9	0.8	0.8	0.8	1.2	0.6	1.1	1.1	0.8	0.9	<0.3	<0.3	1	0.9	0.9	1	0.9	0.8	1	1	0.6
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.118	0.136	0.14	0.14	0.14	0.21	0.04	0.03	0.06	0.07	0.07	0.07	0.1	0.087	0.114	0.14	0.14	0.14	0.33	0.03	0.05	0.05	0.08	0.13
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
Zinc	µg/L	<1	2.3	2	3	2	2	4	1	3	5	5	3	4	<1	1.2	2	2	2	3	1	2	2	<1	1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	6.9	9.6	7	6	9	24	48	53	16	15	14	24	15	8.2	13.3	9	45	7	35	61	16	19	11	10
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	6.19	4.57	3.3	3.2	3.3	4.3	2.9	3	12.5	37.3	35.8	18.6	11.6	5.86	4.23	3.6	3.5	3	5.4	3.1	20.6	22.5	17	8.6
Barium	µg/L	9.15	9.81	11.8	12.2	11.8	12	8	8.2	11.2	12.4	12	10.3	8.1	10.1	10.4	12.4	12.7	12.2	12.9	7.7	11	12.1	11.4	11.3
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.008	0.008	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	0.006	0.007	0.006	<0.005	0.009	<0.005	<0.005	0.006	<0.005
Calcium	mg/L	32.2	34.9	37.2	35.2	38.5	46.7	20.4	20.2	30.9	34.8	33.6	30.7	39.9	31.9	35.4	36.3	35.3	40.4	47.2	19.8	27.6	34.6	38.2	40.3
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	0.01
Chromium	µg/L	0.16	0.16	0.1	0.3	0.3	0.1	0.5	0.6	0.8	0.7	0.6	0.4	0.3	0.16	0.15	0.3	0.4	0.4	0.3	0.6	0.3	0.6	0.6	0.3
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.5	0.7	0.3	0.2
Copper	µg/L	<0.5	<0.5	0.4	0.4	0.6	0.7	0.6	0.6	0.7	0.3	0.3	3	0.5	0.52	<0.5	0.7	0.6	0.5	0.6	0.8	0.6	0.6	<0.2	0.5
Iron	µg/L	114	147	310	290	160	220	150	170	320	500	470	440	350	130	156	127	200	130	280	200	300	420	430	290
Lead	µg/L	<0.05	<0.05	<0.05	0.16	0.11	0.05	0.09	0.11	<0.05	0.09	0.09	<0.05	0.09	<0.05	<0.05	<0.05	0.11	<0.05	0.19	0.1	0.07	0.06	0.08	0.06
Lithium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	5.85	6.68	7.07	6.83	7.26	8.6	4.36	4.43	5.75	6.78	6.33	5.42	7.37	6.46	6.94	7.15	6.55	7.04	8.67	3.96	5.09	6.52	7.62	7.46
Manganese	µg/L	7.64	17.4	15.6	14.6	12.5	69.1	6.8	8.9	54.5	305	293	99.1	45	10.7	13.9	16.8	36.5	14.2	73.6	6.9	71.2	196	64.2	31
Mercury	µg/L	-	-	<0.1	<0.00001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	0.00046	0.0005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.119	0.119	0.22	0.11	0.16	0.19	0.1	0.09	0.17	0.27	0.26	0.18	0.14	0.116	0.13	0.17	0.12	0.16	0.28	0.13	0.17	0.22	0.17	0.17
Nickel	µg/L	0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	1.3	1.2	2.1	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	0.8	0.5
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	-	-	<50	<50	<50	-	-	<30	<30	<50	<50	<50	<50	50	<50	<50	50	-
Potassium	mg/L	0.713	0.723	0.77	0.76	0.78	1.01	0.81	0.84	0.99	1.3	1.25	0.87	1.12	0.704	0.740	0.79	0.75	0.77	0.96	0.68	0.81	0.96	1.2	0.97
Rubidium	µg/L	1.51	1.64	1.8	1.7	1.7	2.4	2.1	2.1	2.3	3.4	3.3	2.9	3	1.53	1.7	1.8	1.7	1.7	2.5	1.8	2.2	2.2	2.9	2.6
Selenium	µg/L	0.075	0.067	0.11	0.06	<0.05	0.17	<0.05	0.08	<0.05	<0.05	<0.05	0.08	<0.05	0.082	<0.05	<0.05	<0.05	0.13	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	2,990	2,990	3,690	3,620	4,270	4,850	2,500	2,690	2,180	-	-	2,220	2,000	3,250	2,900	3,940	3,540	4,250	4,370	2,520	2,430	-	3,200	1,970
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.91	2.77	-	-	-	-	-	-	-	-	-	-	2.74	-	-
Silver	µg/L	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.04	0.02	0.04	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	0.04	0.03	0.05
Sodium	mg/L	0.771	0.849	0.81	0.76	0.88	1.01	0.54	0.55	0.63	0.7	0.68	0.69	0.97	0.858	0.887	0.822	0.76	0.81	0.94	0.51	0.64	0.74	0.91	0.94
Strontium	µg/L	32.3	36.5	33.9	33.1	33	39.7	20.2	20.5	26.1	31.7	30.3	32.8	29.6	33.2	36.3	33.4	32.5	33.2	42.6	18.7	27.9	28.6	28.3	28.4
Sulfur	µg/L	580	520	<500	600	1,300	<500	700	1,200	4,000	1,600	1,300	<500	<500	<500	510	1,200	<500	2,400	500	900	<500	1,600	1,000	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1
Titanium	µg/L	<0.3	<0.3	1.1	1.2	1.1	1.5	4.3	3.1	1.1	1.5	1.5	1.9	1.6	<0.3	<0.63 DM	1.2	2.9	1.1	2.5	2.9	1.3	1.5	1.5	0.8
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.114	0.134	0.15	0.15	0.14	0.23	0.04	0.04	0.08	0.07	0.08	0.07	0.1	0.091	0.132	0.14	0.15	0.15	0.36	0.04	0.05	0.05	0.08	0.13
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	3.1	2	2	2	2	1	1	2	3	3	3	3	<3	<3	1	2	1	2	1	2	1	<1	1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		21												22A										
Sample Date		21-Oct-21	15-Nov-21	6-Jan-22	9-Feb-22	3-Mar-22	4-Apr-22	11-May-22	23-Jun-22	18-Jul-22	11-Aug-22	11-Aug-22	8-Sep-22	18-Oct-21	9-Nov-21	6-Jan-22	7-Feb-22	7-Mar-22	5-Apr-22	17-May-22	23-Jun-22	14-Jul-22	4-Aug-22	6-Sep-22
Sample ID		21	21	21	21	21	21	21	21	21	21	Duplicate 2	21	22A	22A	22A	22A	22A	22A	22A	22A	22A	22A	22A
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2663309	452488	454983	456529	459000	462595	467471	470954	473463	473463	476335	L2652895	L2661577	452488	454738	456829	459163	463246	467471	470645	472756	475972
Laboratory Sample ID		L2654721-3	L2663309-2	1719648	1728238	1733450	1741310	1753066	1770086	1778758	1788045	1788048	1798058	L2652895-2	L2661577-2	1719646	1727355	1734416	1741860	1755255	1770089	1777719	1785256	1796473
Sample Type	Units											Field Duplicate												
Field Parameters																								
Dissolved oxygen, Field	mg/L	10.10	12.88	-	-	-	-	-	-	-	-	-	-	9.25	10.70	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	189.6	178.0	-	-	-	-	-	-	-	-	-	-	205.1	22.7	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.56	7.87	7.35	7.32	6.84	6.51	6.85	7.4	7.46	7.9	-	8.05	7.36	7.34	6.6	7.12	6.99	7.21	6.82	6.92	7.24	7.17	7.62
Temperature, Field	deg C	8.3	0.9	0.9	1.9	1.3	1.5	4.3	21.1	23.2	20.5	-	17.8	8.6	3.7	1.3	0	0.5	0.2	11	19.9	18.9	19.5	17.3
Turbidity, Field	NTU	1.92	0.87	-	-	-	-	-	-	-	-	-	-	2.14	0.80	-	-	-	-	-	-	-	-	-
General Chemistry																								
Acidity as CaCO3	mg/L	2.6	2.3	13	6	10	11	8	2	3	14	8	4	<2.0	2.1	11	10	11	6	5	17	12	4	6
Alkalinity, Bicarbonate (as CaCO3)	mg/L	109	109	117	129	128	133	43	75	86	84	85	92	114	120	134	155	154	151	61	92	97	110	132
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	2	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00317	0.00852	0.00479	0.00576	0.00098	0.011	0.0135	0.00295	0.00502	0.0115	<2.0	<2.0	0.00399	0.00417	0.00458	0.0209	0.00263	0.00078	0.00174	0.00956	0.01
Alkalinity, Total (as CaCO3)	mg/L	109	109	117	130	128	133	43	75	86	84	85	93	114	120	134	155	154	153	61	92	97	111	133
Ammonia (as N)	mg/L	0.0263	0.0275	0.07	0.14	0.19	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0247	0.0196	0.04	0.07	0.07	0.05	<0.01	<0.01	<0.01	0.02	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	<0.5	1.4	0.6	<1	<20	-	<0.5	-	-	-	-	-	0.9	<0.5	0.8	<0.5	1.9	1.1
Chemical Oxygen Demand	mg/L	-	-	-	-	-	42	59	45	52	49	-	42	-	-	-	-	-	38	52	55	45	59	42
Chloride	mg/L	-	-	-	-	-	0.7	0.3	0.2	<0.2	0.4	0.4	0.6	-	-	-	-	-	0.7	0.3	0.4	0.4	<0.2	0.7
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	40.3	40.3	44.5	52.5	44.5	58.6	113	70.1	82.4	71.2	65.6	48.1	45.5	36.6	32.7	36.1	39.2	39.1	105	101	<1.5	66.5	47.8
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	0.02	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	0.004	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	14.8	16.0	15.5	15.5	14.1	15.5	19.8	13.1	8.1	8.1	8.4	15.7	13.2	13.1	11.5	11.6	10.6	9.9	17.6	16.5	18.1	16.4	13.9
Electrical Conductivity, Lab	µS/cm	196	199	228	245	258	259	90	146	125	171	171	191	208	224	259	287	293	295	122	176	178	236	249
Fluoride	mg/L	-	-	-	-	-	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	0.1	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	104	105	133	132	154	142	45.1	75.5	89.5	95.9	94.3	102	107	120	152	157	166	158	65.9	99.1	100	134	126
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	0.033	0.09	0.13	0.12	0.11	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	<1	<1	1	<1	<1	-	<1	-	-	-	-	-	<1	7	2	<1	<1	1
pH, lab	S.U.	7.89	8.01	7.27	7.7	7.45	7.53	6.76	7.81	7.9	7.24	7.47	7.83	7.78	7.73	7.37	7.39	7.43	8.09	7.19	6.66	7.01	7.75	7.77
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	0.006	<0.002	<0.002	0.03	<0.002	-	0.018	-	-	-	-	-	<0.002	<0.002	0.009	0.038	0.01	<0.002
Phosphorus, Total	mg/L	0.0074	0.0062	<0.001	0.004	<0.001	0.018	0.005	0.071	0.01	0.048	0.019	0.007	0.0094	0.0078	<0.001	0.005	0.036	0.006	0.005	0.002	0.017	0.041	0.008
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.00	1.07	1.5	1.5	0.9	1.3	0.7	0.5	<0.3	0.5	<0.3	<0.3	1.86	1.83	2.4	2.5	2.3	2.1	1.3	0.9	1.2	<0.3	1.3
Total Dissolved Solids	mg/L	131	131	115	145	185	180	120	140	155	140	135	205	139	148	150	170	180	90	145	120	160	160	175
Total Kjeldahl Nitrogen	mg/L	0.625	0.489	0.56	0.79	0.74	0.77	0.69	0.74	0.68	<0.04	1.44	<1	0.477	0.468	0.31	0.6	0.52	0.48	0.69	0.25	0.72	<0.04	<1
Total Organic Carbon	mg/L	16.1	15.2	14.8	14.9	14	13.3	20.1	13.3	16.1	16.9	16.9	16.4	14.3	12.9	11.5	11.6	10.6	10.1	18.8	17.9	18.6	17.2	14.8
Total Suspended Solids	mg/L	<3.0	<3.0	<2	4	1	<0.67	3.3	1	1	2.7	2.7	1	<3.0	<3.0	<2	2	3.3	4.7	<0.67	2	1.3	2.3	2.3
Turbidity, Lab	NTU	0.66	0.41	0.5	0.5	0.6	1.6	1.1	0.8	0.8	1	1.1	0.9	0.97	0.77	0.6	0.9	0.8	1	0.5	1.1	1.1	1.2	0.8
Speciated Metals																								
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
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2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		21												22A										
Sample Date		21-Oct-21	15-Nov-21	6-Jan-22	9-Feb-22	3-Mar-22	4-Apr-22	11-May-22	23-Jun-22	18-Jul-22	11-Aug-22	11-Aug-22	8-Sep-22	18-Oct-21	9-Nov-21	6-Jan-22	7-Feb-22	7-Mar-22	5-Apr-22	17-May-22	23-Jun-22	14-Jul-22	4-Aug-22	6-Sep-22
Sample ID		21	21	21	21	21	21	21	21	21	21	Duplicate 2	21	22A	22A	22A	22A	22A	22A	22A	22A	22A	22A	22A
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2663309	452488	454983	456529	459000	462595	467471	470954	473463	473463	476335	L2652895	L2661577	452488	454738	456829	459163	463246	467471	470645	472756	475972
Laboratory Sample ID		L2654721-3	L2663309-2	1719648	1728238	1733450	1741310	1753066	1770086	1778758	1788045	1788048	1798058	L2652895-2	L2661577-2	1719646	1727355	1734416	1741860	1755255	1770089	1777719	1785256	1796473
Sample Type	Units											Field Duplicate												
Metals, Dissolved																								
Aluminum	µg/L	2.4	2.5	4	4	5	3	15	5	4	3	4	3	5.8	2.8	5	4	5	1	15	8	9	4	5
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	2.86	2.55	3.3	3.5	3.7	3.9	3.2	3.2	3.7	4.6	4.4	4.6	3.25	2.23	3.3	3.5	3.7	3.2	3.4	19.4	21.1	13.3	8.5
Barium	µg/L	8.2	7.81	8.8	10.1	11.5	10.8	3.4	5.7	6.3	7.7	7.5	8.7	11	11.6	16.4	18.2	17	17.8	7.6	11.4	11.5	13.6	12.6
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.005	0.009	<0.005	<0.005	0.007	<0.005	0.008	0.01	0.01	0.009	<0.005	<0.005	0.007	0.006	<0.005	<0.005	<0.005	<0.005	0.009	0.009	0.009
Calcium	mg/L	31.2	31.5	38.8	39.3	46.2	39.4	15.8	21.5	26.2	31.5	31.3	30.9	31.9	36.2	44.4	48.1	50.5	45.5	18.3	28.9	31.2	40	39.4
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Chromium	µg/L	0.11	<0.1	0.2	0.1	0.3	0.2	0.5	1.1	0.9	0.5	0.5	0.8	0.14	<0.1	0.3	0.3	0.5	0.2	0.4	1.4	0.6	0.6	1
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	1.1	0.3	0.4	0.4
Copper	µg/L	<0.2	0.41	0.8	0.6	<0.2	<0.2	0.5	0.2	<0.2	<0.2	0.4	0.3	0.47	0.25	1.3	0.3	0.4	1.1	0.6	0.5	2.4	0.3	0.5
Iron	µg/L	25	25	33	80	210	280	120	140	80	90	70	50	72	55	90	200	320	260	80	230	200	180	120
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	0.06
Lithium	µg/L	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.33	6.36	7.94	7.7	9.16	7.85	3.21	4.68	5.03	5.67	5.54	6.47	6.62	7.29	8.71	9.23	8.85	8.41	3.89	5.73	5.96	7.75	7.63
Manganese	µg/L	1.4	1.99	36.1	97	149	172	10	3.2	2.3	1.6	1.6	1.4	7.07	5.21	36.7	65.3	75.4	57.1	4.1	103	121	76.6	24.1
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.059	0.084	0.14	0.13	<0.05	0.05	0.06	0.06	<0.05	<0.05	0.22	0.06	0.113	0.118	0.2	0.15	0.16	0.14	0.09	0.2	0.14	0.18	0.24
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	0.6	0.7	0.9	0.6	<0.5	<0.5	<0.5	<0.5	0.7	0.5	<0.5	1.1	1.3	1.2	1.2
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.393	0.366	0.4	0.42	0.5	0.4	0.47	0.38	0.2	0.26	0.25	0.24	0.671	0.701	0.864	0.98	0.84	0.75	0.74	0.74	0.72	0.89	0.73
Rubidium	µg/L	0.94	0.87	1	1	1	0.9	1.1	0.8	0.5	0.6	0.6	0.6	1.35	1.37	1.7	1.8	1.7	1.5	1.7	1.8	1.6	2.2	2.1
Selenium	µg/L	0.059	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	<0.05	0.065	0.054	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	3,360	3,180	4,350	4,270	5,540	5,180	1,770	1,840	-	2,440	2,330	4,480	3,410	3,140	4,530	4,880	4,540	4,200	2,100	2,630	-	3,190	1,940
Silicon	mg/L	-	-	-	-	-	-	-	-	1.99	-	-	-	-	-	-	-	-	-	-	-	2.25	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	1.04	1.06	1.18	1.16	1.55	1.27	0.49	0.68	0.73	0.77	0.8	0.9	0.964	1.06	1.11	1.14	1.14	1.08	0.5	0.77	0.76	0.98	0.9
Strontium	µg/L	32.1	32.4	33.6	35.1	37.2	33.5	13.4	19.2	21.6	22.1	22.4	21.9	30.9	33.6	36.3	38.8	37.4	37	17.6	26.1	25.6	28.5	28.1
Sulfur	µg/L	<500	<500	690	<500	1,600	<500	<500	3,400	<500	1,400	1,200	<500	540	<500	1,200	<500	2,000	<500	<500	3,600	1,200	2,300	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	0.3	<0.1
Titanium	µg/L	<0.3	<0.3	1.1	1.2	1.3	0.9	0.8	0.6	0.7	0.9	1	1	<0.3	<0.3	1.1	1.4	1.6	0.9	0.9	0.9	0.9	1.1	0.6
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.015	0.013	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.071	0.093	0.12	0.14	0.13	0.12	0.02	0.04	0.03	0.05	0.14
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.5
Zinc	µg/L	<1	<1	1	<1	<1	<1	1	<1	<1	<1	1	<1	1.2	<1	2	<1	<1	3	<1	<1	2	<1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																								
Aluminum	µg/L	4.9	5.1	9	7	6	6	37	13	10	7	7	6	7	7.9	11	8	8	14	23	16	15	18	12
Antimony	µg/L	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	3.03	2.78	3	3.2	3.3	4	3.4	3.2	2.9	4.5	4.6	3.9	4.1	2.46	3.1	3.4	3.5	3.3	3.1	19.3	17.9	12	7.8
Barium	µg/L	8.39	7.7	9.2	10.1	10.6	11	3.3	5.8	6.4	7.7	8.1	8.8	11	12.1	16.3	17.6	17.2	16.2	7.9	11.3	11.8	12.9	12.8
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.005	0.006	<0.005	0.007	0.009	<0.005	<0.005	<0.005
Calcium	mg/L	31.9	31.9	39	41	42.4	40.5	16	21.9	27.4	28.3	30.5	32	33.4	35.5	43.9	44.7	49.1	48.8	20.6	28.8	32	39.3	43.4
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Chromium	µg/L	0.15	0.1	0.3	0.4	0.2	<0.1	0.6	0.5	0.4	0.5	0.7	0.3	0.21	<0.1	0.3	0.3	0.4	0.2	0.4	0.3	1.1	0.6	0.3
Cobalt	µg/L	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	1.3	0.4	0.5	0.5
Copper	µg/L	0.83	<0.5	0.5	0.2	0.3	0.3	0.4	0.6	0.3	0.3	0.4	0.3	0.59	<0.5	0.6	0.4	0.4	0.4	0.7	0.7	2.6	0.3	1.5
Iron	µg/L	41	35	83	200	310	440	200	160	190	140	170	90	117	104	200	290	470	430	160	300	370	410	230
Lead	µg/L	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	0.07	0.1	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	0.07	<0.05	0.06	0.06	0.05	<0.05	0.15	0.25
Lithium	µg/L	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.15	6.48	8.05	8.4	8.36	8.42	3.33	4.36	5.26	5.18	5.56	6.52	6.85	7.41	8.93	8.88	9.13	9.06	3.97	5.25	6.37	7.77	7.76
Manganese	µg/L	6.48	3.7	38.9	102	148	179	11	8.6	10.7	15.7	16.5	6.4	8.82	6.57	38.6	65.1	79.6	59.6	6.3	139	141	91.3	29.7
Mercury	µg/L	-	-	0.00094	0.001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	0.00089	0.001	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1
Molybdenum	µg/L	0.055	0.053	0.07	0.08	0.07	0.08	0.16	0.15	<0.05	0.26	<0.05	0.05	0.13	0.117	0.18	0.13	0.17	0.14	0.08	0.18	0.16	0.16	0.27
Nickel	µg/L	1.44	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.4	0.8	0.8
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	-	-	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	-
Potassium	mg/L	0.369	0.376	0.4	0.44	0.46	0.42	0.54	0.38	0.21	0.22	0.24	0.25	0.669	0.716	0.889	0.92	0.88	0.78	0.71	0.76	0.75	0.88	0.81
Rubidium	µg/L	0.87	0.85	1	1	1	1	1.3	0.9	0.5	0.6	0.6	0.6	1.37	1.45	1.7	1.8	1.8	1.7	1.8	1.9	1.7	2.2	2.2
Selenium	µg/L	0.052	0.057	<0.05	0.07	<0.05	0.3	0.11	<0.05	<0.05	0.23	0.18	0.13	0.057	<0.05	<0.05	0.11	<0.05	0.1	0.08	<0.05	<0.05	0.11	<0.05
Silicon	µg/L	3,460	3,350	4,270	4,780	4,950	5,550	2,140	1,940	-	2,520	2,720	5,000	3,510	3,290	4,250	4,370	4,840	4,470	2,230	2,690	-	3,440	2,100
Silicon	mg/L	-	-	-	-	-	-	-	-	2.37	-	-	-	-	-	-	-	-	-	-	-	2.67	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	0.01	0.05	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.09	<0.01	0.03	0.04	0.05
Sodium	mg/L	1.03	1.11	1.26	1.29	1.3	1.33	0.52	0.76	0.79	0.76	0.77	0.95	1.02	1.07	1.12	1.11	1.17	1.14	0.5	0.71	0.74	0.97	1.03
Strontium	µg/L	32.7	34.2	34.1	36.6	34.2	34.4	13.8	21	21.8	22.3	23.3	21.9	33.6	33.8	37.7	38.5	38.2	38.2	18	28.5	26.1	27	29.6
Sulfur	µg/L	<500	<500	830	900	700	<500	700	<500	700	1,500	2,200	<500	540	680	1,400	<500	2,300	600	<500	600	1,400	<500	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.3	0.1
Titanium	µg/L	<0.3	<0.3	1.2	1.5	1.2	1	1.7	0.8	0.9	1.2	1.2	1.3	<0.3	0.33	1.3	1.4	1.8	1.8	1.1	1.3	1.3	1.8	1.1
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.014	0.015	0.02	0.02	0.02	0.02	0.01	<0.01	<0.01	0.01	0.01	0.02	0.071	0.091	0.13	0.15	0.14	0.13	0.02	0.04	0.04	0.1	0.16
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<1	<1	<1	<1	<1	1	<1	<1	1	<1	<3	<3	2	<1	<1	2	1	1	<1	<1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		23													24											
Sample Date		18-Oct-21	18-Oct-21	9-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	5-Apr-22	17-May-22	23-Jun-22	14-Jul-22	4-Aug-22	4-Aug-22	6-Sep-22	19-Oct-21	9-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	5-Apr-22	5-Apr-22	17-May-22	27-Jun-22	13-Jul-22	2-Aug-22	6-Sep-22
Sample ID		23	SW DUPLICATE 1	23	23	23	23	23	23	23	23	23	Duplicate 1	23	24	24	24	24	24	24	Duplicate1	24	24	24	24	24
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2652895	L2652895	L2661577	452852	454738	456529	459163	463246	467471	470645	472756	472756	475972	L2653518	L2661577	452852	454738	456529	459163	459163	463246	467801	470538	472536	475972
Laboratory Sample ID		L2652895-4	L2652895-5	L2661577-4	1720816	1727358	1733452	1741858	1755256	1770090	1777720	1785257	1785261	1796471	L2653518-1	L2661577-5	1720817	1727360	1733449	1741856	1741857	1755257	1771226	1777267	1784531	1796470
Sample Type	Units		Field Duplicate										Field Duplicate													
Field Parameters																										
Dissolved oxygen, Field	mg/L	9.57	-	12.38	-	-	-	-	-	-	-	-	-	-	9.91	12.29	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	206.5	-	199.9	-	-	-	-	-	-	-	-	-	-	185.3	194.6	-	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.77	-	7.77	7.57	7.45	7.64	7.46	7.07	7.59	8.06	7.98	-	8.12	7.82	7.73	7.62	7.45	7.55	7.45	-	7.08	7.91	8.04	7.72	8.16
Temperature, Field	deg C	11.5	-	4.3	1.4	0	0	0.7	9.3	20.4	22.3	20	-	17.3	10.8	4.2	0.1	0.3	0.2	2.2	-	9.6	19	20.2	19.7	17.4
Turbidity, Field	NTU	3.14	-	1.50	-	-	-	-	-	-	-	-	-	-	3.36	1.49	-	-	-	-	-	-	-	-	-	-
General Chemistry																										
Acidity as CaCO3	mg/L	<2.0	<2.0	<2.0	4	4	5	3	4	6	7	8	2	4	<2.0	<2.0	4	4	9	3	3	4	4	5	5	6
Alkalinity, Bicarbonate (as CaCO3)	mg/L	116	117	110	106	116	115	124	53	79	81	82	79	64	106	106	109	120	116	127	126	52	77	87	73	87
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<2.0	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	1	1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<2.0	0.01	0.0105	0.00852	0.0195	0.00408	0.00437	0.0049	0.00852	0.0166	0.0132	<2.0	<2.0	0.00978	0.0105	0.00742	0.0195	0.0191	0.00399	0.00725	0.0159	0.0141	0.0129
Alkalinity, Total (as CaCO3)	mg/L	116	117	110	107	117	116	125	53	79	82	83	79	64	106	106	110	121	116	128	127	52	78	88	74	88
Ammonia (as N)	mg/L	0.0095	0.0084	0.0083	0.08	0.05	<0.01	0.05	<0.01	0.27	<0.01	0.01	<0.01	<0.01	0.0090	0.0097	0.03	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	-	<0.010	<0.002	<0.002	<0.002	-	<0.002	0.004	<0.002	<0.002	-	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	0.6	<0.5	0.6	1.3	1.5	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	34	45	38	30	45	-	30	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	0.8	0.4	0.4	0.6	0.4	<0.2	0.6	-	-	-	-	-	1.7	0.8	0.3	0.4	0.6	0.6	0.8
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	22.4	21.9	26.9	19.4	23.7	24.9	22.8	81.3	52.4	63.5	42.7	59.5	32.5	19.7	20.9	22.5	20.1	29.3	22	20.8	92.7	49.7	55.4	41.3	64.2
Cyanide	mg/L	<0.0020	<0.0020	<0.0020	0.009	0.002	0.002	0.005	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	0.005	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.0020	<0.001	<0.001	0.004	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	10.2	9.83	10.9	10.8	9.7	9.3	8.4	14.1	10.5	11.7	10.8	10.5	10.8	10.9	10.1	10.9	9.8	9.6	8.4	8.4	14.1	10.2	11.8	11	11.6
Electrical Conductivity, Lab	µS/cm	213	213	204	201	203	233	238	108	152	152	181	182	81	191	198	204	216	235	244	239	103	153	160	135	174
Fluoride	mg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	106	107	106	113	118	142	122	56.4	80.4	84.8	98.8	98.4	90.6	95.7	101	115	115	140	125	122	53.7	83.2	82.6	92	87.4
Nitrate (as N)	mg/L	<0.020	<0.020	<0.020	<0.02	0.07	0.12	0.12	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	<0.02	0.07	0.13	0.09	<0.02	0.05	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	<1	4	4	1	1	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.87	7.88	7.85	7.77	7.79	7.7	8.06	7.38	7.41	7.46	7.7	7.99	7.89	7.75	7.93	7.76	7.79	7.64	8.06	8.05	7.37	7.63	7.97	7.92	7.88
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	0.007	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0123	0.0124	0.0084	<0.001	0.005	<0.001	0.004	0.005	<0.001	0.012	0.042	0.035	0.007	0.0149	0.0122	<0.001	0.005	0.026	0.005	0.014	0.004	0.015	0.028	<0.001	0.028
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.20	1.19	1.13	1.4	1.5	1.7	1.6	1.4	1.2	1.7	1.1	0.3	1.4	1.55	1.57	1.5	1.5	1.7	2.5	2	1.3	1.1	1.5	1.5	1.7
Total Dissolved Solids	mg/L	136	136	124	80	175	75	85	60	140	145	115	110	155	122	121	110	110	155	115	90	120	105	115	140	180
Total Kjeldahl Nitrogen	mg/L	0.373	0.374	0.389	0.47	0.45	0.23	0.21	0.38	0.63	0.58	<0.04	<0.04	<1	0.378	0.363	0.33	0.34	0.26	0.48	0.36	0.62	0.6	3.24	<0.04	<1
Total Organic Carbon	mg/L	11.2	10.2	11.1	10.9	9.9	9	8.3	14.9	12.2	11.7	11.2	11	11.3	10.6	10.4	11.3	9.9	9.4	8.5	8.5	15.1	12	11.8	12	12.2
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<2	3	<0.67	3	1.7	1.5	1.3	1	1	2.7	<3.0	<3.0	<2	6	<0.67	<0.67	1.7	1	2.5	1	2.7	3
Turbidity, Lab	NTU	1.93	2.01	1.64	0.7	0.9	1.4	0.9	1.5	2.3	1	1.5	1.5	1.2	2.83	1.53	0.8	0.9	0.9	0.9	0.9	1	1	1.2	2	3.1
Speciated Metals																										
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		23													24											
Sample Date		18-Oct-21	18-Oct-21	9-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	5-Apr-22	17-May-22	23-Jun-22	14-Jul-22	4-Aug-22	4-Aug-22	6-Sep-22	19-Oct-21	9-Nov-21	11-Jan-22	7-Feb-22	3-Mar-22	5-Apr-22	5-Apr-22	17-May-22	27-Jun-22	13-Jul-22	2-Aug-22	6-Sep-22
Sample ID		23	SW DUPLICATE 1	23	23	23	23	23	23	23	23	23	Duplicate 1	23	24	24	24	24	24	24	Duplicate1	24	24	24	24	24
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2652895	L2652895	L2661577	452852	454738	456529	459163	463246	467471	470645	472756	472756	475972	L2653518	L2661577	452852	454738	456529	459163	459163	463246	467801	470538	472536	475972
Laboratory Sample ID		L2652895-4	L2652895-5	L2661577-4	1720816	1727358	1733452	1741858	1755256	1770090	1777720	1785257	1785261	1796471	L2653518-1	L2661577-5	1720817	1727360	1733449	1741856	1741857	1755257	1771226	1777267	1784531	1796470
Sample Type	Units		Field Duplicate										Field Duplicate													
Metals, Dissolved																										
Aluminum	µg/L	3.8	3.4	2.5	3	4	4	<1	21	6	7	4	4	5	4.2	1.8	3	3	3	<1	<1	22	6	5	6	4
Antimony	µg/L	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	1.7	1.67	1.24	0.8	0.8	0.9	0.8	1.5	1.7	1.7	2.2	2.2	2.7	3.12	2.37	0.8	0.8	1	0.8	0.8	1.2	2.1	3.8	3.7	5.6
Barium	µg/L	13.6	13.4	12.2	12.5	13.7	14.3	13	7.9	10.7	11.8	11.9	12.1	12.6	11.3	11.2	12.7	13.6	14.7	12.9	13	7.5	10.4	11	11.8	12.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.009	0.02	0.009	0.009	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.02
Calcium	mg/L	31.2	31.5	32.0	32.1	35.8	40.9	36.1	17.1	23.6	25.8	28.6	29	28.7	28.2	30.0	33.3	35.5	42.8	35.7	37.3	15.4	22.6	26	27.3	27.6
Cesium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.13	0.12	<0.1	<0.1	0.3	0.1	0.2	0.6	1.2	0.4	0.6	0.6	0.8	0.34	<0.1	<0.1	0.3	0.1	0.2	<0.1	0.5	0.3	0.5	0.4	0.9
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	0.3
Copper	µg/L	0.39	0.36	0.32	<0.2	0.7	0.7	0.4	0.7	0.5	2.6	0.4	0.5	0.5	0.63	0.38	<0.2	0.8	0.6	0.4	0.3	0.6	0.5	0.9	0.4	0.5
Iron	µg/L	35	35	33	210	<10	40	10	80	140	50	80	80	70	34	27	220	20	40	<10	<10	60	30	60	40	60
Lead	µg/L	<0.05	<0.05	<0.05	0.06	<0.05	0.06	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	0.06
Lithium	µg/L	1.4	1.2	<1	1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.91	6.81	6.45	6.98	7.31	8.63	6.88	3.59	5.05	5.03	6.25	6.29	5.92	6.14	6.44	7.24	7.52	8.65	6.77	6.77	3.41	4.68	5.17	6.11	5.75
Manganese	µg/L	5.31	5.23	6.02	4.6	4.8	5.2	5.3	4.4	2.3	0.9	1.8	1.6	1.7	2.39	4.1	4.7	5.5	6.1	6.1	6.2	4.3	0.9	0.6	2.1	1.9
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.129	0.122	0.144	0.11	0.15	<0.05	0.13	0.08	0.11	0.18	0.12	0.13	0.12	0.12	0.172	0.44	0.15	<0.05	0.08	0.09	0.3	0.08	0.17	0.12	0.11
Nickel	µg/L	<0.5	<0.5	<0.5	0.6	<0.5	0.6	<0.5	<0.5	0.6	1	0.8	0.8	0.7	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	1	0.6	0.7
Phosphorus	µg/L	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.901	0.895	0.818	0.85	0.88	0.99	0.79	0.62	0.67	0.69	0.73	0.73	0.7	0.781	0.846	0.86	0.87	0.96	0.76	0.76	0.58	0.62	0.74	0.74	0.71
Rubidium	µg/L	2.12	2.1	1.79	1.9	2	1.9	2	1.7	1.8	1.8	2	2	2.1	1.79	1.68	2	2	2	2	2	1.6	1.7	1.9	2	2.2
Selenium	µg/L	0.059	0.072	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.067	0.056	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	0.12	0.09
Silicon	µg/L	3,160	3,180	3,030	3,490	3,810	4,310	3,670	2,010	1,900	-	2,110	2,130	1,710	2,860	2,920	3,550	3,860	4,440	3,680	3,680	1,860	1,670	-	2,180	1,610
Silicon	mg/L	-	-	-	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	0.801	0.788	0.836	0.88	0.84	1.03	0.77	0.44	0.6	0.82	0.71	0.72	0.71	1.23	1.18	0.86	0.84	1.09	0.78	0.77	0.42	0.56	0.68	0.79	0.88
Strontium	µg/L	30.7	30.8	29.8	29	30.4	31.4	30.4	16.1	20.7	21.1	19.9	19.7	20.5	28.5	29.5	29.7	30.7	32.9	30.7	30.6	14.5	22	21.3	19.1	20.1
Sulfur	µg/L	<500	<500	<500	<500	<500	1,500	<500	<500	3,600	1,800	2,500	2,400	<500	<500	<500	<500	<500	1,100	<500	<500	<500	<500	1,300	1,100	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.4	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.1
Titanium	µg/L	<0.3	<0.3	<0.3	0.9	0.9	0.8	0.8	0.9	0.6	0.6	0.7	0.7	0.5	<0.3	<0.3	0.9	0.9	0.9	0.7	0.8	0.8	0.6	0.6	0.8	0.5
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.302	0.305	0.261	0.27	0.29	0.28	0.28	0.07	0.17	0.17	0.2	0.2	0.23	0.223	0.256	0.28	0.29	0.3	0.26	0.28	0.07	0.13	0.16	0.17	0.18
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Zinc	µg/L	<1	<1	<1	2	<1	3	<1	1	<1	1	<1	<1	1	<1	<1	2	1	2	<1	<1	<1	<1	<1	<1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																										
Aluminum	µg/L	20.3	19.6	11.8	9	7	8	14	38	31	16	18	19	18	28.4	14.7	9	6	7	3	3	39	36	28	44	28
Antimony	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	1.6	1.6	1.45	0.7	0.8	0.7	0.8	1.3	1.8	1.3	1.9	2	2.4	3.7	2.8	0.8	0.7	0.9	0.8	0.8	1	2	3.2	3.8	4.9
Barium	µg/L	14.7	14.9	12.7	12.4	13.5	12.7	13.2	7.8	11.2	12	12.2	12.4	13	12.5	11.8	12.9	13	13.7	13.1	13.5	7.6	10.8	11.3	12.3	12.6
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	0.0059	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.009	0.006	<0.005	0.06	<0.005
Calcium	mg/L	33.8	34.7	31.8	32.8	34.4	36	37.2	15.6	23.9	26.3	28.6	28.5	31	30.3	31.0	34.7	33.8	37.9	37.5	36.4	14.8	22.7	25.7	24.4	30.1
Cesium	µg/L	0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Chromium	µg/L	0.2	0.26	0.12	0.1	0.3	0.3	0.2	0.4	0.4	0.5	0.5	0.5	0.3	0.18	0.14	0.3	0.3	0.4	0.1	0.1	0.4	0.4	0.7	0.6	0.6
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	<0.1	<0.1
Copper	µg/L	<0.5	<0.5	<0.5	0.4	0.5	0.4	0.5	0.7	0.6	0.4	0.6	0.4	0.7	<0.5	<0.5	0.6	0.4	0.6	0.4	0.4	0.6	0.8	0.4	0.7	0.8
Iron	µg/L	150	151	136	270	90	150	140	150	200	160	210	220	200	158	117	280	70	170	120	130	140	200	170	210	200
Lead	µg/L	0.058	<0.05	<0.05	0.1	0.06	0.06	0.1	0.06	0.11	0.06	<0.05	<0.05	0.11	0.062	<0.05	0.15	<0.05	0.11	<0.05	<0.05	0.05	0.09	0.11	0.14	0.1
Lithium	µg/L	<1	<1	<1	<1	1	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.61	6.74	6.51	6.83	6.96	7.42	7.35	3.36	4.7	5.32	6.17	6.17	6.17	6.28	6.52	7.17	6.81	7.65	7.15	7.01	3.25	4.61	5.57	4.98	5.92
Manganese	µg/L	25.9	26.2	17.2	5.5	6.5	6.5	8.6	8.1	20.9	20	21.4	21.3	14.7	24.5	14.3	6.4	7.4	7.6	11.3	11.3	8.1	14.7	16.8	22.5	12.4
Mercury	µg/L	-	-	-	<0.1	0.00009	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.00001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Molybdenum	µg/L	0.137	0.132	0.107	0.12	0.08	0.11	0.1	0.08	0.13	0.15	0.15	0.12	0.15	0.114	0.124	0.18	0.08	0.12	0.1	0.2	0.2	0.27	0.22	0.2	0.17
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5
Phosphorus	µg/L	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	60	-
Potassium	mg/L	0.917	0.910	0.831	0.78	0.83	0.86	0.78	0.54	0.65	0.71	0.73	0.74	0.74	0.836	0.869	0.83	0.8	0.93	0.79	0.77	0.54	0.65	0.74	0.61	0.77
Rubidium	µg/L	2.03	2.21	1.85	1.9	2	1.8	2.1	1.6	1.8	1.8	1.9	2	2.2	1.78	1.79	2.1	2	2	2	2	1.6	1.8	1.9	2.1	2.2
Selenium	µg/L	0.092	0.068	0.055	<0.05	0.06	0.06	0.1	0.14	<0.05	<0.05	0.07	0.15	0.08	0.059	<0.05	0.06	<0.05	0.15	0.13	<0.05	<0.05	0.08	<0.05	<0.05	0.06
Silicon	µg/L	3,430	3,330	3,170	3,390	3,380	3,960	3,830	1,990	2,020	-	2,460	2,470	1,990	3,060	2,950	3,570	3,290	4,130	3,810	3,830	1,910	2,040	-	2,370	1,940
Silicon	mg/L	-	-	-	-	-	-	-	-	-	1.94	-	-	-	-	-	-	-	-	-	-	-	-	2.06	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	0.04	0.03	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.02	0.04	0.06	0.05
Sodium	mg/L	0.847	0.851	0.854	0.81	0.81	0.86	0.79	0.43	0.54	0.59	0.71	0.73	0.81	1.26	1.23	0.9	0.77	0.96	0.79	0.79	0.41	0.74	0.67	0.69	1.02
Strontium	µg/L	31.6	31.6	29.9	29.1	30.2	29.4	31.3	14.6	22.5	21.1	19.2	19.7	21.1	29.9	31	30.3	29.4	31.7	31	30.7	13.7	22.4	21	24	21.6
Sulfur	µg/L	<500	<500	<500	<500	<500	1,200	<500	<500	<500	1,500	700	800	500	810	600	<500	<500	1,100	<500	<500	<500	<500	1,700	1,900	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	<0.2
Thallium	µg/L	0.035	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.3	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3
Titanium	µg/L	0.84	0.8	0.43	1	1.1	1.1	1.5	1.7	1.7	1.1	1.3	1.5	1.3	1.11	0.53	1.2	1	1	0.9	0.9	1.7	1.8	1.7	2.4	1.5
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.302	0.299	0.285	0.29	0.3	0.29	0.3	0.08	0.16	0.21	0.2	0.19	0.24	0.238	0.285	0.3	0.3	0.3	0.29	0.29	0.08	0.13	0.16	0.18	0.22
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<3	<1	<1	<1	1	<1	4	<1	<1	<1	3	<3	<3	1	<1	<1	<1	<1	<1	<1	<1	<1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		25												26											
Sample Date		19-Oct-21	9-Nov-21	6-Jan-22	6-Jan-22	8-Feb-22	3-Mar-22	11-Apr-22	17-May-22	27-Jun-22	4-Jul-22	4-Aug-22	6-Sep-22	19-Oct-21	10-Nov-21	17-Jan-22	2-Feb-22	2-Mar-22	6-Apr-22	6-Apr-22	18-May-22	23-Jun-22	18-Jul-22	11-Aug-22	7-Sep-22
Sample ID		25	25	25	duplicate 1	25	25	25	25	25	25	25	25	26	26	26	26	26	26	Duplicate2	26	26	26	26	26
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2661577	452488	452488	454923	456529	459653	463246	467801	468667	472756	475972	L2653518	L2661849	453298	454449	456456	459292	459292	463413	467471	470954	473463	476124
Laboratory Sample ID		L2653518-3	L2661577-7	1719643	1719645	1727964	1733448	1743186	1755258	1771227	1774126	1785258	1796469	L2653518-9	L2661849-5	1722215	1726469	1733152	1742233	1742234	1755703	1770085	1778756	1788047	1796957
Sample Type	Units				Field Duplicate															Field Duplicate					
Field Parameters																									
Dissolved oxygen, Field	mg/L	8.97	10.72	-	-	-	-	-	-	-	-	-	-	10.15	12.45	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	264.5	279.8	-	-	-	-	-	-	-	-	-	-	332.5	344.7	-	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.43	7.26	8.16	-	6.44	6.51	6.72	6.85	6.87	6.79	7.44	7.68	8.11	8.05	7.07	6.97	7.35	7.03	-	7.6	8.01	8.23	8.53	8.34
Temperature, Field	deg C	8.1	4.5	-0.1	-	0.3	0.5	0.4	11.9	16.2	18.4	21	16.7	11.4	3.8	4.9	3.2	3.5	4	-	11.7	20.6	23.3	21.1	18.5
Turbidity, Field	NTU	1.76	0.48	-	-	-	-	-	-	-	-	-	-	2.33	0.84	-	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	2.0	2.3	14	10	16	26	11	7	21	10	7	4	<2.0	<2.0	3	4	9	73	10	8	7	3	5	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	115	116	117	117	172	174	168	75	97	109	119	67	94.4	94.8	109	115	119	126	114	87	89	86	78	72
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	2	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00347	0.00513	0.00235	0.00107	0.00302	0.00347	0.00074	0.00263	0.0115	0.0141	<2.0	<2.0	0.00892	0.00913	0.00646	0.0214	0.00833	0.00892	0.00372	0.0145	0.0123	0.0129
Alkalinity, Total (as CaCO3)	mg/L	115	116	117	117	172	174	168	75	97	109	120	68	94.4	94.8	110	116	119	128	115	88	89	87	79	73
Ammonia (as N)	mg/L	0.0113	0.0159	0.06	0.28	0.36	0.62	0.85	<0.01	<0.01	<0.01	0.02	<0.01	0.0186	0.0456	0.24	0.28	0.4	0.33	0.3	0.32	<0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	-	0.003	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	33.1	20.4	16.8	21.2	1.7	4.5	-	-	-	-	-	66.4	68.3	46.3	42.3	48.4	47.5	52.2
Chlorophyll a	µg/L	1.17	-	-	-	-	-	-	-	<0.5	-	154	-	4.33	-	-	-	-	-	-	-	<0.5	-	147	-
Color, True	TCU	64.8	51.5	25.9	25	91.7	112	106	106	186	161	98.5	49.3	5.1	4.8	15.2	4	7.4	8	6.5	5.8	12	29.3	11	5.5
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	0.004	0.015	0.005	<0.002	<0.002	<0.002	0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	0.003	0.002	0.002	0.008	<0.002	<0.002	0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	<0.001	0.014	<0.001	0.003	<0.001	<0.001	0.002	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	20.0	18.3	10.6	10.5	20.9	33	22.3	19	4.8	22.5	24.1	14	7.79	11.8	6.6	6.7	6.5	6.2	6.1	4.7	5.3	4	4.9	6.8
Electrical Conductivity, Lab	µS/cm	270	285	237	239	435	438	392	208	235	273	350	102	340	348	391	427	458	434	429	285	305	301	309	258
Fluoride	mg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	113	123	135	134	181	219	186	79.9	115	121	155	91.2	98.3	104	123	132	152	129	130	96.7	98.9	98	95.1	91.7
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	<0.02	<0.02	0.13	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.78	7.74	7.31	7.48	7.14	6.8	7.25	7.31	6.64	7.19	7.83	7.92	7.73	7.91	7.72	7.73	7.58	8.1	7.69	7.72	7.34	7.93	7.86	7.88
Phaeophytin A	µg/L	1.83	-	-	-	-	-	-	-	<0.5	-	714	-	1.24	-	-	-	-	-	-	-	386	-	623	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0077	0.0080	<0.001	<0.001	0.041	0.057	0.039	0.018	0.076	0.1	0.127	0.013	0.0087	0.0077	0.042	0.004	0.007	0.003	0.003	<0.001	<0.001	0.011	0.052	0.01
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.14	0.99	3.2	3.2	1.2	0.3	0.8	2.5	0.9	0.6	<0.3	1.5	2.33	2.51	3.5	3.4	2.8	3.6	3.7	3	2.9	<0.3	2.9	3.4
Total Dissolved Solids	mg/L	176	181	170	165	340	265	270	195	225	260	255	130	181	177	220	255	245	245	<10	185	195	195	185	225
Total Kjeldahl Nitrogen	mg/L	0.626	0.560	0.34	0.66	1.31	1.51	1.56	0.72	0.31	2.61	0.14	<1	0.443	0.491	N/A	0.91	0.75	0.67	0.98	0.88	0.6	0.59	<0.04	<1
Total Organic Carbon	mg/L	20.1	18.6	10.4	10.2	18.8	33	22.2	19.9	28.1	24.5	24.4	14.2	9.16	7.82 RRV	6.3	6.7	6.3	7.5	7.5	5	5.8	5.5	6.7	7
Total Suspended Solids	mg/L	<3.0	<3.0	<2	2	8	<0.67	4	1	2	<1	<0.67	2.7	<3.0	<3.0	2	4	2.3	3	2.3	2.3	4	2.7	5	6.3
Turbidity, Lab	NTU	0.39	0.31	0.5	0.5	1.1	1.3	2.7	0.7	0.8	0.7	0.7	0.6	1.24	0.94	0.7	0.8	0.6	0.8	0.8	0.9	2.2	1.5	1.4	1.7
Speciated Metals																									
Methyl Mercury	µg/L	0.000102	0.000077	<0.00002	<0.00002	<0.00002	0.00006	0.00003	0.00003	0.00003	-	0.00005	0.00006	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		25												26											
Sample Date		19-Oct-21	9-Nov-21	6-Jan-22	6-Jan-22	8-Feb-22	3-Mar-22	11-Apr-22	17-May-22	27-Jun-22	4-Jul-22	4-Aug-22	6-Sep-22	19-Oct-21	10-Nov-21	17-Jan-22	2-Feb-22	2-Mar-22	6-Apr-22	6-Apr-22	18-May-22	23-Jun-22	18-Jul-22	11-Aug-22	7-Sep-22
Sample ID		25	25	25	duplicate 1	25	25	25	25	25	25	25	25	26	26	26	26	26	26	Duplicate2	26	26	26	26	26
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2661577	452488	452488	454923	456529	459653	463246	467801	468667	472756	475972	L2653518	L2661849	453298	454449	456456	459292	459292	463413	467471	470954	473463	476124
Laboratory Sample ID		L2653518-3	L2661577-7	1719643	1719645	1727964	1733448	1743186	1755258	1771227	1774126	1785258	1796469	L2653518-9	L2661849-5	1722215	1726469	1733152	1742233	1742234	1755703	1770085	1778756	1788047	1796957
Sample Type	Units				Field Duplicate															Field Duplicate					
Metals, Dissolved																									
Aluminum	µg/L	4.1	3.1	2	2	10	15	7	12	22	12	4	4	3.5	1.5	<1	2	2	<1	<1	3	7	8	7	5
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	0.11	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Arsenic	µg/L	43.8	95.5	5.7	5.7	86.7	125	83.8	47.3	237	197	260	64.6	18.7	16	13.3	14	13	14.2	14.4	7.8	19	24.5	29.3	29.8
Barium	µg/L	5.74	5.23	14.5	14.6	15.1	18.7	16.2	6.2	9	9.7	8.7	8.7	12.5	12.6	16.6	17	17.4	17.3	17.5	11.8	11.5	12	12.4	13.8
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	0.005	0.006	<0.005	0.009	0.006	0.006	0.01	0.02	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005
Calcium	mg/L	33.3	36.5	38.8	38.1	57.3	69.4	53.3	25.8	33.8	38.1	47	29	29.7	31.6	40	42.1	48	39.2	38.4	28	28.9	29.3	31.9	27.1
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.14	<0.1	0.2	0.2	0.4	0.3	0.2	0.4	0.7	0.9	0.7	0.8	<0.1	<0.1	0.2	0.1	0.1	0.2	0.2	0.3	1.1	0.7	0.5	0.7
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	0.4	0.5	0.5	0.2	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	0.31	<0.2	0.5	0.5	0.6	1	1.1	0.8	0.5	0.6	0.3	0.4	<0.2	<0.2	0.6	1.1	1.6	0.9	0.7	0.8	0.4	0.6	0.7	0.4
Iron	µg/L	48	33	35	31	1,250	2,620	1,520	90	270	230	120	60	11	<10	200	<10	20	<10	<10	50	120	50	90	50
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.12	<0.05	0.12	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	<1	<1	1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	7.21	7.81	7.85	7.98	11.6	13	10.4	4.91	6.54	6.03	9.54	6.03	5.85	6.18	7.79	7.7	8.62	7.58	7.69	5.39	5.31	5.16	5.51	5.32
Manganese	µg/L	2.78	6.66	3.7	3.7	805	958	793	11.8	56.1	28.3	22.2	4	1.51	1.11	17.9	25.6	<0.1	0.6	0.7	19.8	1	0.5	0.7	0.7
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	<0.05	0.1	0.14	0.23	0.13	<0.05	0.08	0.12	0.14	0.12	0.13	0.09	0.051	<0.05	0.11	0.1	<0.05	0.06	0.07	0.64	0.1	0.06	0.06	0.1
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.8	1.8	0.8	<0.5	0.9	1	1	0.6	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	0.6	0.7	0.6
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.717	0.735	1.11	1.14	0.8	0.9	0.79	1.05	1.15	0.99	1.04	0.54	0.493	0.498	0.64	0.69	0.74	0.67	0.67	0.53	0.52	0.55	0.62	0.51
Rubidium	µg/L	1.73	1.53	2.3	2.3	1.9	1.9	1.9	2.7	3.3	2.6	3	1.6	0.98	1.02	1.2	1.4	1.4	1.5	1.5	1	1	1.1	1.1	1.2
Selenium	µg/L	0.066	<0.05	<0.05	<0.05	0.28	0.35	<0.05	<0.05	0.18	0.11	0.13	0.15	<0.05	<0.05	0.06	0.29	<0.05	<0.05	<0.05	<0.05	0.08	0.13	<0.05	0.12
Silicon	µg/L	3,470	2,990	3,940	3,970	7,330	9,730	7,330	1,990	2,840	-	3,890	1,310	1,440	1,230	2,040	1,770	2,110	1,840	1,890	1,200	1,080	-	1,000	1,100
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.29	-	-	-	-	-	-	-	-	-	-	-	0.94	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	11.1	11.4	2.07	2.14	16.7	21.6	14.9	9.37	8.6	10.4	15.2	2.77	27.9	28.7	33	35	40.6	32.5	32.5	21.4	23.4	22.8	24.3	23.7
Strontium	µg/L	42.1	45.1	36.2	36.3	57.5	62.7	57.3	29.9	43.7	40.6	48.2	24.1	61.7	63.7	70.4	67.7	68.4	68.9	71.1	48.8	52.8	50.5	46.1	43.5
Sulfur	µg/L	<500	<500	1,600	1,600	<500	600	<500	<500	600	1,700	2,600	<500	900	560	800	1,200	2,300	2,600	2,800	1,100	4,200	800	2,800	700
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.6	<0.1
Titanium	µg/L	<0.3	<0.3	1	0.9	2	2.1	2	0.7	1.2	1	1.3	0.5	<0.3	<0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.3
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.014	0.023	0.28	0.28	0.07	0.03	0.03	0.01	<0.01	0.01	0.03	0.1	0.047	0.047	0.03	0.04	0.04	0.05	0.04	0.04	0.06	0.04	0.04	0.05
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<1	<1	<1	<1	3	3	4	5	7	8	3	2	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	3
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	5.6	7.3	6	6	13	15	30	20	26	26	8	6	9.9	5.3	<1	5	5	4	4	12	17	14	13	16
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	0.11	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Arsenic	µg/L	46.7	91.9	5.5	5.4	79.9	97.9	93.1	42.6	251	202	268	52.3	21.5	18	11.8	14.6	12.3	13	13.1	9	18.7	20.3	30	29.6
Barium	µg/L	6.18	5.3	15.2	14.9	14.4	15	16.1	6.6	8.9	10.1	8.7	8.8	14	13.8	16.2	16.7	17	17	17.1	12.2	12.5	11.9	12.6	13.3
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	0.058	<0.05	0.07	<0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	2	2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.006	0.005	<0.005	<0.005	0.009	0.008	0.01	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Calcium	mg/L	36.1	35.2	39.7	38.2	53.6	57	56.1	23.2	33.7	42.9	44.5	30.2	31.6	32.9	40	41.5	44.1	39.7	39.2	28.5	29.9	30.5	30.2	33
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.11	<0.1	0.3	0.2	0.4	0.3	<0.1	0.4	0.7	1.3	0.6	0.3	<0.1	<0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	0.4	0.4	0.5	0.1	0.3	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.1	0.1	0.1
Copper	µg/L	<0.5	<0.5	0.8	1	54.2	0.7	0.6	0.6	0.6	1.7	<0.2	0.6	<0.5	<0.5	0.6	1.1	1.2	0.9	0.9	4.4	0.8	1	0.7	0.9
Iron	µg/L	59	42	62	56	1,320	2,320	2,260	150	340	340	220	110	65	40	240	40	110	40	40	140	140	170	160	180
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	0.07	0.11	0.25	0.08	0.21	1.68	<0.05	0.05	0.058	<0.05	0.07	0.05	<0.05	0.06	<0.05	0.2	0.09	0.06	<0.05	0.17
Lithium	µg/L	<1	<1	1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	7.26	7.43	8.08	8.14	10.4	11.9	10.3	5	6.46	6.4	9.56	6.31	6.07	6.07	7.26	8.16	8.52	7.63	7.55	5.15	5.04	5.29	5.23	6.14
Manganese	µg/L	3.24	7.12	7.4	7.1	774	781	934	16	59.2	33.1	27.5	5.5	32.9	19.1	30.7	52.9	6.1	1.9	1.9	31.3	31.2	31.8	32	63
Mercury	µg/L	0.00070	0.00084	0.00043	0.00039	0.001	0.002	0.003	0.003	0.007	-	0.001	0.0009	-	-	0.001	0.0008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	<0.05	0.06	0.16	0.16	0.07	0.06	0.1	0.07	0.18	0.2	0.09	0.13	0.061	0.058	0.08	0.08	0.06	0.48	0.08	0.13	0.07	0.05	<0.05	0.06
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.7	1.6	1.6	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	0.5	<0.5
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	60	<50	-	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	-	<50
Potassium	mg/L	0.746	0.694	1.12	1.13	0.73	0.75	0.8	0.99	1.12	1.09	1.1	0.55	0.527	0.517	0.62	0.72	0.79	0.66	0.65	0.51	0.54	0.58	0.56	0.6
Rubidium	µg/L	1.75	1.43	2.4	2.3	1.9	1.7	2	2.7	3.2	2.7	3.1	1.6	1.1	1.12	1.2	1.4	1.4	1.4	1.4	1.1	1.1	1.1	1.2	1.3
Selenium	µg/L	0.094	0.05	<0.05	<0.05	0.07	<0.05	0.19	0.06	0.17	<0.05	0.14	0.12	0.055	<0.05	0.06	0.27	<0.05	0.21	<0.05	<0.05	0.19	<0.05	0.29	0.18
Silicon	µg/L	3,590	2,940	4,020	3,970	6,320	8,940	7,490	2,130	3,000	-	4,280	1,540	1,540	1,310	1,800	1,940	2,220	1,990	1,980	1,360	1,220	-	1,240	1,280
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.77	-	-	-	-	-	-	-	-	-	-	-	1.25	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.02	<0.01	<0.01	0.03	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	0.05
Sodium	mg/L	11.7	10.9	2.23	2.19	15.8	18.1	15.1	9.09	8.78	10.5	15.7	3.06	29.5	29.1	34	32.9	36.9	34.2	32.9	21.4	22	24.9	23.4	28.1
Strontium	µg/L	43.5	44.3	37.6	36.3	54.9	58.1	59.8	29.5	43.5	43.9	47.6	24.3	64.7	68.2	69	68	73.5	70.1	69.3	47.6	53.4	50.4	46.1	46.7
Sulfur	µg/L	730	580	1,900	1,300	<500	600	<500	<500	<500	3,100	1,000	<500	1,060	920	2,000	1,500	2,200	2,400	2,200	<500	1,700	1,700	3,000	1,300
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	0.025	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.1
Titanium	µg/L	<0.3	<0.3	1.2	1.1	2.2	2.3	3	2.7	1.6	1.4	1.6	0.7	<0.3	<0.3	0.8	0.6	0.6	0.4	0.5	0.7	0.8	0.6	0.7	0.9
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.013	0.024	0.3	0.31	0.07	0.03	0.03	0.02	<0.01	0.02	0.03	0.11	0.047	0.045	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.04	0.05
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<1	<1	3	2	2	4	6	11	2	3	<3	<3	<1	3	<1	<1	<1	2	1	<1	<1	6
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		28											38										
Sample Date		20-Oct-21	9-Nov-21	9-Nov-21	12-Jan-22	2-Feb-22	2-Mar-22	16-May-22	22-Jun-22	12-Jul-22	3-Aug-22	7-Sep-22	21-Oct-21	10-Nov-21	13-Jan-22	14-Feb-22	9-Mar-22	5-Apr-22	9-May-22	20-Jun-22	13-Jul-22	3-Aug-22	7-Sep-22
Sample ID		28	28	DUPLICATE 2	28	28	28	28	28	28	28	28	38	38	38	38	38	38	38	38	38	38	38
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654108	L2661574	L2661574	452991	454449	456456	462997	467331	469370	472528	476124	L2654721	L2661849	452993	455247	457039	459163	462299	467009	470538	472604	476124
Laboratory Sample ID		L2654108-1	L2661574-1	L2661574-2	1721234	1726470	1733151	1754541	1769691	1776565	1784519	1796954	L2654721-6	L2661849-2	1721239	1729151	1735004	1741852	1752057	1768698	1777268	1784747	1796955
Sample Type	Units			Field Duplicate																			
Field Parameters																							
Dissolved oxygen, Field	mg/L	10.53	12.22	-	-	-	-	-	-	-	-	-	9.07	11.64	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	227.8	235.0	-	-	-	-	-	-	-	-	-	169.4	173.4	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.69	7.46	-	7.48	7.11	7.19	6.65	6.12	7.32	7.72	7.8	7.22	7.77	7.26	7.02	7.42	7.33	6.5	7.74	7.8	7.37	7.8
Temperature, Field	deg C	8.1	3.5	-	1	0	0	10.9	21.1	19.6	19.8	16.8	10.3	5	0.2	0.2	0.2	0.7	4.2	18.3	20.8	20.5	17.7
Turbidity, Field	NTU	1.31	1.10	-	-	-	-	-	-	-	-	-	3.33	2.29	-	-	-	-	-	-	-	-	-
General Chemistry																							
Acidity as CaCO3	mg/L	<2.0	2.4	2.2	7	6	9	6	3	7	3	5	2.8	<2.0	4	5	8	5	6	8	5	6	3
Alkalinity, Bicarbonate (as CaCO3)	mg/L	106	105	105	128	150	122	36	71	77	45	101	91.9	88.8	94	106	108	114	71	63	71	67	77
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<2.0	0.00563	0.00872	0.00759	0.00204	0.00777	0.00956	0.0115	0.0166	<2.0	<2.0	0.00759	0.01	0.00525	0.0186	0.00363	0.00589	0.0123	0.0123	0.012
Alkalinity, Total (as CaCO3)	mg/L	106	105	105	128	151	123	36	72	77	45	102	91.9	88.8	94	107	108	115	72	63	72	67	77
Ammonia (as N)	mg/L	0.0250	0.0249	0.0229	0.08	0.16	0.22	<0.01	<0.01	<0.01	<0.01	<0.01	0.0293	0.0200	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	-	3.6	4.9	4.8	5.3	8.8	-	-	-	-	4	3.6	3.2	2.6	2.4	<0.2	2.6
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	49.2	39.7	40.5	38.3	30.3	33.9	140	95.9	110	82.2	51.3	34.1	32.5	34.1	33.3	34.4	28.9	72.2	71.7	66.2	50.3	47
Cyanide	mg/L	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	0.005	<0.002	<0.0020	<0.0020	<0.002	0.003	<0.002	0.028	<0.002	0.005	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.0020	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	14.9	14.7	15.0	11.6	11.9	10.3	15.6	18.6	19.1	17.9	15.4	12.5	12.1	9.8	10.8	10.4	10.1	13.9	14.8	12.9	12.2	12.8
Electrical Conductivity, Lab	µS/cm	230	232	233	286	308	344	84	154	161	116	199	174	173	196	217	218	236	153	127	142	155	177
Fluoride	mg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	103	110	109	139	162	177	45.6	73.2	77.8	103	117	89.1	89.9	99	111	130	115	82.5	75.1	72.6	76.3	78.1
Nitrate (as N)	mg/L	0.038	0.115	0.086	0.21	0.17	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	0.04	0.12	<0.02	0.13	0.08	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.95	7.76	7.76	7.52	7.71	7.65	7.08	7.66	7.75	7.83	7.99	7.83	7.82	7.65	7.77	7.49	8.04	7.33	7.54	7.86	7.86	7.85
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0097	0.0063	0.0067	0.009	0.005	0.014	0.008	0.01	0.016	0.002	0.019	0.0148	0.0129	0.018	0.008	0.006	0.006	0.01	0.01	0.018	<0.001	0.01
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	3.65	4.21	3.93	4.5	3.4	10.9	1.7	1.6	1.3	0.9	1.2	0.94	1.13	2.1	2.4	2.7	3.1	2.3	<0.3	1.3	<0.3	1.2
Total Dissolved Solids	mg/L	145	149	147	35	175	210	50	160	145	160	185	111	118	150	120	150	30	110	155	130	145	120
Total Kjeldahl Nitrogen	mg/L	0.534	0.470	0.497	0.53	0.59	0.54	0.75	0.92	3.95	0.11	<1	0.446	0.552	0.43	0.37	0.39	0.31	0.33	0.73	3.24	<0.04	<1
Total Organic Carbon	mg/L	15.1	14.1	14.6	11.9	11.6	10.1	15.3	19	19.3	17.9	15.6	12.7	12.7	10.4	10.8	10.4	9.6	14.1	16.7	13.5	12.8	12.6
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<2	2	1.7	1.3	1.6	1.7	<1.3	3	<3.0	<3.0	2	3	2	2	2	2	6.3	2.3	3.3
Turbidity, Lab	NTU	1.83	1.57	1.52	2.1	1.9	3.1	0.9	1.4	1.9	2.4	3.3	2.57	2.29	2	2	1.6	1.7	5.8	2.6	1.7	2.4	2
Speciated Metals																							
Methyl Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		28											38										
Sample Date		20-Oct-21	9-Nov-21	9-Nov-21	12-Jan-22	2-Feb-22	2-Mar-22	16-May-22	22-Jun-22	12-Jul-22	3-Aug-22	7-Sep-22	21-Oct-21	10-Nov-21	13-Jan-22	14-Feb-22	9-Mar-22	5-Apr-22	9-May-22	20-Jun-22	13-Jul-22	3-Aug-22	7-Sep-22
Sample ID		28	28	DUPLICATE 2	28	28	28	28	28	28	28	28	38	38	38	38	38	38	38	38	38	38	38
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654108	L2661574	L2661574	452991	454449	456456	462997	467331	469370	472528	476124	L2654721	L2661849	452993	455247	457039	459163	462299	467009	470538	472604	476124
Laboratory Sample ID		L2654108-1	L2661574-1	L2661574-2	1721234	1726470	1733151	1754541	1769691	1776565	1784519	1796954	L2654721-6	L2661849-2	1721239	1729151	1735004	1741852	1752057	1768698	1777268	1784747	1796955
Sample Type	Units			Field Duplicate																			
Metals, Dissolved																							
Aluminum	µg/L	5.5	4.9	4.1	7	5	5	24	12	15	6	3	11.1	3.2	3	5	3	<1	13	10	6	4	9
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Arsenic	µg/L	28.6	18.8	18.5	11.9	10.8	8.5	14.8	35	45	62.1	35.6	4.62	3.37	6.1	6	5.4	6.4	2.7	4	6	10.3	9.2
Barium	µg/L	7.07	7.37	7.24	9.1	10.3	10.9	4.8	7.5	7.2	8.4	10.1	7.5	6.74	8.1	9.5	10.3	12.9	7.3	6.8	7	6.9	6.8
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	0.01	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	0.01	<0.005	0.01	0.02	0.009
Calcium	mg/L	31.4	33.6	33.3	40.2	49	58	12.9	22.1	22.6	33	36.6	26.8	27.0	28.8	31.3	37.6	32.4	22.5	23.3	21.5	23.9	26.5
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.13	0.12	<0.1	<0.1	<0.1	0.3	0.5	1.3	0.5	0.5	1.1	0.17	<0.1	<0.1	0.4	0.6	0.2	0.5	0.5	0.5	0.5	1.7
Cobalt	µg/L	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	0.3	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
Copper	µg/L	0.47	0.7	0.68	<0.2	0.5	1.7	0.9	0.7	0.6	0.7	0.4	0.5	1.28	<0.2	0.9	0.9	4.3	1.3	1.3	1.4	0.8	0.6
Iron	µg/L	151	123	114	430	230	240	80	260	270	360	190	96	52	210	40	<10	20	60	150	60	110	90
Lead	µg/L	0.087	0.199 DTC	<0.05	0.06	<0.05	0.07	<0.05	0.06	0.08	<0.05	<0.05	0.104	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	0.43	0.12	<0.05	<0.05
Lithium	µg/L	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	5.89	6.29	6.26	8.16	8.73	9.86	2.72	4.32	3.93	6.5	6.83	5.38	5.45	6.32	6.03	7.47	6.42	4.74	4.21	4.2	4.64	5.12
Manganese	µg/L	15.7	15.4	15	38.7	38.9	60.4	3.4	22.2	39	25.3	45.1	21.7	12.9	21.4	35.1	10.2	16.3	16.1	4.4	1	14.6	3.2
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.107	0.085	0.119	0.07	0.08	<0.05	0.09	0.09	0.1	0.11	0.09	0.071	0.136	0.08	0.11	0.12	0.18	0.09	0.41	0.1	0.16	0.12
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.9	1.1	1.3	1	<0.5	<0.5	<0.5	<0.5	0.7	0.6	0.6	0.7	1	0.8	0.6
Phosphorus	µg/L	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.380	0.326	0.327	0.42	0.48	0.57	0.37	0.18	0.14	0.19	0.3	0.416	0.420	0.53	0.54	0.63	0.61	0.56	0.53	0.52	0.51	0.44
Rubidium	µg/L	1	0.8	0.79	1	1.2	1.3	1.1	0.6	0.5	0.7	0.9	1.09	1.04	1.3	1.4	1.5	1.5	1.3	1.3	1.3	1.4	1.3
Selenium	µg/L	0.051	<0.05	0.053	0.15	0.39	<0.05	0.08	0.07	<0.05	0.07	0.1	0.064	0.052	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	0.13	<0.05
Silicon	µg/L	3,250	3,020	3,060	4,300	4,770	5,670	1,110	1,280	-	2,390	2,040	2,720	2,660	3,090	3,050	3,880	3,530	2,280	1,640	-	1,820	1,540
Silicon	mg/L	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	1.23	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	6.53	6.26	6.24	5.6	4.83	5.77	2.24	3.09	2.77	3.94	4.71	2.43	2.10	2.38	2.23	2.77	2.46	1.82	1.82	1.68	1.95	1.76
Strontium	µg/L	40	42.3	42.4	42	45.3	47.8	14.6	25.7	25.1	29.9	34.8	26.8	27.1	27.6	30.8	33.5	31.5	21	20.6	18.2	17.7	18.2
Sulfur	µg/L	1,010	1,210	1,130	1,100	800	1,700	600	3,700	<500	1,100	<500	<500	<500	<500	<500	1,300	600	1,200	3,200	1,400	2,300	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	0.3
Titanium	µg/L	<0.3	<0.3	<0.3	1.2	1.1	1.1	0.6	0.6	0.7	0.8	0.5	0.46	<0.3	0.8	0.8	0.7	0.7	0.8	0.8	0.6	0.7	0.8
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.051	0.057	0.056	0.05	0.07	0.07	0.01	0.02	0.02	0.03	0.06	0.089	0.102	0.12	0.16	0.17	0.15	0.08	0.06	0.07	0.07	0.08
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7
Zinc	µg/L	<1	<1	<1	1	<1	1	2	2	1	<1	<1	<1	<1	<1	<1	<1	4	<1	3	2	<1	1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																							
Aluminum	µg/L	11.4	9.9	9.4	13	17	11	40	30	27	14	7	36.7	33.3	20	20	24	23	208	11	80	44	33
Antimony	µg/L	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	32	22.1	22.5	12.1	12.4	12.5	14.5	37.4	38.6	62.5	36.1	5.45	4.33	5.9	5.7	6.2	6.9	3	3.5	5.3	8.6	6.9
Barium	µg/L	7.97	7.31	7.3	9.8	10.1	10.2	5	7.7	7.5	8.6	10	7.89	7.4	8.8	9	10.5	10.8	8.3	7.4	7.6	7.1	7.2
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	0.007	0.006	0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.007	0.005	<0.005	0.01	<0.005	<0.005	<0.005	<0.005
Calcium	mg/L	32.9	33.2	33.1	42	49.9	56.3	14.1	23.3	23.7	29.3	37.8	26.4	27.0	30.4	28.4	37.5	34.1	24.5	23.8	22.2	23.4	25.1
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.18	0.14	0.15	0.4	0.3	0.3	0.6	0.6	0.9	0.5	0.5	0.16	0.15	0.2	0.3	0.2	0.2	1	0.5	0.8	0.5	0.4
Cobalt	µg/L	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.2	0.1	<0.1
Copper	µg/L	0.5	<0.5	<0.5	0.8	0.6	1.5	0.7	1	0.9	0.9	0.6	<0.5	0.56	0.8	0.9	1	1	1.1	1.4	9.5	0.6	1
Iron	µg/L	269	233	231	550	430	670	170	340	420	500	430	186	185	300	120	190	170	410	110	270	250	190
Lead	µg/L	0.064	<0.05	<0.05	0.36	0.06	0.08	0.08	0.14	0.14	0.15	0.1	<0.05	<0.05	0.06	0.07	<0.05	0.06	0.2	0.1	0.11	0.05	0.08
Lithium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1
Magnesium	mg/L	6.10	6.40	6.65	8.11	8.89	8.88	2.97	4.16	4.1	5.1	6.82	5.23	5.33	6.37	5.72	7.89	6.8	5.44	5.23	4.26	4.2	4.81
Manganese	µg/L	23.4	20.1	19.7	37.9	41.3	59.6	7.5	44	54.5	37.9	53	32.4	28	24.1	39.2	29.3	27.2	30.9	4.1	18.8	37	10.3
Mercury	µg/L	-	-	-	0.001	0.002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	0.0004	0.0005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.139	0.091	0.102	0.08	0.07	0.08	0.14	0.25	0.16	0.12	0.12	0.089	0.073	0.09	0.1	0.15	0.11	0.11	0.12	0.18	0.15	0.11
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.6	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.8	3.2	<0.5	<0.5
Phosphorus	µg/L	<30	<30	<30	-	<50	50	-	<50	<50	<50	<50	<30	<30	-	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.403	0.326	0.339	0.43	0.5	0.52	0.41	0.2	0.16	0.18	0.31	0.378	0.427	0.55	0.5	0.69	0.64	0.62	0.6	0.53	0.51	0.4
Rubidium	µg/L	1.04	0.83	0.8	1.1	1.2	1.2	1.2	0.7	0.5	0.7	1	1.09	1.06	1.4	1.3	1.6	1.6	1.6	1.4	1.5	1.5	1.3
Selenium	µg/L	0.108	0.061	0.057	<0.05	0.1	<0.05	0.09	0.14	0.07	<0.05	0.15	0.062	0.053	0.08	0.13	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	0.1
Silicon	µg/L	3,160	3,040	3,100	4,200	4,930	5,070	1,530	1,430	-	2,260	2,080	2,800	2,930	3,220	2,930	4,220	3,800	2,900	1,790	-	2,090	1,490
Silicon	mg/L	-	-	-	-	-	-	-	-	1.76	-	-	-	-	-	-	-	-	-	-	1.65	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.04	0.05
Sodium	mg/L	6.51	6.29	6.50	5.55	4.9	5.35	2.36	2.97	3.06	3.37	5.29	2.04	2.07	2.39	2.16	2.88	2.33	1.95	2.28	1.66	1.9	1.78
Strontium	µg/L	43.3	41.3	42.5	43.5	44.9	45.8	15.2	27	25.3	32.4	33.8	26.3	28	28.5	30	34.5	33.5	22.3	20.5	18.6	17	17.3
Sulfur	µg/L	1,180	1,570	1,560	1,200	1,100	1,000	1,500	900	600	<500	<500	<500	<500	<500	<500	1,900	900	1,500	2,500	1,600	700	<500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.6
Titanium	µg/L	<0.3	<0.3	<0.3	1.5	1.6	1.3	1.2	1.3	2	1.2	0.8	1.18	1.24	1.6	1.4	1.7	1.9	10.7	0.7	4.3	2.4	2
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.052	0.057	0.057	0.06	0.06	0.07	0.01	0.02	0.02	0.03	0.07	0.089	0.1	0.14	0.15	0.18	0.17	0.1	0.05	0.07	0.07	0.09
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<3	1	1	<1	2	3	2	1	2	<3	<3	<1	<1	<1	1	2	4	<1	<1	8
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		39												40											
Sample Date		21-Oct-21	10-Nov-21	11-Jan-22	9-Feb-22	8-Mar-22	4-Apr-22	10-May-22	28-Jun-22	18-Jul-22	18-Jul-22	11-Aug-22	6-Sep-22	20-Oct-21	9-Nov-21	11-Jan-22	1-Feb-22	2-Mar-22	5-Apr-22	11-May-22	11-May-22	22-Jun-22	12-Jul-22	3-Aug-22	7-Sep-22
Sample ID		39	39	39	39	39	39	39	39	39	Duplicate 2	39	39	40	40	40	40	40	40	40	Duplicate2	40	40	40	40
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2661849	452852	454983	457037	459000	462464	467957	470954	470954	473463	475972	L2654108	L2661574	452852	454370	456456	459163	462595	462595	467331	469370	472528	476124
Laboratory Sample ID		L2654721-5	L2661849-6	1720822	1728239	1735002	1741312	1752554	1771772	1778757	1778759	1788046	1796477	L2654108-4	L2661574-4	1720823	1726173	1733148	1741854	1753067	1753068	1769689	1776567	1784518	1796952
Sample Type	Units										Field Duplicate										Field Duplicate				
Field Parameters																									
Dissolved oxygen, Field	mg/L	8.74	11.08	-	-	-	-	-	-	-	-	-	-	10.20	12.67	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	455.0	469.1	-	-	-	-	-	-	-	-	-	-	224.3	249.6	-	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.64	7.86	7.25	7.33	7.46	7.25	7.17	7.31	7.21	-	7.99	7.99	7.95	7.86	7.39	7.1	7.11	6.99	6.92	-	6.41	7.56	7.85	8.04
Temperature, Field	deg C	10.1	4.8	1.6	1.4	2.6	2.3	5.8	18.3	13.6	-	21.2	18.3	10.1	3.8	1.3	1.9	2.7	1.7	6.5	-	20.2	20.6	19.7	18
Turbidity, Field	NTU	2.59	0.86	-	-	-	-	-	-	-	-	-	-	3.02	2.28	-	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	<2.0	<2.0	13	5	11	11	9	6	5	3	13	5	2.0	2.2	5	5	7	4	5	5	2	7	7	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	171	171	173	172	183	193	113	136	151	152	137	155	89.7	91.4	109	119	121	124	30	30	64	67	51	59
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	1	<1	1	<1	<1	1	2	<1	2	<2.0	<2.0	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.00563	0.0123	0.00632	0.011	0.00347	0.00913	0.0132	0.0191	0.00661	0.0182	<2.0	<2.0	0.00646	0.00872	0.00479	0.017	0.00105	0.00132	0.00872	0.00295	0.0102	0.0115
Alkalinity, Total (as CaCO3)	mg/L	171	171	174	173	184	194	113	137	152	154	138	157	89.7	91.4	109	120	121	125	30	30	64	67	51	60
Ammonia (as N)	mg/L	0.0305	0.0530	0.06	0.07	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0125	0.0104	0.06	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	-	<0.002	-	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	50.5	42	40	39.9	34.9	37.5	42.7	39.4	-	-	-	-	-	-	3.6	4.8	4.9	9.4	9.7	9.4	12.2
Chlorophyll a	µg/L	-	-	-	-	-	-	<0.5	-	-	107	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	21.1	19.2	18.4	17.8	15	16.4	58.8	64.6	63.9	58.8	49.6	37.8	30.9	28.5	45.6	39.7	44	46.5	106	101	121	105	85.1	58.3
Cyanide	mg/L	<0.0020	<0.0020	0.002	0.004	0.003	<0.002	<0.002	<0.002	0.004	0.003	<0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	10.5	10.3	9.4	7.9	7.3	7.3	11.6	12.2	6	6.4	7.1	10.9	12.8	12.6	16.5	15.1	14.4	11.8	18.1	17.9	18.4	18.6	17.3	17.6
Electrical Conductivity, Lab	µS/cm	467	473	489	456	477	494	325	351	393	406	409	422	229	247	263	284	303	307	80	84	162	170	80	107
Fluoride	mg/L	-	-	-	-	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	169	176	193	183	224	226	122	137	166	160	165	163	95.2	108	123	131	158	136	39.1	38.9	69.3	79.4	87.5	90.8
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	<0.020	0.08	0.17	0.13	0.13	0.08	0.08	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	8.08	8.06	7.52	7.86	7.57	7.81	7.31	7.73	7.89	8.05	7.59	8.03	7.87	7.86	7.58	7.71	7.45	8	6.79	6.89	7.71	7.24	7.78	7.83
Phaeophytin A	µg/L	-	-	-	-	-	-	-	<0.5	-	-	359	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0077	0.0063	0.165	0.002	<0.001	0.003	<0.001	<0.001	0.007	0.011	0.043	0.007	0.0226	0.0218	<0.001	0.012	0.017	0.011	0.009	0.01	0.019	0.023	0.016	0.029
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.36	1.41	2	1.7	2.4	2.4	2.4	2	2.4	2.6	1.9	2	12.3	16.6	9.4	9.2	5.6	3.1	2.4	2.5	8	4.4	5	7.9
Total Dissolved Solids	mg/L	261	257	3,540	150	235	235	280	280	240	245	255	295	142	166	280	215	205	105	125	95	115	165	135	180
Total Kjeldahl Nitrogen	mg/L	0.430	0.436	0.36	0.43	0.31	0.3	3.23	0.59	0.58	0.59	<0.04	<1	0.648	0.600	0.97	0.57	0.55	0.46	0.67	0.57	<0.04	3.77	0.24	<1
Total Organic Carbon	mg/L	11.5	11.3	9.4	7.9	7.4	6	11.8	12.7	12.8	12.3	12.8	11.3	12.9	12.7	16.6	14.4	13.9	11.9	17.1	17.2	18.4	20.1	18.4	17.8
Total Suspended Solids	mg/L	<3.0	<3.0	<2.9	3	1	1	<0.67	1	<0.67	1.7	1.7	1.7	3.3	<3.0	<2	<2	<0.67	1	<0.67	<0.67	5.5	4.3	3.3	4.3
Turbidity, Lab	NTU	1.64	0.97	0.5	0.5	0.9	0.8	1.7	1.8	0.8	0.6	0.6	0.6	3.64	2.91	1.3	1.9	1.8	1	1.2	1.4	3.2	2.4	3.4	3.8
Speciated Metals																									
Methyl Mercury	µg/L	0.000045	0.000044	<0.00002	<0.00002	0.00004	0.00007	0.00006	0.00003	0.00015		0.00002	0.00005	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		39												40											
Sample Date		21-Oct-21	10-Nov-21	11-Jan-22	9-Feb-22	8-Mar-22	4-Apr-22	10-May-22	28-Jun-22	18-Jul-22	18-Jul-22	11-Aug-22	6-Sep-22	20-Oct-21	9-Nov-21	11-Jan-22	1-Feb-22	2-Mar-22	5-Apr-22	11-May-22	11-May-22	22-Jun-22	12-Jul-22	3-Aug-22	7-Sep-22
Sample ID		39	39	39	39	39	39	39	39	39	Duplicate 2	39	39	40	40	40	40	40	40	40	Duplicate2	40	40	40	40
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2654721	L2661849	452852	454983	457037	459000	462464	467957	470954	470954	473463	475972	L2654108	L2661574	452852	454370	456456	459163	462595	462595	467331	469370	472528	476124
Laboratory Sample ID		L2654721-5	L2661849-6	1720822	1728239	1735002	1741312	1752554	1771772	1778757	1778759	1788046	1796477	L2654108-4	L2661574-4	1720823	1726173	1733148	1741854	1753067	1753068	1769689	1776567	1784518	1796952
Sample Type	Units										Field Duplicate										Field Duplicate				
Metals, Dissolved																									
Aluminum	µg/L	<1	<1	2	2	2	1	8	4	2	3	1	3	4.5	2	4	4	5	<1	16	17	11	6	4	5
Antimony	µg/L	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.89	0.86	0.8	0.7	0.7	0.6	<0.1	<0.1	0.3	0.3	0.3	0.6
Arsenic	µg/L	5.75	4.8	4.5	3.4	6	2.5	4.4	9.7	10.2	10.4	11.3	10.1	46.1	43.8	25	19.8	16.5	15	10.9	11	41.1	45.6	75.5	115
Barium	µg/L	9.96	8.91	9.8	9.5	11	11.8	8.2	8.8	9.1	9.1	10.1	11	7.72	7.45	9.2	9.7	11	10.4	3.5	3.5	6.3	7	9.3	8.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	0.006	<0.005	0.01	0.01	0.01	0.01	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	0.007	0.007	<0.005	0.01	0.007	0.008
Calcium	mg/L	51.1	53.0	55.5	55.8	64.2	62.9	37.4	44.2	47	48.6	55.8	49.4	28.2	32.2	35.5	40.7	45.7	37.9	10.6	10.2	20.4	23.4	27	30.7
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Chromium	µg/L	0.12	<0.1	<0.1	0.3	0.6	0.8	0.6	0.5	0.9	0.8	0.6	1.9	0.11	0.25	<0.1	0.3	0.2	0.2	0.3	0.4	1.1	0.5	0.5	1.7
Cobalt	µg/L	<0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	0.1	0.2	0.1	0.1
Copper	µg/L	<0.2	<0.2	<0.2	0.8	0.9	0.5	1.4	0.9	0.3	0.3	0.7	0.4	2.72	3.11	1.2	1.9	2.1	2.2	1	1	3.2	2.6	2.8	3.3
Iron	µg/L	37	15	370	60	<10	<10	60	120	80	90	80	70	58	26	280	90	120	70	70	100	230	130	100	120
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.07	<0.05	<0.05	<0.05	<0.05	0.054	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.06	0.1	0.12	0.07	0.06
Lithium	µg/L	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	10.1	10.6	11.6	10.3	12.6	12.2	7.2	8.01	8.84	9.05	8.99	9.26	5.98	6.77	8.04	8.02	9.21	7.65	2.17	2.31	4.54	4.55	5.83	6.31
Manganese	µg/L	39.8	8.96	49.6	73	95.9	191	76.4	13.5	13.9	14	13.6	0.8	3.31	3.11	19.7	27.2	15.4	49.8	5.4	5.5	6	1.9	2	5.4
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.131	0.119	0.13	0.15	0.19	0.14	0.18	0.31	0.23	0.24	0.21	0.21	0.097	0.133	0.09	0.12	<0.05	0.07	0.39	0.16	0.09	0.19	0.11	0.1
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	0.7	0.9	0.9	1	0.7	0.84	1.07	0.8	1	1.1	0.9	<0.5	<0.5	1.4	1.3	1.5	1.5
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.626	0.597	0.64	0.6	0.7	0.66	0.61	0.52	0.42	0.44	0.55	0.52	0.726	0.856	0.63	0.63	0.64	0.55	0.33	0.34	0.57	0.36	0.38	0.58
Rubidium	µg/L	1.73	1.64	1.8	1.7	2	1.9	1.4	1.4	1.4	1.4	1.5	1.7	1.27	1.27	1.3	1.2	1.2	1.3	0.9	0.9	1.2	0.9	1	1.4
Selenium	µg/L	0.051	<0.05	0.08	0.19	0.07	<0.05	0.2	0.27	0.14	<0.05	0.17	0.15	0.072	0.06	0.09	0.06	0.16	0.06	0.06	<0.05	0.12	0.22	0.16	0.19
Silicon	µg/L	3,340	3,440	4,320	3,850	4,850	5,140	2,610	2,250	-	-	2,590	2,290	3,040	2,830	4,250	4,440	5,500	4,290	1,080	1,130	1,100	-	1,690	1,800
Silicon	mg/L	-	-	-	-	-	-	-	-	2.26	2.31	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	26.9	28.3	27.4	20	23	20.2	18	22.5	19.5	20	22.7	19.7	7.44	8.58	8.14	7.93	9.05	8.09	2.3	2.4	5.52	5.55	7.06	7.45
Strontium	µg/L	58.3	58.1	57.3	52.5	59.7	55.6	35.6	41.4	46.6	47.5	45.5	41.6	49.9	55.2	48.1	51.7	50.3	48	12.3	12.7	31.8	32.5	31.1	34.8
Sulfur	µg/L	<500	<500	<500	<500	1,100	600	1,400	1,900	<500	600	2,200	<500	4,240	5,250	2,600	2,600	4,000	3,200	<500	<500	5,400	1,500	2,400	2,200
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.3
Titanium	µg/L	<0.3	<0.3	1	1.1	0.9	0.8	0.9	0.6	0.6	0.7	1	0.6	<0.3	<0.3	1.1	1.3	1	0.9	0.9	0.5	0.6	0.4	0.5	0.6
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.21	0.16	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2
Uranium	µg/L	0.094	0.104	0.11	0.09	0.14	0.12	0.06	0.06	0.06	0.06	0.06	0.1	0.064	0.073	0.05	0.06	0.05	0.04	<0.01	<0.01	0.03	0.02	0.02	0.05
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.7
Zinc	µg/L	<1	<1	<1	2	<1	<1	2	<1	<1	<1	<1	2	<1	<1	<1	1	3	2	1	1	<1	3	1	<1
Zirconium	µg/L	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	3.7	3.8	5	6	4	3	44	7	5	5	4	5	56.2	47	9	11	9	4	35	35	74	43	35	30
Antimony	µg/L	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.93	0.88	0.7	0.7	0.6	0.6	0.1	<0.1	0.3	0.3	0.3	0.5
Arsenic	µg/L	8.23	5.99	4.1	3.6	3.8	3.2	4.7	8.7	8.5	8.6	11.6	8.8	53.4	51.9	24.1	21.7	18.6	15.8	11.5	11.6	44.2	45.3	77.3	98.7
Barium	µg/L	10.8	10	10.1	9.8	11.2	11.7	8.2	8.5	9	9.1	10	11.3	8.79	8.58	9.6	10.3	10.3	10.3	3.8	3.8	8.6	7.4	7.8	8.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.01	0.006	0.006	<0.005	0.007	0.01	0.01	0.01	0.008	<0.005	0.0051	0.0051	<0.005	0.01	0.005	<0.005	0.009	0.006	<0.005	0.01	0.01	0.005
Calcium	mg/L	52.5	53.2	59.6	57.4	69.4	66.5	37.4	43.7	48.1	50.6	52	55.2	30.3	31.5	37.2	54.8	43.6	39.5	11.7	11.6	20.6	21.6	23.5	31.5
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	0.01
Chromium	µg/L	<0.1	<0.1	0.2	0.4	0.2	<0.1	0.6	0.7	0.5	0.4	0.6	0.3	0.38	0.3	0.2	0.2	0.3	0.2	0.5	0.6	0.5	0.7	0.6	0.8
Cobalt	µg/L	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.15	0.14	0.1	0.1	0.1	0.1	<0.1	0.1	0.2	0.2	0.2	0.2
Copper	µg/L	<0.5	<0.5	0.5	1.3	0.9	0.5	0.9	1.7	0.6	1.6	0.8	0.6	3.36	3.88	2.1	2.4	2.2	2.2	1.5	1.3	3.6	2.6	2.9	4
Iron	µg/L	225	114	420	190	160	180	230	150	180	180	170	140	281	214	360	250	260	170	170	170	380	270	310	300
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.06	<0.05	<0.05	<0.05	<0.05	0.253	0.171	0.06	0.11	0.06	0.09	0.11	0.12	0.29	0.21	0.17	0.18
Lithium	µg/L	<1	<1	<1	1	1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	9.67	10.1	11.8	11.6	14	12.5	7.61	7.76	9.2	9.42	8.8	9.98	6.34	7.29	7.84	9.07	8.86	7.66	2.48	2.54	4.18	4.26	4.77	6.4
Manganese	µg/L	108	41.3	66.7	79.5	99.3	213	111	13.8	29.9	29.4	34.3	21.2	13.2	8.78	20.7	31.6	16.1	52.8	8.7	8.8	11.4	13.3	14.1	17.8
Mercury	µg/L	0.00050	0.00036	0.0006	0.001	0.003	0.0006	0.002	0.002	0.002	-	0.001	0.001	-	-	<0.1	0.001	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.129	0.132	0.15	0.13	0.2	0.16	0.19	0.29	0.25	0.31	0.18	0.24	0.121	0.119	0.1	0.13	0.12	0.08	0.2	0.11	0.1	0.13	0.49	0.14
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.6	<0.5	0.7	<0.5	1.32	1.28	<0.5	0.7	0.6	0.5	<0.5	<0.5	1	1.1	0.8	1.4
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	-	<50	<50	<50	-	-	<30	<30	<50	<50	<50	<50	50	<50	<50	<50	50	<50
Potassium	mg/L	0.570	0.601	0.63	0.65	0.73	0.66	0.64	0.5	0.5	0.52	0.48	0.55	0.779	0.900	0.63	0.69	0.67	0.57	0.37	0.37	0.56	0.35	0.36	0.59
Rubidium	µg/L	1.68	1.64	1.9	1.8	2.1	1.9	1.5	1.4	1.4	1.4	1.6	1.8	1.43	1.47	1.3	1.3	1.2	1.4	1	1	1.3	1	1.1	1.5
Selenium	µg/L	0.055	<0.05	<0.05	0.21	<0.05	0.24	0.33	0.44	0.09	<0.05	0.48	0.17	0.091	0.076	0.14	0.16	0.06	0.1	<0.05	0.19	0.09	0.26	<0.05	0.17
Silicon	µg/L	3,500	3,540	4,230	4,520	5,130	5,170	2,950	2,390	-	-	2,700	2,570	3,100	3,030	4,180	4,870	5,180	4,220	1,540	1,580	1,280	-	1,770	1,840
Silicon	mg/L	-	-	-	-	-	-	-	-	2.56	2.6	-	-	-	-	-	-	-	-	-	-	-	1.39	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.02	<0.01	0.02	0.03	0.04
Sodium	mg/L	26.3	27.5	26.6	23	25.3	21.2	18.9	21.4	21.3	21.6	21.6	22.7	7.38	8.80	7.94	8.78	8.56	8.07	2.7	2.68	4.97	5.51	6.16	7.72
Strontium	µg/L	59	61.2	58.5	53.9	62.7	55.1	35.8	46.7	46.9	47.6	45.5	44.3	54.8	58.2	49.2	54.4	51.2	49.5	14.4	13.9	33.4	31.2	34.3	35.4
Sulfur	µg/L	<500	<500	<500	700	1,800	500	1,200	2,100	1,400	1,600	2,800	500	3,950	6,010	2,500	3,400	3,400	3,300	800	1,000	2,100	1,800	1,900	2,400
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Titanium	µg/L	<0.3	<0.3	1.2	1.4	1.1	0.9	2.8	0.9	0.9	1.1	1.2	0.9	1.68	1.41	1.3	1.2	1.3	1.1	1.3	1.2	3.5	1.5	1.6	1.7
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.31	0.24	0.2	0.1	0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	0.3
Uranium	µg/L	0.095	0.102	0.11	0.1	0.13	0.13	0.06	0.06	0.07	0.07	0.07	0.1	0.063	0.082	0.05	0.06	0.05	0.04	0.01	0.01	0.03	0.02	0.03	0.05
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
Zinc	µg/L	<3	<3	<1	3	2	<1	1	1	<1	<1	2	3	<3	<3	<1	2	1	2	3	1	2	2	1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		46													47									
Sample Date		19-Oct-21	3-Nov-21	3-Nov-21	11-Jan-22	8-Feb-22	8-Mar-22	12-Apr-22	3-May-22	27-Jun-22	12-Jul-22	13-Jul-22	2-Aug-22	6-Sep-22	19-Oct-21	9-Nov-21	12-Jan-22	2-Feb-22	3-Mar-22	6-Apr-22	16-May-22	27-Jun-22	12-Jul-22	4-Aug-22	7-Sep-22
Sample ID		46	46	DUPLICATE 2	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	47	47	47	47
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	L2659359	452852	454923	456835	459846	461722	467801	469370	470538	472536	475972	L2653518	L2661577	452991	454449	456529	459292	462997	467801	469370	472756	476124
Laboratory Sample ID		L2653518-2	L2659359-1	L2659359-2	1720818	1727963	1734432	1743784	1749972	1771228	1776569	1777270	1784530	1796468	L2653518-5	L2661577-8	1721232	1726472	1733447	1742228	1754545	1771230	1776572	1785260	1796947
Sample Type	Units			Field Duplicate																					
Field Parameters																									
Dissolved oxygen, Field	mg/L	10.01	11.95	-	-	-	-	-	-	-	-	-	-	-	10.02	12.16	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	180.3	181.5	-	-	-	-	-	-	-	-	-	-	-	174.4	182.4	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.85	7.91	7.91	7.72	7.33	7.68	7.72	7.16	7.88	7.74	-	7.76	8.2	8.05	7.86	7.83	7.84	7.3	7.05	7.17	7.74	7.77	8.05	8.04
Temperature, Field	deg C	11.2	4.1	4.1	0.4	0.1	0.5	0.1	2.5	18.8	20.1	-	19.7	17.4	12.1	4.9	1.4	0.2	2.8	1.8	6.9	19	20.7	20.8	18
Turbidity, Field	NTU	3.27	1.60	-	-	-	-	-	-	-	-	-	-	-	2.91	1.70	-	-	-	-	-	-	-	-	-
General Chemistry																									
Acidity as CaCO3	mg/L	<2.0	2.8	2.2	4	4	8	5	6	5	6	-	6	4	<2.0	<2.0	3	3	5	7	5	3	5	2	4
Alkalinity, Bicarbonate (as CaCO3)	mg/L	100	105	105	112	118	117	118	64	74	81	-	71	78	91.7	90.0	103	110	111	117	49	70	73	75	47
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<2.0	0.00872	0.01	0.00742	0.00833	0.00257	0.00563	0.00525	-	0.0123	0.012	<2.0	<2.0	0.0118	0.0135	0.00795	0.00576	0.0024	0.00814	0.00479	0.0135	0.0126
Alkalinity, Total (as CaCO3)	mg/L	100	105	105	113	119	118	119	64	74	81	-	71	79	91.7	90.0	104	111	112	117	49	70	74	76	47
Ammonia (as N)	mg/L	0.0054	0.0100	0.0076	0.05	0.04	<0.01	0.1	0.02	<0.01	<0.01	-	<0.01	0.01	0.0156	0.0072	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.02
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	-	0.8	0.8	12.6	0.5	0.7	-	0.4	1.1	-	-	-	-	-	1.6	3.9	1.6	2.3	1.2	3.3
Chlorophyll a	µg/L	2.05	-	-	-	-	-	-	-	<0.5	-	-	167	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	19.4	20.1	19.4	22.6	20.5	30	26.6	100	48.2	53.5	-	45	42.3	22.7	21.7	33.6	25.5	26.6	29.2	84.1	69	58.5	51.1	48.3
Cyanide	mg/L	<0.0020	<0.0020	<0.0020	0.003	0.004	<0.002	0.005	<0.002	<0.002	<0.002	-	0.003	0.004	<0.0020	<0.0020	<0.002	0.002	<0.002	0.003	0.004	<0.002	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.0020	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	-	0.002	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.002	<0.001	0.004	0.002	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	11.0	10.2	9.52	11.2	10.3	9.5	9.2	17.7	10.1	12.2	-	11.3	11.7	12.0	11.5	9.4	10.4	10.8	10.5	13.3	11.4	13.2	13.1	13.3
Electrical Conductivity, Lab	µS/cm	185	193	194	210	222	226	226	171	146	152	-	166	175	179	187	216	216	233	234	124	139	145	163	23
Fluoride	mg/L	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	-	-	-	-	<0.05	0.07	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	92.4	102	101	115	124	130	111	78.5	79.3	84.6	-	85.9	85.6	86.3	91.1	109	120	133	124	61.4	68.9	77.9	82.3	76
Nitrate (as N)	mg/L	<0.020	<0.020	<0.020	0.05	0.07	0.14	0.2	0.11	<0.02	<0.02	-	<0.02	<0.02	<0.020	<0.020	<0.02	<0.02	0.09	0.17	0.08	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.74	8.03	8.04	7.71	7.77	7.64	7.69	7.18	7.52	7.49	-	7.86	7.85	7.71	7.91	7.84	7.9	7.67	7.53	7.15	7.68	7.45	7.9	7.87
Phaeophytin A	µg/L	0.88	-	-	-	-	-	-	-	<0.5	-	-	466	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0134	0.0087	0.0093	<0.001	0.005	0.004	0.001	<0.001	0.025	0.011	-	<0.001	0.028	0.0143	0.0132	0.008	0.004	0.015	0.005	0.006	0.013	0.009	0.05	0.015
Radium-226	Bq/L	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	0.005	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.69	1.87	1.82	1.6	1.5	1.7	1.6	2	1.2	1.3	-	0.6	1.9	2.81	3.48	4	3.7	3.6	1.7	4.8	2.2	2.7	1.2	3.7
Total Dissolved Solids	mg/L	117	125	119	90	85	90	85	95	135	145	-	135	120	116	113	140	175	140	170	135	110	135	105	130
Total Kjeldahl Nitrogen	mg/L	0.341	0.378	0.377	0.59	0.73	0.33	0.52	0.75	<0.04	3.18	-	<0.04	<1	0.406	0.370	0.43	0.42	0.31	0.46	0.67	<0.04	3.24	<0.04	<1
Total Organic Carbon	mg/L	11.9	9.82	10.1	11.3	10.3	9.2	9.5	18.3	11.5	12.8	-	12.4	12.3	12.5	11.7	9.5	10	10.1	10.3	13.6	12.3	13.4	13.1	14.1
Total Suspended Solids	mg/L	<3.0	3.0	<3.0	<2	4	1.3	<0.67	1.7	2.5	3.7	-	2.7	3	<3.0	3.4	2	2	2	2	<1.3	2.5	2	3	2.3
Turbidity, Lab	NTU	2.53	1.99	1.78	0.7	0.9	0.9	1	1.1	0.6	1.7	-	2.4	1.3	1.96	1.88	0.8	0.5	0.6	1	1.5	1.3	1.5	2	1.4
Speciated Metals																									
Methyl Mercury	µg/L	0.000040	0.000028	0.000067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								46											47					
Sample Date		19-Oct-21	3-Nov-21	3-Nov-21	11-Jan-22	8-Feb-22	8-Mar-22	12-Apr-22	3-May-22	27-Jun-22	12-Jul-22	13-Jul-22	2-Aug-22	6-Sep-22	19-Oct-21	9-Nov-21	12-Jan-22	2-Feb-22	3-Mar-22	6-Apr-22	16-May-22	27-Jun-22	12-Jul-22	4-Aug-22	7-Sep-22
Sample ID		46	46	DUPLICATE 2	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47	47	47	47	47	47	47
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	L2659359	452852	454923	456835	459846	461722	467801	469370	470538	472536	475972	L2653518	L2661577	452991	454449	456529	459292	462997	467801	469370	472756	476124
Laboratory Sample ID		L2653518-2	L2659359-1	L2659359-2	1720818	1727963	1734432	1743784	1749972	1771228	1776569	1777270	1784530	1796468	L2653518-5	L2661577-8	1721232	1726472	1733447	1742228	1754545	1771230	1776572	1785260	1796947
Sample Type	Units			Field Duplicate																					
Metals, Dissolved																									
Aluminum	µg/L	2.5	1.8	1.7	3	3	3	2	12	7	4	-	5	4	2.7	1.9	2	2	3	3	21	7	5	3	3
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.21	0.21	0.2	0.2	0.4	<0.1	<0.1	<0.1	<0.1	0.1	0.2
Arsenic	µg/L	4.65	3.23	3.26	1	0.9	0.9	0.8	21.7	3.8	5.3	-	6.2	7.6	19.1	17.1	10.9	8.7	6.1	3.2	4.9	8.1	12.7	16.5	27.2
Barium	µg/L	10.9	11.3	11.6	13.1	14.2	13.3	13	4.7	10.2	11.1	-	11.7	11.9	9.73	9.62	11.7	13.4	14.8	14.7	7.6	9.1	9.1	9.7	10.2
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	2	<2	<2	<2	<2	<2	<2	-	<2	<2	<10	<10	<2	<2	3	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.007	0.007	0.007	0.006	0.006	0.005	-	<0.005	0.01	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	0.009	<0.005	0.01	0.01	0.01
Calcium	mg/L	27.1	30.5	30.6	33.9	37.7	40.1	34	21.3	22.6	24.9	-	26.5	27.4	25.2	26.6	31.3	35.4	41.8	34.6	17.2	20.4	21.7	24.6	27.3
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.15	<0.1	0.12	<0.1	0.2	0.3	0.1	0.3	0.4	0.5	-	0.4	0.9	0.16	<0.1	<0.1	0.2	0.2	0.2	0.5	0.3	0.5	0.6	1.8
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.2	<0.1
Copper	µg/L	0.61	0.35	0.34	1.2	0.4	0.4	0.3	0.6	0.5	0.9	-	0.5	0.6	1.44	1.33	0.3	0.9	1.9	0.5	1.1	0.8	1.3	1.2	1.8
Iron	µg/L	24	26	25	230	<10	<10	<10	60	40	70	-	40	60	20	18	180	<10	20	10	70	40	80	70	60
Lead	µg/L	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.05	1.72	0.27	<0.05	0.07	<0.05	<0.05	0.05	0.17
Lithium	µg/L	<1	<1	1.1	1	<1	1	<1	<1	<1	<1	-	<1	<1	<1	<1	1	<1	1	1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.02	6.22	6.04	7.47	7.61	7.13	6.79	4.79	4.65	4.92	-	5.85	5.54	5.66	6.01	7.06	7.46	8.53	7.33	3.67	4.17	4.1	5.55	5.62
Manganese	µg/L	0.91	2.28	2.37	6.9	6.3	5.2	4.6	14.1	1	1.1	-	1.4	0.7	1.83	2.02	1.4	1.4	1.9	19.2	8.6	2.1	1.1	1.1	1.4
Mercury	µg/L	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.109	0.092	0.105	0.21	0.25	0.13	0.11	0.13	0.09	0.44	-	0.14	0.15	0.101	0.129	0.11	0.12	<0.05	0.17	0.09	0.09	0.45	0.1	0.16
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	-	0.9	0.8	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.8	0.7	0.9	0.9	0.9
Phosphorus	µg/L	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	-	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.782	0.875	0.872	0.86	0.9	0.82	0.79	0.83	0.66	0.73	-	0.79	0.72	0.635	0.667	0.93	1.01	1.08	0.78	0.65	0.62	0.63	0.73	0.74
Rubidium	µg/L	1.74	1.79	1.75	2.1	2.1	2	1.9	1.9	1.8	1.8	-	1.9	2.1	1.57	1.48	1.9	2	2	2	1.6	1.6	1.6	1.7	2
Selenium	µg/L	0.102	0.063	0.053	<0.05	0.17	<0.05	<0.05	0.26	0.1	<0.05	-	<0.05	0.16	0.072	0.058	0.05	0.12	0.32	0.08	<0.05	<0.05	<0.05	0.09	<0.05
Silicon	µg/L	2,750	2,930	2,850	3,700	3,940	3,820	3,650	2,250	1,740	-	-	2,020	1,540	2,550	2,220	2,950	3,470	4,190	4,280	1,640	1,560	-	1,640	1,700
Silicon	mg/L	-	-	-	-	-	-	-	-	-	1.67	-	-	-	-	-	-	-	-	-	-	-	1.33	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	1.48	1.41	1.38	0.87	0.86	0.88	0.84	6.37	0.71	0.68	-	1.09	1.03	2.35	2.55	2.28	2.03	2.1	1.28	2.09	1.19	1.5	2.26	2.3
Strontium	µg/L	28	28.3	28.1	31	31	31.2	30.7	23.9	21.7	22	-	18.9	19.4	30.7	32.7	32.4	33.5	34	33.1	19.5	21.4	23.6	20.5	21.9
Sulfur	µg/L	<500	850	830	<500	<500	2,000	<500	<500	800	<500	-	1,200	600	710	1,160	700	1,000	2,000	1,400	1,900	500	1,200	3,100	1,000
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Titanium	µg/L	<0.3	<0.3	<0.3	0.9	0.9	0.9	0.9	0.6	0.6	0.7	-	0.7	0.4	<0.3	<0.3	0.7	0.7	0.8	0.8	0.6	0.6	0.6	0.6	0.5
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.212	0.254	0.234	0.29	0.29	0.29	0.27	0.02	0.11	0.15	-	0.15	0.2	0.159	0.176	0.22	0.21	0.27	0.19	0.08	0.08	0.09	0.11	0.14
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8
Zinc	µg/L	<1	<1	<1	2	<1	<1	1	3	<1	2	-	<1	<1	<1	<1	1	<1	5	<1	1	<1	1	<1	3
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																									
Aluminum	µg/L	40.8	17.7	17.7	8	9	6	10	38	43	37	-	42	20	27.4	25.6	5	5	7	8	39	35	7	19	19
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.23	0.22	0.2	0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.3	0.1
Arsenic	µg/L	5.46	3.8	3.78	0.8	0.8	0.8	0.8	21.6	3.7	5	-	6.5	6.4	21.5	18.4	9.5	8.3	5.8	3.3	5.5	7.8	10.1	13.8	20.9
Barium	µg/L	12.3	11.8	11.8	13.1	13.5	13.6	13.2	5.3	10.3	11.4	-	11.8	12	10.8	10.1	11.9	13.2	13.5	14.3	7.8	9.3	9.5	10	11.4
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<10	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<10	<10	<2	<2	3	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	0.006	<0.005	0.006	0.01	-	0.005	0.006	<0.005	0.005	<0.005	<0.005	<0.005	0.005	0.006	0.006	0.009	<0.005	<0.005
Calcium	mg/L	29.8	30.0	29.4	35.1	35.4	39.1	32.4	23.6	22.1	22.8	-	23.8	27.9	27.1	27.7	33.2	36	34.8	35.3	18.7	20.2	21.8	23.9	25.5
Cesium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.21	0.17	0.36	<0.1	0.3	0.3	<0.1	0.4	0.4	0.6	-	0.5	0.5	0.19	0.17	0.2	0.3	0.4	0.3	0.6	0.4	0.6	0.6	0.6
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	-	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1
Copper	µg/L	0.55	<0.5	<0.5	2.6	0.4	0.4	0.3	0.7	0.6	0.8	-	0.8	1.5	1.67	1.59	1.7	1	1.3	0.4	0.8	1.1	1.5	1.4	1.7
Iron	µg/L	153	106	108	280	80	120	90	190	200	210	-	190	160	97	104	210	10	120	130	170	190	130	170	150
Lead	µg/L	0.086	<0.05	0.055	0.07	0.09	0.06	0.06	0.05	0.09	0.16	-	0.17	0.11	0.064	0.078	0.34	<0.05	1.35	<0.05	0.11	0.09	0.06	0.08	0.15
Lithium	µg/L	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.00	6.24	6.33	7.08	6.93	7.37	6.48	5.05	4.54	4.49	-	4.76	5.46	5.71	5.95	6.96	7.57	7.56	7.2	4.09	4.1	4.26	5.38	5.1
Manganese	µg/L	22.4	13.5	13.7	8.7	8.4	9.9	7.4	16.3	13.8	16.3	-	14.2	8.9	12.7	9.76	2.7	3.1	4.5	39.9	15.1	11.8	1.1	14.2	10.8
Mercury	µg/L	0.00064	-	-	<0.1	0.0008	<0.1	-	-	-	<0.1	-	-	-	-	-	0.0004	0.002	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/L	0.115	0.106	0.12	0.14	0.17	0.12	0.14	0.18	0.11	0.46	-	0.15	0.19	0.101	0.106	0.12	0.13	0.15	0.16	0.16	0.1	0.55	0.2	0.17
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	1	0.63	0.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5
Phosphorus	µg/L	<30	<30	<30	<50	<50	<50	<50	<50	<50	<50	-	<50	-	<30	<30	-	<50	<50	<50	-	<50	<50	<50	<50
Potassium	mg/L	0.817	0.803	0.824	0.8	0.83	0.86	0.74	0.91	0.66	0.63	-	0.65	0.75	0.679	0.678	0.89	1.02	1.05	0.76	0.67	0.61	0.68	0.72	0.69
Rubidium	µg/L	1.85	1.69	1.75	2	2	2	1.9	2.1	1.8	1.9	-	2.1	2.1	1.61	1.54	1.8	2	2	2	1.7	1.7	1.7	1.7	1.9
Selenium	µg/L	0.055	0.088	0.068	<0.05	0.05	<0.05	0.07	0.21	0.07	<0.05	-	<0.05	<0.05	0.087	0.07	0.06	<0.05	0.08	<0.05	<0.05	0.08	0.13	<0.05	0.15
Silicon	µg/L	3,060	3,100	3,070	3,440	3,380	4,010	3,600	2,780	2,020	-	-	2,020	1,770	2,610	2,300	2,950	3,570	4,030	4,310	2,110	1,820	-	1,960	1,660
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.06	-	-	-	-	-	-	-	-	-	-	-	1.62	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.14	<0.01	0.01	0.03	-	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.03	0.05
Sodium	mg/L	1.49	1.40	1.42	0.83	0.81	0.86	0.82	5.95	0.76	0.7	-	0.95	1.16	2.45	2.55	2.25	2.15	1.98	1.24	2.36	1.22	1.54	2.21	2.26
Strontium	µg/L	29.3	30.1	29.4	30	30.5	30.8	29.4	26.6	21	23.9	-	24.4	19.4	32	33.3	32.8	34	34.2	32.1	21	21.4	21.4	20.2	21
Sulfur	µg/L	680	<500	<500	<500	<500	1,900	<500	600	600	<500	-	<500	<500	1,080	1,540	600	1,300	1,900	1,400	2,500	500	1,300	1,300	700
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.4	0.3
Titanium	µg/L	1.44	<0.78 DM	0.65	1.1	3.9	1	1.2	1.8	2.1	1.7	-	2.1	1.2	0.83	0.92	1	0.9	1.1	1	1.4	1.7	0.8	1.1	1.3
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.236	0.245	0.245	0.3	0.29	0.3	0.26	0.02	0.12	0.15	-	0.16	0.21	0.16	0.187	0.24	0.25	0.25	0.21	0.09	0.09	0.11	0.12	0.14
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Zinc	µg/L	<3	<3	<3	<1	<1	<1	<1	3	<1	1	-	1	5	<3	<3	<1	<1	2	<1	<1	<1	3	<1	2
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location		49												52										
Sample Date		19-Oct-21	3-Nov-21	11-Jan-22	2-Feb-22	8-Mar-22	8-Mar-22	12-Apr-22	3-May-22	27-Jun-22	4-Jul-22	2-Aug-22	6-Sep-22	21-Oct-21	16-Nov-21	13-Jan-22	9-Feb-22	9-Mar-22	6-Apr-22	9-May-22	15-Jun-22	14-Jul-22	10-Aug-22	12-Sep-22
Sample ID		49	49	49	49	49	Duplicate2	49	49	49	49	49	49	52	52	52	52	52	52	52	52	52	52	52
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	452852	454449	456835	456835	459846	461722	467801	468667	472536	475972	L2654721	L2663658	452993	454983	457039	459292	462299	466598	470645	473345	476573
Laboratory Sample ID		L2653518-4	L2659359-3	1720819	1726473	1734429	1734430	1743785	1749973	1771231	1774125	1784532	1796466	L2654721-2	L2663658-1	1721241	1728240	1735006	1742235	1752060	1767101	1777716	1787507	1798957
Sample Type	Units						Field Duplicate																	
Field Parameters																								
Dissolved oxygen, Field	mg/L	9.99	12.01	-	-	-	-	-	-	-	-	-	-	11.12	12.44	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	180.3	178.4	-	-	-	-	-	-	-	-	-	-	187.5	207.0	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	7.98	8.04	7.79	7.46	7.7	-	7.39	6.4	7.85	7.69	7.74	8.07	7.69	8.09	7.68	7.13	7.66	7.43	7.24	8.11	7.66	8.06	7.94
Temperature, Field	deg C	11.2	3.8	1.5	1	2.5	-	0.4	1	18.8	19.3	19.9	17.6	6.9	3.1	0.4	1.2	0.2	1.1	5.1	21.7	23.7	22	19.2
Turbidity, Field	NTU	3.31	1.64	-	-	-	-	-	-	-	-	-	-	2.27	1.10	-	-	-	-	-	-	-	-	-
General Chemistry																								
Acidity as CaCO3	mg/L	<2.0	<2.0	4	3	8	8	5	3	<2	5	2	4	2.5	2.5	3	3	9	9	6	5	8	10	3
Alkalinity, Bicarbonate (as CaCO3)	mg/L	100	99.9	117	120	119	119	117	63	76	77	81	84	105	108	109	109	109	111	71	81	81	85	87
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.0102	0.0118	0.00872	0.00872	0.00617	0.00468	0.0118	0.00617	0.0126	0.0123	<2.0	<2.0	0.0112	0.0141	0.00661	0.00956	0.00417	0.00677	0.00381	0.00725	0.0135
Alkalinity, Total (as CaCO3)	mg/L	100	99.9	118	121	120	120	117	63	76	77	82	84	105	108	110	110	109	112	71	81	81	85	87
Ammonia (as N)	mg/L	0.0067	0.0062	0.03	0.05	<0.01	<0.01	<0.01	0.26	<0.01	<0.01	<0.01	<0.01	0.0422	0.0710	0.14	0.04	<0.01	0.05	0.31	0.01	<0.01	<0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.9	<0.5	1	1.1	1.2
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	30	30	30	38	38
Chloride	mg/L	-	-	-	-	0.6	0.8	0.8	3.5	0.6	0.6	0.6	1.2	-	-	-	-	0.8	0.7	0.5	0.5	0.4	0.5	0.6
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	19.6	20.3	22	20.5	27.8	50.6	34	42.8	78.9	55.8	44.7	32.1	22.4	18.9	18.5	16.9	17.3	22.2	50.1	45.9	114	39.7	30.6
Cyanide	mg/L	<0.0020	<0.0020	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.002	0.004	0.003	0.005	<0.002	0.003	<0.002	<0.002	<0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	0.001	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	11.7	10.2	11.3	10.6	9.9	9.8	8.9	10	10.6	11.5	11.5	11.6	11.6	10.1	8.6	9.9	9	10.7	14	11.8	11.4	12.4	13.7
Electrical Conductivity, Lab	µS/cm	186	190	225	225	184	235	223	135	149	153	166	181	194	197	214	212	206	222	145	159	150	170	184
Fluoride	mg/L	-	-	-	-	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	93.1	98.9	122	130	133	127	113	69.6	77.4	81.6	86.5	82.2	99.9	103	112	115	131	119	79.6	79	85.1	90.9	89.9
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	0.05	0.08	0.13	0.14	0.22	<0.02	<0.02	<0.02	<0.02	0.025	0.048	0.13	0.23	0.28	0.26	0.2	0.04	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	<1	<1
pH, lab	S.U.	7.76	8.04	7.78	7.84	7.71	7.71	7.56	7.44	7.84	7.56	7.87	7.86	7.84	8.15	7.82	7.92	7.59	7.75	7.39	7.6	7.35	7.63	7.9
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	0.009
Phosphorus, Total	mg/L	0.0130	0.0096	<0.001	0.005	0.002	0.003	<0.001	0.011	0.014	0.023	<0.001	0.009	0.0096	0.0088	0.01	0.008	0.003	0.004	<0.001	0.005	0.01	0.041	0.009
Radium-226	Bq/L	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.84	1.96	2.5	1.6	1.2	1.8	1.5	3.5	1.3	1.3	1	3.9	1.49	1.60	2.3	2.2	2.5	2.4	1.6	1.5	1.4	1.4	2.4
Total Dissolved Solids	mg/L	119	118	125	140	140	140	130	145	125	135	145	130	119	117	115	140	135	140	120	125	105	165	160
Total Kjeldahl Nitrogen	mg/L	0.368	0.386	0.36	0.39	0.43	0.34	0.31	0.49	<0.04	2.04	<0.04	<1	0.388	0.483	0.52	0.5	0.27	0.31	0.56	0.66	0.64	<0.04	<1
Total Organic Carbon	mg/L	12.2	10.6	12	10	9.5	9.4	9.2	10.4	11.4	12.3	12.4	12.1	12.0	11.3	9.1	9.5	9	10.2	11.5	12.2	11.5	7.4	13.7
Total Suspended Solids	mg/L	3.2	<3.0	<2	<2	<0.67	<0.67	<0.67	<1.3	3.5	2	2.3	2.3	<3.0	<3.0	<4	6	2	1	<0.67	2.5	2.7	<2	3.7
Turbidity, Lab	NTU	2.63	1.60	0.7	0.9	0.8	0.8	0.9	0.9	0.8	1.4	2.1	2.1	1.39	0.78	1	0.9	0.6	0.4	0.9	0.8	1.4	1	0.7
Speciated Metals																								
Methyl Mercury	µg/L	0.000033	0.000040	-	-	-	-	-	-	-	-	-	-	0.000034	0.000029	<0.00002	<0.00002	0.00003	<0.00002	0.00005	<0.00002	0.0001	<0.00002	0.00005

See notes on last page

Table A-2
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Greenstone Gold Mine GP Inc.

Sample Location		49												52										
Sample Date		19-Oct-21	3-Nov-21	11-Jan-22	2-Feb-22	8-Mar-22	8-Mar-22	12-Apr-22	3-May-22	27-Jun-22	4-Jul-22	2-Aug-22	6-Sep-22	21-Oct-21	16-Nov-21	13-Jan-22	9-Feb-22	9-Mar-22	6-Apr-22	9-May-22	15-Jun-22	14-Jul-22	10-Aug-22	12-Sep-22
Sample ID		49	49	49	49	49	Duplicate2	49	49	49	49	49	49	52	52	52	52	52	52	52	52	52	52	52
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	452852	454449	456835	456835	459846	461722	467801	468667	472536	475972	L2654721	L2663658	452993	454983	457039	459292	462299	466598	470645	473345	476573
Laboratory Sample ID		L2653518-4	L2659359-3	1720819	1726473	1734429	1734430	1743785	1749973	1771231	1774125	1784532	1796466	L2654721-2	L2663658-1	1721241	1728240	1735006	1742235	1752060	1767101	1777716	1787507	1798957
Sample Type	Units						Field Duplicate																	
Metals, Dissolved																								
Aluminum	µg/L	3.1	1.6	3	3	2	3	2	7	11	5	5	4	4.3	2.5	3	2	2	3	28	10	9	7	7
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Arsenic	µg/L	5.28	4.15	2.9	0.9	0.9	0.9	0.8	39.7	3.9	6.9	7.5	7.7	4.25	3.39	3.3	3.1	2.9	2.9	2.1	2.9	3.7	4.7	4.5
Barium	µg/L	11.1	11.1	13.5	13.3	12.5	13	13.4	7	10.2	26.4	11.6	12.3	11.8	11.4	12.5	13.7	14.1	15.4	8.5	19.6	10	10.5	11.8
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.007	0.009	0.006	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	0.006	0.009	0.009
Calcium	mg/L	27.2	30.0	36	36.3	38.7	39.5	35.3	21.4	22.3	25.9	25.8	27.6	30.5	31.6	33.9	34.5	39.5	35.5	21.9	25.8	26.4	29.3	27.3
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.1	0.13	<0.1	0.5	0.3	0.3	0.1	0.1	0.4	0.6	0.5	1	<0.1	0.11	<0.1	0.1	0.4	0.2	0.5	0.3	0.5	0.8	0.7
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Copper	µg/L	0.63	0.41	<0.2	0.4	0.5	0.5	0.2	0.6	0.5	1.5	0.6	0.6	0.72	0.7	<0.2	1.1	0.4	1.8	1.4	2.2	1.9	2.5	1
Iron	µg/L	25	21	220	10	<10	<10	<10	20	60	100	40	90	81	61	230	<10	<10	<10	40	40	300	100	60
Lead	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.39	0.07	<0.05	<0.05	<0.05	0.074	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	0.16	0.08
Lithium	µg/L	<1	<1	1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.12	5.84	7.63	7.86	7.29	7.45	6.92	4.17	4.51	4.29	5.97	5.51	5.78	5.71	6.71	6.08	7.01	6.6	4.63	4.39	4.87	5.24	5.42
Manganese	µg/L	1.2	1.76	2.3	5.5	5.5	5.5	6.4	12.8	4.3	1.5	1.3	0.9	4.57	8.52	8.2	6.6	1.2	6	9	6.4	3.3	4.2	3
Mercury	µg/L	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.088	0.098	0.15	0.14	0.13	0.14	0.09	0.1	0.4	0.17	0.11	0.14	0.175	0.204	0.11	0.18	0.17	0.17	0.12	0.12	0.14	0.12	0.17
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.1	0.6	0.8	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.6	0.7	1	1.1	0.8
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.811	0.834	0.95	0.92	0.8	0.78	0.77	0.85	0.67	0.76	0.81	1.14	0.749	0.730	0.8	0.75	0.81	0.75	0.59	0.67	0.68	0.67	0.67
Rubidium	µg/L	1.74	1.62	2.1	2.1	1.9	2	1.9	1.8	1.8	1.8	1.9	2.2	1.76	1.56	1.7	1.8	1.9	1.8	1.3	1.5	1.5	1.5	1.6
Selenium	µg/L	0.075	0.075	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.21	0.064	0.053	0.06	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	2,860	2,830	3,610	4,090	3,790	3,850	3,950	2,080	1,710	-	2,030	1,470	2,850	3,010	3,620	3,470	4,230	4,170	2,290	1,780	-	1,690	1,950
Silicon	mg/L	-	-	-	-	-	-	-	-	-	1.71	-	-	-	-	-	-	-	-	-	-	1.66	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	1.61	1.47	1.3	0.89	0.8	0.85	0.78	1.96	0.7	0.76	1.19	1.88	0.745	0.751	0.78	0.7	0.83	0.81	0.54	0.53	0.72	0.66	0.62
Strontium	µg/L	28.6	27.5	32.7	33.9	29.6	31.1	31.4	21.4	21.4	21.4	19.1	19.8	30.5	30.2	31	31.1	33.5	33.5	19.6	23.1	22.8	22.2	18.9
Sulfur	µg/L	520	770	<500	<500	1,800	1,700	<500	600	<500	1,900	1,600	1,100	<500	<500	<500	<500	1,200	1,700	800	<500	1,300	2,100	500
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1
Titanium	µg/L	<0.3	<0.3	0.8	0.8	0.8	0.8	0.8	0.5	0.8	0.7	0.7	0.5	<0.3	<0.3	0.9	0.9	0.7	0.8	0.8	0.6	0.6	0.6	0.6
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.206	0.228	0.29	0.32	0.29	0.28	0.24	0.13	0.11	0.12	0.14	0.21	0.137	0.13	0.13	0.13	0.15	0.14	0.08	0.07	0.09	0.08	0.15
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
Zinc	µg/L	<1	<1	<1	<1	<1	<1	<1	1	<1	2	<1	2	<1	<1	<1	<1	2	1	2	1	1	3	1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																								
Aluminum	µg/L	39.7	21.3	6	9	8	6	5	30	45	27	42	24	42.4	11.9	8	14	8	6	36	21	18	29	19
Antimony	µg/L	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	6.16	4.8	2.8	0.8	0.9	0.9	0.8	40.4	3.6	6	7.9	6.5	5.69	4.18	3	3.2	2.9	2.7	2.1	2.3	3.3	4.2	4
Barium	µg/L	12.1	11.5	13.4	13.2	13.8	13.1	13.3	7.3	10	11.6	12.2	12.1	12.6	11.9	12.7	14.1	14.1	14	8.9	9.4	10.5	10.5	11.8
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.01	<0.005	<0.005	0.005	<0.005	0.007	0.008	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	0.007	0.008	<0.005	0.01	<0.005
Calcium	mg/L	28.8	29.6	37.2	44.7	39	40.2	33.9	21.5	21.2	26.9	24	28.8	31.3	34.1	35	35.6	40.5	36.2	22.9	26.4	27.1	26.6	29.2
Cesium	µg/L	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.41	0.18	0.1	1.5	0.4	0.4	<0.1	0.3	0.3	0.8	0.6	0.6	0.31	0.17	0.2	0.4	0.2	0.2	0.5	0.8	0.6	0.7	0.4
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	0.1
Copper	µg/L	0.58	<0.5	0.5	3.1	0.5	0.4	0.2	0.7	0.6	0.8	0.8	1.3	<0.5	0.79	0.4	0.4	0.6	0.4	0.7	1	1	0.7	0.9
Iron	µg/L	148	103	260	100	120	110	110	160	200	230	200	190	290	152	280	150	110	70	130	180	140	160	140
Lead	µg/L	0.09	<0.05	<0.05	0.15	0.06	<0.05	<0.05	<0.05	0.1	0.52	0.11	0.11	0.135	1.22	0.11	<0.05	<0.05	0.08	0.07	0.1	<0.05	0.06	0.13
Lithium	µg/L	<1	<1	<1	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	5.86	6.22	7.38	7.88	7.55	7.47	6.72	4.62	4.3	4.46	4.8	5.81	5.70	5.98	6.45	7.03	7.32	6.61	4.67	4.94	4.88	4.92	5.82
Manganese	µg/L	21.5	12.3	5.3	9.1	11	11	11	15.3	13.4	10.1	14.7	9.8	25.3	13.6	10.3	17.4	8.8	8.4	9.7	17.1	21.1	16.2	17.6
Mercury	µg/L	0.00049	-	<0.1	0.0009	<0.1	<0.1	-	-	-	-	-	-	0.00050	0.00048	0.0003	0.0009	0.0005	0.0006	<0.00001	0.001	0.001	0.0009	0.001
Molybdenum	µg/L	0.1	0.113	0.16	0.18	0.15	0.14	0.11	0.54	0.13	0.13	0.14	0.22	0.16	0.151	0.16	0.15	0.17	0.2	0.1	0.17	0.17	0.09	0.15
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.7	0.7	0.5
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	60	<50	-	<30	<30	-	<50	<50	<50	<50	<50	<50	-	<50
Potassium	mg/L	0.832	0.787	0.94	0.94	0.82	0.83	0.74	0.96	0.65	0.78	0.67	1.17	0.702	0.760	0.77	0.84	0.85	0.73	0.6	0.68	0.68	0.61	0.7
Rubidium	µg/L	1.77	1.66	2.1	2.1	2.1	1.8	1.9	1.8	1.8	1.8	2.2	2.2	1.73	1.6	1.8	1.8	1.9	1.8	1.3	1.4	1.5	1.6	1.6
Selenium	µg/L	0.067	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	0.09	0.083	<0.05	0.14	0.19	<0.05	<0.05	0.1	<0.05	<0.05	0.23
Silicon	µg/L	2,960	2,980	3,520	4,260	4,150	4,130	3,890	2,630	1,900	-	2,100	1,720	3,060	3,250	3,540	4,130	4,400	4,210	2,650	2,180	-	1,840	3,840
Silicon	mg/L	-	-	-	-	-	-	-	-	-	2.09	-	-	-	-	-	-	-	-	-	-	2.01	-	-
Silver	µg/L	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.14	<0.01	<0.01	<0.01	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.07	0.05
Sodium	mg/L	1.63	1.55	1.3	0.97	0.89	0.89	0.77	2.16	0.7	0.77	1	2.07	0.709	0.826	0.77	0.81	0.88	0.75	0.54	0.58	0.58	0.6	0.66
Strontium	µg/L	29.4	29.6	33.1	33.2	31.1	30.8	30.2	22.3	20	20.7	24.3	20.2	30.2	32.3	31.2	31.9	34.3	32.5	20	22	22.7	21.1	19.7
Sulfur	µg/L	670	<500	<500	600	2,100	2,200	<500	1,200	<500	2,700	900	900	<500	790	<500	1,000	1,500	1,400	1,200	3,500	1,600	1,500	1,000
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	<0.1
Titanium	µg/L	1.45	0.65	1	1	1.3	1.2	1	1.5	2.2	1.7	2.2	1.6	1.56	0.53	1.2	1.6	1.1	1	1.6	1	1.1	1	1.3
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.224	0.226	0.32	0.33	0.29	0.28	0.26	0.13	0.12	0.15	0.15	0.21	0.145	0.135	0.15	0.14	0.15	0.15	0.08	0.09	0.1	0.09	0.15
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	0.61	0.85	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Zinc	µg/L	<3	<3	<1	<1	<1	<1	<1	1	<1	3	<1	3	<3	<3	<1	<1	<1	<1	<1	<1	<1	2	<1
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								53												55						
Sample Date		19-Oct-21	3-Nov-21	12-Jan-22	8-Feb-22	8-Mar-22	12-Apr-22	17-May-22	27-Jun-22	12-Jul-22	12-Jul-22	2-Aug-22	6-Sep-22	6-Sep-22	21-Oct-21	9-Nov-21	6-Jan-22	3-Feb-22	8-Mar-22	4-Apr-22	5-Apr-22	18-May-22	28-Jun-22	28-Jun-22	19-Jul-22	8-Aug-22	6-Sep-22
Sample ID		53	53	53	53	53	53	53	53	53	Duplicate1	53	53	Duplicate 1	55	55	55	55	55	55	55	55	55	Duplicate 2	55	55	55
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	452991	454923	456835	459846	463246	467801	469370	469370	472536	475972	475972	L2654721	L2661577	452488	454524	456835	459000	459163	463413	467957	467957	470951	473037	475972
Laboratory Sample ID		L2653518-8	L2659359-4	1721231	1727965	1734431	1743783	1755259	1771229	1776571	1776573	1784529	1796467	1796475	L2654721-1	L2661577-6	1719644	1726663	1734433	1741313	1741855	1755702	1771771	1771773	1778739	1786347	1796478
Sample Type	Units										Field Duplicate			Field Duplicate										Field Duplicate			
Field Parameters																											
Dissolved oxygen, Field	mg/L	10.09	12.05	-	-	-	-	-	-	-	-	-	-	-	8.54	9.71	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity, Field	µS/cm	182.4	185.9	-	-	-	-	-	-	-	-	-	-	-	257.2	267.7	-	-	-	-	-	-	-	-	-	-	-
pH, Field	S.U.	8.06	8.05	7.85	7.18	7.58	7.51	7.19	7.82	7.78	-	7.78	8.15	-	7.22	7.11	7.54	6.9	6.93	6.96	-	6.85	6.93	-	6.8	7.05	6.75
Temperature, Field	deg C	11.6	4	2.3	0.3	0.5	2.5	8.5	18.9	20.4	-	19.6	17.7	-	5.5	3.8	-0.1	0.8	1.2	0.7	-	12	17.2	-	22.2	19.5	12.4
Turbidity, Field	NTU	3.30	1.56	-	-	-	-	-	-	-	-	-	-	-	1.67	2.17	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																											
Acidity as CaCO3	mg/L	<2.0	<2.0	4	4	12	7	3	6	6	9	6	4	4	2.7	2.3	17	11	19	12	-	7	9	9	14	13	16
Alkalinity, Bicarbonate (as CaCO3)	mg/L	104	103	119	124	125	129	50	75	79	81	83	80	66	108	106	123	176	239	176	-	83	115	119	135	141	179
Alkalinity, Carbonate (as CaCO3)	mg/L	<2.0	<2.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2.0	<2.0	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<2.0	<2.0	0.0102	0.011	0.0107	0.00589	0.00437	0.00458	0.00525	0.00693	0.0126	0.0112	0.0132	<2.0	<2.0	0.00166	0.00617	0.00408	0.00677	-	0.00427	0.00372	0.00355	0.00246	0.00331	0.00372
Alkalinity, Total (as CaCO3)	mg/L	104	103	120	125	126	129	50	75	79	81	84	80	67	108	106	123	177	240	177	-	83	115	119	135	141	179
Ammonia (as N)	mg/L	<0.0050	0.0186	0.07	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0169	0.0209	0.06	0.17	1.72	0.23	-	<0.01	<0.01	<0.01	0.18	0.01	<0.01
Ammonia, Un-ionized (Calculated)	mg/L	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.010	<0.010	<0.002	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	<0.002
Biochemical Oxygen Demand (BOD) - 5 Day	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	-	-	-	0.9	0.9	0.6	0.9	2.9	2.9	0.8	1.5	1.2	-	-	-	-	18.1	46.1	-	22.5	20.9	21.1	32.5	42.5	44.8
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Color, True	TCU	19.1	19.0	23	36.3	34.7	50.4	83.2	66.7	51.9	49.9	42.6	46.8	35.5	60.7	43.3	36.5	43.4	121	57.2	-	89.9	113	101	120	84.3	131
Cyanide	mg/L	<0.0020	<0.0020	0.003	<0.002	0.003	0.003	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.0020	<0.0020	<0.002	<0.002	0.014	0.003	-	0.003	<0.002	<0.002	<0.002	<0.002	0.002
Cyanide (Free)	mg/L	<0.0020	<0.0020	<0.001	<0.001	0.001	0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	0.004	0.003	-	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Carbon (DOC)	mg/L	11.2	10.1	9.3	10.8	10.2	10.5	14.8	10.8	12.2	12.1	11.2	12.4	11.7	18.8	16.0	12.4	12.1	22.4	13.9	-	16.8	18.1	17.7	5	18	29
Electrical Conductivity, Lab	µS/cm	188	198	236	231	245	244	104	151	190	194	176	172	103	262	270	353	449	556	472	-	231	201	267	338	377	497
Fluoride	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	-	-	-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	93.5	96.6	127	129	139	126	49.2	78.3	83.4	86.2	91.8	81.4	88.8	112	113	160	180	254	221	-	96.5	127	127	150	161	209
Nitrate (as N)	mg/L	<0.020	<0.020	<0.02	0.08	0.14	0.13	0.06	<0.02	0.14	0.12	<0.02	<0.02	<0.02	<0.020	0.023	0.06	<0.02	<0.02	0.29	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil and Grease, Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH, lab	S.U.	7.75	8.06	7.78	7.81	7.8	7.54	7.41	7.43	7.49	7.61	7.87	7.82	7.89	7.74	7.59	6.99	7.56	7.38	7.6	-	7.4	7.34	7.32	7.16	7.29	7.34
Phaeophytin A	µg/L	-	-	-	-	-	-	-	-	-	-	585	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus, Total	mg/L	0.0116	0.0087	0.005	0.005	0.003	<0.001	0.009	0.027	0.008	0.011	<0.001	0.028	0.01	0.0070	0.0049	<0.001	0.017	0.204	0.029	-	0.011	<0.001	0.062	0.064	0.061	0.152
Radium-226	Bq/L	-	-	-	-	-	<0.005	<0.005	<0.005	-	-	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	1.49	4.93	1.8	1.8	1.8	1.6	1.7	1.9	16	16.6	2.6	2.1	4	1.10	1.03	1.6	1.3	<0.3	9.8	-	2.2	0.4	1	<0.3	<0.3	4.7
Total Dissolved Solids	mg/L	117	119	135	145	120	140	130	130	135	180	120	130	135	176	169	255	280	265	250	-	190	265	225	240	260	410
Total Kjeldahl Nitrogen	mg/L	0.344	0.454	0.46	0.51	0.37	0.3	0.65	<0.04	3.46	3.66	<0.04	<1	<1	0.531	0.465	0.25	0.78	2.76	0.74	-	0.68	1.37	1.66	0.97	<0.04	2
Total Organic Carbon	mg/L	11.7	10.2	9.6	11.1	9.9	10.8	15.6	11.7	12.6	12.1	12.1	12.7	12.5	18.8	16.4	12.3	11.2	22.5	12.8	-	16.9	18.1	18.8	23.3	20.9	34.3
Total Suspended Solids	mg/L	<3.0	4.8	<2	<2	<0.67	<0.67	<0.67	4.5	4	2.3	2.3	3	2.7	16.9	<3.0	<1	6	2	1.7	-	2.3	46	8	2	1	7.33
Turbidity, Lab	NTU	2.31	1.76	1.3	1	0.7	0.9	0.9	0.8	1.5	1.2	3.4	1.4	1.7	1.42	0.33	0.5	1	1	1.1	-	0.6	7.5	3	0.6	0.5	4.3
Speciated Metals																											
Methyl Mercury	µg/L	-	0.000032	-	-	-	-	-	-	-	-	-	-	-	0.000102	0.000091	<0.00002	<0.00002	0.00004	-	0.00008	0.00009	0.00003	-	0.00054	<0.00002	0.00126

See notes on last page

Table A-2
Summary of Surface Water Quality Analytical Results
2022 Fish and Fish Habitat Follow-Up Monitoring Report
Greenstone Gold Mine GP Inc.

Sample Location								53													55						
Sample Date		19-Oct-21	3-Nov-21	12-Jan-22	8-Feb-22	8-Mar-22	12-Apr-22	17-May-22	27-Jun-22	12-Jul-22	12-Jul-22	2-Aug-22	6-Sep-22	6-Sep-22	21-Oct-21	9-Nov-21	6-Jan-22	3-Feb-22	8-Mar-22	4-Apr-22	5-Apr-22	18-May-22	28-Jun-22	28-Jun-22	19-Jul-22	8-Aug-22	6-Sep-22
Sample ID		53	53	53	53	53	53	53	53	53	Duplicate1	53	53	Duplicate 1	55	55	55	55	55	55	55	55	55	Duplicate 2	55	55	55
Sampling Company		GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory		ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order		L2653518	L2659359	452991	454923	456835	459846	463246	467801	469370	469370	472536	475972	475972	L2654721	L2661577	452488	454524	456835	459000	459163	463413	467957	467957	470951	473037	475972
Laboratory Sample ID		L2653518-8	L2659359-4	1721231	1727965	1734431	1743783	1755259	1771229	1776571	1776573	1784529	1796467	1796475	L2654721-1	L2661577-6	1719644	1726663	1734433	1741313	1741855	1755702	1771771	1771773	1778739	1786347	1796478
Sample Type	Units										Field Duplicate			Field Duplicate										Field Duplicate			
Metals, Dissolved																											
Aluminum	µg/L	3.2	1.6	3	3	3	4	25	7	5	4	5	4	5	3.1	2.8	4	4	9	4	-	8	6	6	9	3	6
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.1	<0.1	0.3	<0.1	0.1
Arsenic	µg/L	4.05	3.71	1.6	1.4	1	2	2.4	6.7	7.5	7.5	6.2	14.9	7.3	17.1	12.9	13.5	32.3	314	30.8	-	30.5	86.2	89	110	83.1	235
Barium	µg/L	10.9	11.5	13.8	14.8	13.8	15.3	7.5	10.2	10.3	10.4	11.3	12.7	12.6	5.61	4.8	7.3	10.2	42.5	10.9	-	7.1	14.3	10.1	12.8	10.7	23
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.01	0.02	<0.005	0.01	0.01	<0.005	<0.005	0.007	0.007	0.008	<0.005	-	0.006	0.01	0.008	0.03	<0.005	0.02
Calcium	mg/L	27.4	28.7	35.3	39.2	41.9	39.5	15.4	22.5	22.4	23.6	26.6	26.1	25.6	33.2	33.2	44.1	55.8	74.5	67.8	-	27.2	41.6	40.3	44.7	50.9	62.5
Cesium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.01	0.01	0.01	0.02	0.02	0.06
Chromium	µg/L	0.12	<0.1	<0.1	0.3	0.4	<0.1	0.5	0.4	0.5	0.5	0.4	0.9	0.7	0.12	<0.1	0.2	<0.1	0.8	0.6	-	0.5	0.8	0.6	0.6	1.9	2
Cobalt	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.3	0.3	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	1.3	0.3	-	0.1	0.1	0.1	0.3	0.2	0.7
Copper	µg/L	0.52	0.42	<0.2	0.4	0.5	0.3	0.6	0.5	0.9	0.8	0.5	1.8	1.2	0.94	0.22	1.1	0.7	0.7	0.5	-	0.9	1.2	0.8	2.4	1.3	0.6
Iron	µg/L	26	18	230	10	<10	80	130	50	90	80	40	50	60	37	27	193	210	3,470	230	-	50	170	170	230	100	330
Lead	µg/L	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	0.07	0.05	<0.05	0.08	<0.05	0.08	0.1	0.08	<0.05	0.09	<0.05	0.06	<0.05	-	0.06	0.31	0.06	3.07	<0.05	0.08
Lithium	µg/L	<1	1	2	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	6.09	6.04	8.08	8.36	7.74	7.69	3.43	4.62	5.24	6	6.05	5.44	5.42	7.00	7.33	9.36	11.5	12.7	12.9	-	5.48	7.32	7.44	8.41	10	12.5
Manganese	µg/L	1.42	1.65	3.6	4.6	3.3	11.2	4.5	1.8	1.9	1.7	1.3	0.6	0.8	11.5	9.71	96.2	923	6,530	447	-	14.7	54.5	56	316	140	1,160
Mercury	µg/L	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	0.109	0.182	0.12	0.12	0.14	0.12	0.06	0.1	0.97	0.42	0.16	0.14	0.14	0.062	0.055	0.39	0.11	0.42	0.14	-	0.1	0.44	0.19	0.1	0.06	0.13
Nickel	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.6	0.9	0.8	0.7	0.8	0.7	<0.5	<0.5	<0.5	<0.5	2.3	0.7	-	<0.5	0.9	0.7	1.2	1.2	1.5
Phosphorus	µg/L	<30	<30	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<30	<30	<50	<50	80	<50	-	<50	<50	<50	<50	<50	<50
Potassium	mg/L	0.772	1.41	0.96	0.98	0.88	0.91	0.7	0.69	4.04	5.54	1.34	0.72	1.11	0.558	0.292	0.39	0.82	0.92	1.27	-	1.01	1.16	1.15	0.88	0.96	2.91
Rubidium	µg/L	1.82	1.68	2.2	2.2	2.1	2.2	1.7	1.8	2.6	2.8	2	2.1	2.1	1.49	0.77	1	1.7	2	1.8	-	2.4	2.7	2.7	2.8	3.2	8.9
Selenium	µg/L	0.057	0.069	0.07	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	0.13	<0.05	0.15	0.09	<0.05	<0.05	<0.05	0.09	<0.05	0.35	-	0.2	0.38	0.38	0.07	0.27	0.51
Silicon	µg/L	2,850	2,770	3,850	4,190	3,990	4,460	1,860	1,790	-	-	2,030	1,530	1,620	3,370	2,880	4,760	5,840	6,860	5,870	-	2,130	3,030	3,030	-	4,250	3,960
Silicon	mg/L	-	-	-	-	-	-	-	-	1.52	1.46	-	-	-	-	-	-	-	-	-	-	-	-	-	3.01	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	1.34	2.70	1.14	1	0.9	1.01	0.7	0.87	7.68	9.99	2.27	1.5	1.92	10.7	11.9	17.1	17.6	13.6	13.9	-	10.9	11	11.5	14.8	17.3	17.8
Strontium	µg/L	27.8	26.9	33.3	33.6	31.7	35.6	14.6	22.3	23.7	21.3	19	20.5	18.9	40.6	39	43.9	56.7	88	81.9	-	32.1	44.7	46.9	49.7	48	74.6
Sulfur	µg/L	<500	1,530	<500	600	2,000	<500	<500	700	8,000	8,800	2,100	700	1,000	<500	<500	990	<500	1,500	2,600	-	<500	1,400	1,500	<500	900	1,300
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	0.1	0.3	0.1
Titanium	µg/L	<0.3	<0.3	0.9	1	0.9	1	0.9	0.6	0.6	0.6	0.7	0.5	0.5	<0.3	<0.3	1.3	1.3	2.2	1	-	0.7	0.9	0.9	0.8	1	1.7
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.22	0.225	0.3	0.3	0.29	0.28	0.07	0.12	0.13	0.12	0.16	0.17	0.2	0.013	0.017	0.04	0.06	0.09	0.02	-	0.01	0.01	0.01	<0.01	0.01	0.02
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<1	<1	<1	<1	<1	<1	1	<1	6	9	<1	2	2	1.6	<1	2	3	3	<1	-	9	12	12	44	10	10
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Metals, Total																											
Aluminum	µg/L	32.8	20.6	9	6	6	6	50	40	6	37	45	20	25	7.4	4.8	8	8	17	13	-	14	119	70	7	5	11
Antimony	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Arsenic	µg/L	4.57	4.42	1.4	1.3	1	1.7	1.9	6.2	5.8	6.5	6.9	12	6.5	17	13.6	11.1	32.1	365	31.3	-	27.4	97.1	88	96.5	79.4	204
Barium	µg/L	12.4	11.6	13.7	13.9	14.2	14.8	7.6	10.1	10.3	11.1	12.4	11.7	12.1	5.55	4.85	6.5	11.3	44.1	11.3	-	6.3	13.1	11.2	12	10.1	25.3
Beryllium	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	<10	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<10	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	0.009	0.008	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	0.005	0.01	0.01	0.006	-	0.009	0.03	0.02	<0.005	<0.005	0.02
Calcium	mg/L	30.1	29.0	37.9	35.9	42	37.1	15.2	21.7	23.4	23.8	24.3	27.6	28.8	33.4	34.4	40.1	59.5	78.7	66.9	-	27.8	39.2	40.2	46.8	44.5	58.3
Cesium	µg/L	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.01	0.03	0.02	0.02	0.02	0.06
Chromium	µg/L	0.18	0.15	0.2	0.3	0.4	<0.1	0.5	0.3	0.6	0.7	0.6	0.5	0.5	<0.1	<0.1	0.2	<0.1	0.4	<0.1	-	0.5	1.5	0.7	0.6	0.4	0.5
Cobalt	µg/L	<0.1	<0.1	0.1	<0.1	<0.1	0.3	0.1	<0.1	0.3	0.3	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.3	1.4	0.3	-	0.2	0.5	0.3	0.3	0.2	0.8
Copper	µg/L	<0.5	<0.5	0.5	0.4	0.5	0.4	0.8	0.6	0.9	0.9	0.7	1.7	0.7	0.53	<0.5	1.5	0.8	2.5	0.5	-	1.2	2.2	0.6	0.5	0.5	1.1
Iron	µg/L	149	100	280	70	110	110	150	200	140	210	210	170	190	47	38	206	320	4,300	440	-	140	480	330	390	220	580
Lead	µg/L	0.079	<0.05	0.11	<0.05	<0.05	<0.05	0.07	0.08	0.11	0.08	0.11	0.13	0.11	<0.05	<0.05	0.8	0.08	0.05	<0.05	-	0.06	0.23	0.18	<0.05	<0.05	0.16
Lithium	µg/L	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	2	1	<1	<1	<1
Magnesium	mg/L	6.10	6.31	7.69	7.21	7.66	7.32	3.21	4.47	5.88	5.53	4.97	5.56	5.91	6.80	7.34	8.47	11.8	13	13.1	-	5.5	7.34	7.04	8.88	8.04	13
Manganese	µg/L	22.7	12.3	8.1	8.7	7.6	10.1	8.8	15.3	1.9	15.3	16.4	9.7	10.7	12.1	15.5	85.9	959	7,150	476	-	17.3	420	211	334	154	911
Mercury	µg/L	-	-	0.0004	0.004	<0.1	-	-	-	<0.1	<0.1	<0.1	-	<0.1	0.00081	0.00090	0.00051	0.002	0.004	<0.1	0.003	0.003	0.005	<0.1	0.003	0.001	0.004
Molybdenum	µg/L	0.124	0.105	0.15	0.16	0.13	0.2	0.13	0.12	1.15	0.35	0.16	0.14	0.16	<0.05	<0.05	0.13	0.13	0.48	0.17	-	0.53	0.23	0.16	0.15	0.05	0.17
Nickel	µg/L	<0.5	<0.5	<0.5	4.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	2.3	<0.5	-	<0.5	0.9	<0.5	1	<0.5	1.3
Phosphorus	µg/L	<30	<30	-	<50	<50	<50	<50	<50	<50	<50	50	-	-	<30	<30	<50	<50	150	<50	-	<50	<50	<50	<50	-	-
Potassium	mg/L	0.803	1.40	0.92	0.88	0.91	0.84	0.58	0.65	4.39	3.21	1.01	0.75	1.19	0.504	0.303	0.35	0.86	0.94	1.43	-	0.95	1.08	1.1	0.92	0.82	3.13
Rubidium	µg/L	1.8	1.77	2.2	2.1	2.1	2.1	1.6	1.8	2.6	2.4	2.2	2.1	2.3	1.39	0.8	1	1.7	2.1	2	-	2.4	3.1	3	2.8	3.2	9
Selenium	µg/L	0.072	0.073	0.09	0.06	<0.05	<0.05	<0.05	<0.05	0.13	0.17	<0.05	<0.05	0.15	0.051	<0.05	<0.05	0.29	0.2	0.1	-	0.11	0.33	0.42	0.23	0.28	0.48
Silicon	µg/L	3,040	3,050	3,690	3,490	4,210	4,220	1,940	1,950	-	-	2,140	1,760	2,440	3,250	2,980	4,350	6,070	7,060	6,200	-	2,180	3,200	3,040	-	3,500	6,650
Silicon	mg/L	-	-	-	-	-	-	-	-	1.8	1.88	-	-	-	-	-	-	-	-	-	-	-	-	-	3.41	-	-
Silver	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.05	0.01	0.05	0.05	0.04	0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	0.09	<0.01	<0.01	<0.01	0.01	0.05
Sodium	mg/L	1.36	2.81	1.1	0.91	0.95	0.95	0.51	0.85	7.79	5.5	1.71	1.61	2.12	10.6	12.3	15.5	18.8	13.6	14.1	-	11	11.4	11.2	16.3	15.1	20.9
Strontium	µg/L	30.1	29.1	33.2	31.5	32.8	33.8	13.8	21	19.9	20.3	24.4	20.2	19.9	39.9	40.9	39.3	57.6	90.1	83.8	-	32.3	47.5	48.2	50	53.8	76.9
Sulfur	µg/L	560	1,510	<500	<500	2,200	<500	<500	<500	7,000	4,700	1,700	600	2,800	<500	<500	780	<500	1,400	3,300	-	<500	1,500	1,700	800	<500	1,400
Tellurium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	-	<0.1	0.1	<0.1	0.2	0.2	0.2
Titanium	µg/L	1.29	0.69	1.2	1.3	1	1.3	1.8	2	0.8	2.4	2.1	1.2	1.8	<0.3	<0.3	1.3	1.8	2.6	1.5	-	0.9	5.6	3.9	1.3	1.7	2.1
Tungsten	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.227	0.23	0.32	0.31	0.31	0.29	0.08	0.12	0.14	0.15	0.16	0.19	0.21	<0.01	0.013	0.03	0.07	0.09	0.02	-	0.01	0.03	0.02	<0.01	0.01	0.02
Vanadium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	<3	<3	<1	1	<1	<1	1	<1	5	4	1	3	6	<3	<3	2	3	2	<1	-	8	21	13	12	8	9
Zirconium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

A-3
Seasonal Triggers and Trigger Comparisons

Appendix A
Summary of Surface Water Quality Trigger Thresholds
Greenstone Mine

Station	Parameter	Units	PWQO	Predicted EIS/EA concentration + 10%	Spring		Summer		Fall		Winter	
					Sample Count Summary	95th Percentile	Sample Count Summary	95th Percentile	Sample Count Summary	95th Percentile	Sample Count Summary	95th Percentile
4	Phosphorus, Total	mg/L	0.02_{s4} [C]	-	11	0.0372	14	0.0446	6	0.0318	11	0.0389
	Antimony	µg/L	20 [C]	-	12	0.42	18	1.04	9	1.02	13	0.70
	Arsenic	µg/L	100 [A] 5 [C]	-	13	42.4	18	122.4	9	68.3	13	21.7
	Cobalt	µg/L	0.9 [C]	-	12	0.29	18	0.31	9	0.26	13	0.25
	Iron	µg/L	300 [A]	-	13	627	18	591	9	633	13	374
	Uranium	µg/L	5_a [C]	-	12	0.038	14	0.066	7	0.073	8	0.063
8	Phosphorus, Total	mg/L	0.02_{s4} [C]	-	10	0.0149	13	0.0204	5	0.0133	10	0.008
	Antimony	µg/L	20 [C]	-	11	0.13	17	0.3	7	0.28	13	0.30
	Arsenic	µg/L	100 [A] 5 [C]	-	12	7.56	17	23.4	7	17.7	13	6.06
	Cobalt	µg/L	0.9 [C]	-	11	0.05	17	0.25	7	0.19	13	0.25
	Iron	µg/L	300 [A]	-	12	141	17	127	7	152.1	13	108
	Uranium	µg/L	5_a [C]	-	11	0.126	14	0.165	6	0.166	7	0.271
20A	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	7	0.0463	8	0.0118	4	0.0113*	7	0.009
	Cyanide	mg/L	n/v	0.0053**	3	-	3	-	1	-	3	-
	Cyanide (Free)	mg/L	0.005 [A]	0.0053	3	-	3	-	1	-	3	-
	Antimony	µg/L	20 [C]	0.73	7	-	8	-	4	-	7	-
	Arsenic	µg/L	100 [A] 5 [C]	9.04	7	-	8	-	4	-	7	-
	Cobalt	µg/L	0.9 [C]	0.664	7	-	8	-	4	-	7	-
	Copper	µg/L	5 [A] $1/5_{s13}$ [C]	1.487	7	-	8	-	4	-	7	-
	Iron	µg/L	300 [A]	389	7	-	8	-	4	-	7	-
	Uranium	µg/L	5_a [C]	3.127	7	-	8	-	4	-	7	-
24	Phosphorus, Total	mg/L	0.02_{s4} [C]	-	5	0.0162	8	0.0144	5	0.0141	7	0.0066
	Cyanide	mg/L	n/v	0.0030**	7	-	12	-	11	-	10	-
	Cyanide (Free)	mg/L	0.005 [A]	0.0030	7	-	12	-	11	-	10	-
	Antimony	µg/L	20 [C]	-	6	0.1	12	0.30	11	0.30	10	0.30
	Arsenic	µg/L	100 [A] 5 [C]	-	7	1.92	12	5.03	11	3.23	10	0.82
	Cobalt	µg/L	0.9 [C]	-	6	0.05	12	0.25	11	0.25	10	0.25
	Copper	µg/L	5 [A] $1/5_{s13}$ [C]	-	7	0.75	12	0.60	11	0.50	10	0.59
	Iron	µg/L	300 [A]	-	7	140	12	169	11	158	10	113
	Uranium	µg/L	5_a [C]	-	6	0.186	9	0.231	6	0.263	4	0.303*
25	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	8	0.0138	11	0.0134	6	0.0127	9	0.0211
	Antimony	µg/L	20 [C]	1.88	10	-	15	-	12	-	12	-
	Arsenic	µg/L	100 [A] 5 [C]	-	10	46.4	15	51.4	12	25.16	12	42.5
	Cobalt	µg/L	0.9 [C]	-	10	0.16	15	0.25	12	0.21	12	0.25
	Iron	µg/L	300 [A]	-	10	129	15	184	12	106	12	799
	Mercury	µg/L	0.2 [A]	-	12	0.00253***	12	0.00253***	12	0.00253***	12	0.00253***
	Methyl Mercury	µg/L	n/v	-	12	0.000436***	12	0.000436***	12	0.000436***	12	0.000436***
	Uranium	µg/L	5_a [C]	-	9	0.040	12	0.165	7	0.189	6	0.095
26	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	7	0.0102	9	0.0170	5	0.0166	6	0.0115
	Antimony	µg/L	20 [C]	1.57	8	-	13	-	11	-	9	-
	Arsenic	µg/L	100 [A] 5 [C]	-	8	20.7	13	35.2	11	26.1	9	16.5
	Cobalt	µg/L	0.9 [C]	-	8	0.18	13	0.25	11	0.25	9	0.71
	Iron	µg/L	300 [A]	-	8	91	13	131	11	125	9	48
	Uranium	µg/L	5_a [C]	-	7	0.057	10	0.065	6	0.062	5	0.063
39	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	9	0.0080	10	0.0082	6	0.0104	8	0.0053
	Antimony	µg/L	20 [C]	-	9	0.05	10	0.05	6	0.12	8	0.11
	Arsenic	µg/L	100 [A] 5 [C]	-	9	7.03	10	8.04	6	6.64	8	5.89
	Cobalt	µg/L	0.9 [C]	-	9	0.05	10	0.05	6	0.05	8	0.05
	Iron	µg/L	300 [A]	-	9	98.2	10	64	6	95	8	244.4
	Mercury	µg/L	0.2 [A]	-	12	0.00199***	12	0.00199***	12	0.00199***	12	0.00199***
	Methyl Mercury	µg/L	n/v	-	12	0.000088***	12	0.000088***	12	0.000088***	12	0.000088***
	Uranium	µg/L	5_a [C]	-	9	0.057	10	0.075	6	0.096	8	0.099
49	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	9	0.0131	11	0.0158	7	0.0369	8	0.0362
	Antimony	µg/L	20 [C]	-	9	0.05	11	0.09	7	0.13	8	0.1085
	Arsenic	µg/L	100 [A] 5 [C]	-	9	3.28	11	15.05	7	7.02	8	1.3475
	Cobalt	µg/L	0.9 [C]	-	9	0.11	11	0.05	7	0.05	8	0.05
	Iron	µg/L	300 [A]	-	9	168	11	137	7	190	8	103.3
	Uranium	µg/L	5_a [C]	-	9	0.149	11	0.232	7	0.262	8	0.323
52	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	6	0.0121	5	0.0175	7 [X]	0.0101**	11 [X]	0.0058**
	Antimony	µg/L	20 [C]	-	6	0.05	5	0.05	7 [X]	0.12**	11 [X]	0.1**
	Arsenic	µg/L	100 [A] 5 [C]	-	6	3.14	5	5.40	7 [X]	6.63**	11 [X]	5.78**
	Cobalt	µg/L	0.9 [C]	-	6	0.05	5	0.05	7 [X]	0.05**	11 [X]	0.05**
	Iron	µg/L	300 [A]	-	6	99	5	327	7 [X]	95**	11 [X]	243**
	Mercury	µg/L	0.2 [A]	-	12	0.00236***	12	0.00236***	12	0.00236***	12	0.00236***
	Methyl Mercury	µg/L	n/v	-	12	0.000126***	12	0.000126***	12	0.000126***	12	0.000126***
	Uranium	µg/L	5_a [C]	-	6	0.138	5	0.192	7 [X]	0.120**	11 [X]	0.137**
53	Phosphorus, Total	mg/L	0.03_{s4} [C]	-	11 [Y]	0.0130	14 [Y]	0.0154	7 [Y]	0.0369	9 [Y]	0.0349
	Antimony	µg/L	20 [C]	-	11 [Y]	0.05	14 [Y]	0.08	7 [Y]	0.13	9 [Y]	0.1
	Arsenic	µg/L	100 [A] 5 [C]	-	11 [Y]	3.26	14 [Y]	13.56	7 [Y]	7.02	9 [Y]	1.34
	Cobalt	µg/L	0.9 [C]	-	11 [Y]	0.1	14 [Y]	0.05	7 [Y]	0.05	9 [Y]	0.05
	Iron	µg/L	300 [A]	-	11 [Y]	190	14 [Y]	136	7 [Y]	190	9 [Y]	103
	Uranium	µg/L	5_a [C]	-	11 [Y]	0.148	14 [Y]	0.229	7 [Y]	0.262	9 [Y]	0.322

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
C	PWQO Table 2 - Interim
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
*	95th percentile calculated using 4 samples
**	No EIS/EA predictions were made for total cyanides. Therefore, free cyanides were conservatively used as triggers for both free and total forms of cyanides
***	Annual 95th percentile
X	Due to a limitied seasonal dataset, seasonal data from station 39 has been included in the sample count and 95th percentile calculations
Y	Due to a limitied seasonal dataset, seasonal data from station 49 has been included in the sample count and 95th percentile calculations

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 4

Season			Fall*				Winter					Spring					Summer				
Sample Date					20-Oct-21	9-Nov-21			11-Jan-22	1-Feb-22	1-Mar-22			6-Apr-22	16-May-22	22-Jun-22			12-Jul-22	3-Aug-22	7-Sep-22
Sample ID					4	4			4	4	4			4	4	4			4	4	4
Sampling Company					GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM
Laboratory					ALS	ALS			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			**95th**		L2654108	L2661574	**95th**		452852	454370	456382	**95th**		459292	462997	467331	**95th**		469370	472528	476124
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**RDL**	L2654108-3	L2661574-5	**Percentile**	**RDL**	1720824	1726172	1732933	**Percentile**	**RDL**	1742230	1754543	1769688	**Percentile**	**RDL**	1776568	1784517	1796950
Nutrients																					
Phosphorus, Total	mg/L	0.02_{s4} [C]	0.0318	0.001	**0.0306**	0.0203	0.0389	0.001	0.008	0.028	0.029	0.0372	0.001	0.013	0.012	**0.032**	0.0446	0.001	0.027	0.028	**0.038**
Total Metals																					
Antimony	µg/L	20 [C]	1.02	0.1	0.94	0.8	0.70	0.1	0.5	0.8	0.7	0.42	0.1	0.6	0.3	0.3	1.04	0.1	0.3	0.4	0.6
Arsenic	µg/L	100 [A] 5 [C]	68.3	0.1	**65**	**52.6**	21.7	0.1	**29.2**	**31.2**	**27.4**	42.4	0.1	**18.9**	**16.8**	**53.8**	122.4	0.1	**37.1**	**91.3**	**109**
Cobalt	µg/L	0.9 [C]	0.26	0.1	0.21	0.15	0.25	0.1	0.1	0.1	0.1	0.29	0.1	0.1	0.1	0.3	0.31	0.1	0.2	0.2	0.2
Iron	µg/L	300 [A]	633	10	**408**	251	374	10	260	120	170	627	10	130	240	**730**	591	10	150	**350**	280
Uranium	µg/L	5_a [C]	0.073	0.01	0.08	0.1	0.063	0.01	0.19	0.15	0.09	0.038	0.01	0.07	0.02	0.03	0.066	0.01	0.03	0.04	0.07

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 8

Season			Fall*				Winter					Spring					Summer				
Sample Date					19-Oct-21	9-Nov-21			6-Jan-22	1-Feb-22	2-Mar-22			5-Apr-22	9-May-22	16-Jun-22			13-Jul-22	4-Aug-22	7-Sep-22
Sample ID					8	8			8	8	8			8	8	8			8	8	8
Sampling Company					GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM
Laboratory					ALS	ALS			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th		L2653518	L2661574	95th		452488	454370	456456	95th		459163	462299	466677	95th		470538	472756	476124
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**RDL**	**L2653518-6**	**L2661574-6**	**Percentile**	**RDL**	**1719649**	**1726171**	**1733147**	**Percentile**	**RDL**	**1741853**	**1752059**	**1767365**	**Percentile**	**RDL**	**1777265**	**1785259**	**1796948**
Nutrients																					
Phosphorus, Total	mg/L	0.02_{s4} [C]	0.0133	0.001	0.0187	0.0148	0.008	0.001	<0.001	0.007	0.013	0.0149	0.001	0.005	0.002	0.008	0.0204	0.001	0.02	**1.26**[t]	0.012
Total Metals																					
Antimony	µg/L	20[C]	0.28	0.1	0.16	0.21	0.30	0.1	0.2	0.1	0.1	0.13	0.1	0.3	<0.1	<0.1	0.30	0.1	0.1	0.1	0.1
Arsenic	µg/L	100[A] 5[C]	17.7	0.1	**19**	**19.2**	6.06	0.1	**10.9**	**7.4**	**7.1**	7.56	0.1	5	**5.3**	**7.1**	23.4	0.1	**12.8**	**14.1**	**24.6**
Cobalt	µg/L	0.9[C]	0.19	0.1	<0.1	<0.1	0.25	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	0.1	0.2	0.25	0.1	0.2	0.1	0.1
Iron	µg/L	300[A]	152.1	10	117	144	108	10	52	<10	120	141	10	80	180	220	127	10	150	180	190
Uranium	µg/L	5_a[C]	0.166	0.01	0.133	0.195	0.271	0.01	0.22	0.27	0.26	0.126	0.01	0.25	0.18	0.08	0.165	0.01	0.11	0.11	0.15

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	December 2021 was not sampled due to unsafe conditions
t	suspected outlier

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 20A

Season			Fall***					Winter						Spring						Summer					
Sample Date						18-Oct-21	9-Nov-21				6-Jan-22	7-Feb-22	7-Mar-22				5-Apr-22	11-May-22	23-Jun-22				14-Jul-22	4-Aug-22	6-Sep-22
Sample ID						20A	20A				20A	20A	20A				20A	20A	20A				20A	20A	20A
Sampling Company						GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM
Laboratory						ALS	ALS				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order						L2652895	L2661577				452488	454738	456829				459163	462595	467471				470645	472756	475972
Laboratory Sample ID	**Units**	**PWQO**	**95th Percentile**	**Predicted EIS/EA concentration + 10%**	**RDL**	L2652895-3	L2661577-3	**95th Percentile**	**Predicted EIS/EA concentration + 10%**	**RDL**	1719647	1727357	1734417	**95th Percentile**	**Predicted EIS/EA concentration + 10%**	**RDL**	1741859	1753069	1770088	**95th Percentile**	**Predicted EIS/EA concentration + 10%**	**RDL**	1777718	1785255	1796474
Nutrients																									
Phosphorus, Total	mg/L	0.03_{s4} [C]	0.0113**	-	0.001	0.0109	0.0069	0.0090	-	0.001	<0.001	0.01	0.003	0.0463	-	0.001	0.007	0.007	0.007	0.0118	-	0.001	0.021	**0.053**	0.011
Cyanide																									
Cyanide	mg/L	n/v	-	0.0053*	0.002	<0.0020	<0.0020	-	0.0053*	0.002	<0.002	<0.001	0.002	-	0.0053*	0.002	<0.001	<0.001	<0.002	-	0.0053*	0.002	<0.0020	<0.001	<0.001
Cyanide (Free)	mg/L	0.005[A]	-	0.0053	0.002	<0.0020	<0.0020	-	0.0053	0.001	<0.001	<0.002	<0.002	-	0.0053	0.001	<0.002	<0.002	<0.001	-	0.0053	0.001	<0.001	<0.002	<0.002
Total Metals																									
Antimony	µg/L	20[C]	-	0.73	0.1	<0.1	<0.1	-	0.73	0.1	<0.1	<0.1	<0.1	-	0.73	0.1	<0.1	<0.1	<0.1	-	0.73	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100[A] 5[C]	-	9.04	0.1	**5.86**	4.23	-	9.04	0.1	3.6	3.5	3	-	9.04	0.1	**5.4**	3.1	**20.6**	-	9.04	0.1	**22.5**	**17**	**8.6**
Cobalt	µg/L	0.9[C]	-	0.664	0.1	<0.1	<0.1	-	0.664	0.1	<0.1	0.1	<0.1	-	0.664	0.1	0.1	0.1	0.5	-	0.664	0.1	0.7	0.3	0.2
Copper	µg/L	5[A] $1/5_{s13}$[C]	-	1.487	0.5	0.52	<0.5	-	1.487	0.20	0.7	0.6	0.5	-	1.487	0.2	0.6	0.8	0.6	-	1.487	0.2	0.6	<0.2	0.5
Iron	µg/L	300[A]	-	389	10	130	156	-	389	10	127	200	130	-	389	10	280	200	300	-	389	10	**420**	**430**	290
Uranium	µg/L	5_a[C]	-	3.127	0.01	0.091	0.132	-	3.127	0.01	0.14	0.15	0.15	-	3.127	0.01	0.36	0.04	0.05	-	3.127	0.01	0.05	0.08	0.13

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
*	No EIS/EA predictions were made for total cyanides. Therefore, free cyanides were conservatively used as triggers for both free and total forms of cyanides
**	95th percentile calculated using 4 samples
***	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 24

Season			Fall***					Winter						Spring						Summer					
Sample Date						19-Oct-21	9-Nov-21				11-Jan-22	7-Feb-22	3-Mar-22				5-Apr-22	17-May-22	27-Jun-22				13-Jul-22	2-Aug-22	6-Sep-22
Sample ID						24	24				24	24	24				24	24	24				24	24	24
Sampling Company						GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM
Laboratory						ALS	ALS				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th	Predicted EIS/EA		L2653518	L2661577	95th	Predicted EIS/EA		452852	454738	456529	95th	Predicted EIS/EA		459163	463246	467801	95th	Predicted EIS/EA		470538	472536	475972
Laboratory Sample ID	Units	PWQO	Percentile	concentration + 10%	RDL	L2653518-1	L2661577-5	Percentile	concentration + 10%	RDL	1720817	1727360	1733449	Percentile	concentration + 10%	RDL	1741856	1755257	1771226	Percentile	concentration + 10%	RDL	1777267	1784531	1796470
Nutrients																									
Phosphorus, Total	mg/L	0.02_{s4} [C]	0.0141	-	0.001	0.0149	0.0122	0.0066	-	0.001	<0.001	0.005	0.026	0.0162	-	0.001	0.005	0.004	0.015	0.0144	-	0.001	0.028	<0.001	0.028
Cyanide																									
Cyanide	mg/L	n/v	-	0.0030*	0.002	<0.0020	<0.0020	-	0.0030*	0.002	0.005	<0.001	0.002	-	0.0030*	0.002	<0.001	0.003	<0.002	-	0.0030*	0.002	<0.002	<0.001	<0.001
Cyanide (Free)	mg/L	0.005 [A]	-	0.0030	0.002	<0.0020	<0.0020	-	0.0030	0.001	<0.001	<0.002	0.005	-	0.0030	0.001	<0.002	<0.002	<0.001	-	0.0030	0.001	<0.001	<0.002	<0.002
Total Metals																									
Antimony	µg/L	20 [C]	0.30	-	0.1	<0.1	<0.1	0.30	-	0.1	0.1	<0.1	<0.1	0.05	-	0.1	<0.1	<0.1	<0.1	0.3	-	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100 [A] 5 [C]	3.23	-	0.1	3.7	2.8	0.8	-	0.1	0.8	0.7	0.9	1.9	-	0.1	0.8	1	2	5.03	-	0.1	3.2	3.8	4.9
Cobalt	µg/L	0.9 [C]	0.25	-	0.1	<0.1	<0.1	0.25	-	0.1	<0.1	<0.1	<0.1	0.05	-	0.1	<0.1	0.1	<0.1	0.25	-	0.1	0.2	<0.1	<0.1
Copper	µg/L	5 [A] $1/5_{s13}$ [C]	0.50	-	0.5	<0.5	<0.5	0.59	-	0.20	0.6	0.4	0.6	0.75	-	0.2	0.4	0.6	0.8	0.6	-	0.2	0.4	0.7	0.8
Iron	µg/L	300 [A]	158	-	10	158	117	113	-	10	280	70	170	140	-	10	120	140	200	168.5	-	10	170	210	200
Uranium	µg/L	5_a [C]	0.263	-	0.01	0.238	0.285	0.303**	-	0.01	0.3	0.3	0.3	0.186	-	0.01	0.29	0.08	0.13	0.231	-	0.01	0.16	0.18	0.22

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
*	No EIS/EA predictions were made for total cyanides. Therefore, free cyanides were conservatively used as triggers for both free and total forms of cyanides
**	95th percentile calculated using 4 samples
***	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 25

Season			Fall**					Winter						Spring						Summer					
Sample Date						19-Oct-21	9-Nov-21				6-Jan-22	8-Feb-22	3-Mar-22				11-Apr-22	17-May-22	27-Jun-22				4-Jul-22	4-Aug-22	6-Sep-22
Sample ID						25	25				25	25	25				25	25	25				25	25	25
Sampling Company						GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM
Laboratory						ALS	ALS				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th	Predicted EIS/EA		L2653518	L2661577	95th	Predicted EIS/EA		452488	454923	456529	95th	Predicted EIS/EA		459653	463246	467801	95th	Predicted EIS/EA		468667	472756	475972
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**concentration + 10%**	**RDL**	**L2653518-3**	**L2661577-7**	**Percentile**	**concentration + 10%**	**RDL**	**1719643**	**1727964**	**1733448**	**Percentile**	**concentration + 10%**	**RDL**	**1743186**	**1755258**	**1771227**	**Percentile**	**concentration + 10%**	**RDL**	**1774126**	**1785258**	**1796469**
Nutrients																									
Phosphorus, Total	mg/L	0.03_{s4}[C]	0.0127	-	0.001	0.0077	0.0080	0.0211	-	0.001	<0.001	**0.041**	**0.057**	0.0138	-	0.001	**0.039**	0.018	**0.076**	0.0134	-	0.001	**0.1**	**0.127**	0.013
Total Metals																									
Antimony	µg/L	20[C]	-	1.88	0.1	<0.1	<0.1	-	1.88	0.1	<0.1	<0.1	<0.1	-	1.88	0.1	0.1	<0.1	<0.1	-	1.88	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100[A] 5[C]	25.16	-	0.1	**46.7**	**91.9**	42.5	-	0.1	**5.5**	**79.9**	**97.9**	46.4	-	0.1	**93.1**	**42.6**	**251**	51.4	-	0.1	**202**	**268**	**52.3**
Cobalt	µg/L	0.9[C]	0.21	-	0.1	<0.1	<0.1	0.25	-	0.1	<0.1	0.4	0.4	0.16	-	0.1	0.5	0.1	0.3	0.25	-	0.1	0.2	0.3	<0.1
Iron	µg/L	300[A]	106	-	10	59	42	799	-	10	62	**1,320**	**2,320**	129	-	10	**2,260**	150	**340**	184	-	10	**340**	220	110
Mercury	µg/L	0.2[A]	0.00253*	-	0.0001	0.00070	0.00084	0.00253*	-	0.0	0.00043	0.001	0.002	0.00253*	-	0.00001	0.003	0.003	0.007	0.00253*	-	0.00001	-	0.001	0.0009
Methyl Mercury	µg/L	n/v	0.000436*	-	0.00002	0.000102	0.000077	0.000436*	-	0.000020	<0.00002	<0.00002	0.00006	0.000436*	-	0.00002	0.00003	0.00003	0.00003	0.000436*	-	0.00002	-	0.00005	0.00006
Uranium	µg/L	5_s[C]	0.189	-	0.01	0.013	0.024	0.095	-	0.01	0.3	0.07	0.03	0.040	-	0.01	0.03	0.02	<0.01	0.165	-	0.01	0.02	0.03	0.11

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
s13	The interim PWQO for copper is hardness dependent. If hardness <20 mg/L than PWQO is 0.001 mg/L. For hardness >20 mg/L, PWQO is 0.005 mg/L.
*	Annual 95th percentile calculated using a sample count of 13
**	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 26

Season			Fall*					Winter						Spring						Summer					
Sample Date						19-Oct-21	10-Nov-21				17-Jan-22	2-Feb-22	2-Mar-22				6-Apr-22	18-May-22	23-Jun-22				18-Jul-22	11-Aug-22	7-Sep-22
Sample ID						26	26				26	26	26				26	26	26				26	26	26
Sampling Company						GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM				GGM	GGM	GGM
Laboratory						ALS	ALS				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK				TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th	Predicted EIS/EA		L2653518	L2661849	95th	Predicted EIS/EA		453298	454449	456456	95th	Predicted EIS/EA		459292	463413	467471	95th	Predicted EIS/EA		470954	473463	476124
Laboratory Sample ID	Units	PWQO	Percentile	concentration + 10%	RDL	L2653518-9	L2661849-5	Percentile	concentration + 10%	RDL	1722215	1726469	1733152	Percentile	concentration + 10%	RDL	1742233	1755703	1770085	Percentile	concentration + 10%	RDL	1778756	1788047	1796957
Nutrients																									
Phosphorus, Total	mg/L	0.03_{s4} [C]	0.0166	-	0.001	0.0087	0.0077	0.0115	-	0.001	**0.042**	0.004	0.007	0.0102	-	0.001	0.003	<0.001	<0.001	0.017	-	0.001	0.011	**0.052**	0.01
Total Metals																									
Antimony	µg/L	20 [C]	-	1.57	0.1	0.13	0.11	-	1.57	0.1	0.1	0.2	0.1	-	1.57	0.1	0.1	0.2	0.2	-	1.57	0.1	0.2	0.2	0.1
Arsenic	µg/L	100 [A] 5 [C]	26.1	-	0.1	**21.5**	**18**	16.5	-	0.1	**11.8**	**14.6**	**12.3**	20.7	-	0.1	**13**	**9**	**18.7**	35.2	-	0.1	**20.3**	**30**	**29.6**
Cobalt	µg/L	0.9 [C]	0.25	-	0.1	<0.1	<0.1	0.71	-	0.1	<0.1	<0.1	<0.1	0.18	-	0.1	<0.1	0.2	0.1	0.25	-	0.1	0.1	0.1	0.1
Iron	µg/L	300 [A]	125	-	10	65	40	48	-	10	240	40	110	91	-	10	40	140	140	131.2	-	10	170	160	180
Uranium	µg/L	5_a [C]	0.062	-	0.01	0.047	0.045	0.063	-	0.01	0.03	0.04	0.04	0.057	-	0.01	0.04	0.04	0.04	0.065	-	0.01	0.05	0.04	0.05

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
[A]	PWQO Table 2
[B]	PWQO Table 2 - Calculated
[C]	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
[a]	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
[s4]	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 39

Season			Fall**				Winter				Spring					Summer				
Sample Date					21-Oct-21	10-Nov-21		11-Jan-22	9-Feb-22	8-Mar-22		4-Apr-22	10-May-22	28-Jun-22		18-Jul-22	11-Aug-22	6-Sep-22
Sample ID					39	39		39	39	39		39	39	39		39	39	39
Sampling Company					GGM	GGM		GGM	GGM	GGM		GGM	GGM	GGM		GGM	GGM	GGM
Laboratory					ALS	ALS		TESTMARK	TESTMARK	TESTMARK		TESTMARK	TESTMARK	TESTMARK		TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th		L2654721	L2661849	95th	452852	454983	457037	95th	459000	462464	467957	95th	470954	473463	475972
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**RDL**	L2654721-5	L2661849-6	**Percentile**	**RDL**	1720822	1728239	1735002	**Percentile**	**RDL**	1741312	1752554	1771772	**Percentile**	**RDL**	1778757	1788046	1796477
Nutrients																					
Phosphorus, Total	mg/L	0.03_{s4}[C]	0.0104	0.001	0.0077	0.0063	0.0053	0.001	**0.165**	0.002	<0.001	0.008	0.001	0.003	<0.001	<0.001	0.0082	0.001	0.007	**0.043**	0.007
Total Metals																					
Antimony	µg/L	20[C]	0.12	0.1	<0.1	<0.1	0.11	0.1	<0.1	0.2	<0.1	0.05	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100[A] 5[C]	6.64	0.1	**8.23**	**5.99**	5.89	0.1	4.1	3.6	3.8	7.03	0.1	3.2	4.7	**8.7**	8.04	0.1	**8.5**	**11.6**	**8.8**
Cobalt	µg/L	0.9[C]	0.05	0.1	<0.1	<0.1	0.05	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.2	0.1	0.05	0.1	0.2	0.1	0.1
Iron	µg/L	300[A]	95	10	225	114	244.4	10	**420**	190	160	98.2	10	180	230	150	64	10	180	170	140
Mercury	µg/L	0.2[A]	0.00199*	0.0001	0.00050	0.00036	0.00199*	0.00001	0.0006	0.001	0.003	0.00199*	0.00001	0.0006	0.0020	0.002	0.00199*	0.00001	0.002	0.001	0.001
Methyl Mercury	µg/L	n/v	0.000088*	0.00002	0.000045	0.000044	0.000088*	0.000020	<0.00002	<0.00002	0.00004	0.000088*	0.00002	0.00007	0.00006	0.00003	0.000088*	0.00002	0.00015	0.00002	0.00005
Uranium	µg/L	5_a[C]	0.096	0.01	0.095	0.102	0.099	0.010	0.11	0.1	0.13	0.057	0.01	0.13	0.06	0.06	0.075	0.01	0.07	0.07	0.1

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	Annual 95th percentile calculated using a sample count of 13
**	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 49

Season			Fall*				Winter					Spring					Summer				
Sample Date					19-Oct-21	3-Nov-21			11-Jan-22	2-Feb-22	3-Mar-22			12-Apr-22	3-May-22	27-Jun-22			4-Jul-22	2-Aug-22	6-Sep-22
Sample ID					49	49			49	49	49			49	49	49			49	49	49
Sampling Company					GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM
Laboratory					ALS	ALS			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			95th	Oct-21	L2653518	L2659359	95th	Mar-22	452852	454449	456835	95th	Jun-22	459846	461722	467801	95th	Sep-22	468667	472536	475972
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**RDL**	**L2653518-4**	**L2659359-3**	**Percentile**	**RDL**	**1720819**	**1726473**	**1734429**	**Percentile**	**RDL**	**1743785**	**1749973**	**1771231**	**Percentile**	**RDL**	**1774125**	**1784532**	**1796466**
Nutrients																					
Phosphorus, Total	mg/L	0.03_{s4} [C]	0.0369	0.001	0.0130	0.0096	0.0362	0.001	<0.001	0.005	0.002	0.0131	0.001	<0.001	0.011	0.014	0.0158	0.001	0.023	<0.001	0.009
Total Metals																					
Antimony	µg/L	20 [C]	0.13	0.1	<0.1	<0.1	0.109	0.1	<0.1	0.3	<0.1	0.05	0.1	<0.1	<0.1	<0.1	0.09	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100 [A] 5 [C]	7.02	0.1	**6.16**	4.8	1.35	0.1	2.8	0.8	0.9	3.28	0.1	0.8	**40.4**	3.6	15.05	0.1	**6**	**7.9**	**6.5**
Cobalt	µg/L	0.9 [C]	0.05	0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	0.1	0.11	0.1	<0.1	0.2	<0.1	0.05	0.1	<0.1	<0.1	0.2
Iron	µg/L	300 [A]	190	10	148	103	103.3	10	260	100	120	168	10	110	160	200	137	10	230	200	190
Uranium	µg/L	5_a [C]	0.262	0.01	0.224	0.226	0.323	0.01	0.32	0.33	0.29	0.149	0.01	0.26	0.13	0.12	0.232	0.01	0.15	0.15	0.21

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 52

Season			Fall***				Winter					Spring					Summer				
Sample Date					21-Oct-21	16-Nov-21			13-Jan-22	9-Feb-22	9-Mar-22		6-Apr-22	9-May-22	15-Jun-22			14-Jul-22	10-Aug-22	12-Sep-22
Sample ID					52	52			52	52	52		52	52	52			52	52	52
Sampling Company					GGM	GGM			GGM	GGM	GGM		GGM	GGM	GGM			GGM	GGM	GGM
Laboratory					ALS	ALS			TESTMARK	TESTMARK	TESTMARK		TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			**95th**	**Oct-21**	**L2654721**	**L2663658**	**95th**	**Mar-22**	**452993**	**454983**	**457039**	**95th**	**Jun-22**	**459292**	**462299**	**466598**	**95th**	**Sep-22**	**470645**	**473345**	**476573**
Laboratory Sample ID	**Units**	**PWQO**	**Percentile**	**RDL**	**L2654721-2**	**L2663658-1**	**Percentile**	**RDL**	**1721241**	**1728240**	**1735006**	**Percentile**	**RDL**	**1742235**	**1752060**	**1767101**	**Percentile**	**RDL**	**1777716**	**1787507**	**1798957**
Nutrients																					
Phosphorus, Total	mg/L	0.03_{s4} [C]	0.0101**	0.001	0.0096	0.0088	0.0058**	0.0010	0.01	0.008	0.003	0.0121	0.001	0.004	<0.001	0.005	0.0175	0.001	0.01	**0.041**	0.009
Total Metals																					
Antimony	µg/L	20 [C]	0.12**	0.1	<0.1	0.11	0.1**	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	100 [A] 5 [C]	6.63**	0.1	**5.69**	4.18	5.78**	0.1	3	3.2	2.9	3.14	0.1	2.7	2.1	2.3	5.40	0.1	3.3	4.2	4
Cobalt	µg/L	0.9 [C]	0.05**	0.1	<0.1	<0.1	0.05**	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	0.1	0.05	0.1	0.1	<0.1	0.1
Iron	µg/L	300 [A]	95**	10	290	152	243**	10	280	150	110	99	10	70	130	180	327	10	140	160	140
Mercury	µg/L	0.2 [A]	0.00236*	0.0001	0.00050	0.00048	0.00236*	0.00001	0.0003	0.0009	0.001	0.00236*	0.00001	0.0006	<0.00001	0.001	0.00236*	0.00001	0.001	0.0009	0.001
Methyl Mercury	µg/L	n/v	0.000126*	0.00002	0.000034	0.000029	0.000126*	0.00002	<0.00002	<0.00002	0.00003	0.000126*	0.00002	<0.00002	0.00005	<0.00002	0.000126*	0.00002	0.0001	<0.00002	0.00005
Uranium	µg/L	5_a [C]	0.12**	0.01	0.145	0.135	0.137**	0.010	0.15	0.14	0.15	0.138	0.01	0.15	0.08	0.09	0.192	0.01	0.1	0.09	0.15

Notes:

PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	Concentration exceeds PWQO Standard
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	Annual 95th percentile calculated using a sample count of 12
**	Due to a limitied seasonal dataset, seasonal data from station 39 has been included in the sample count and 95th percentile calculations
***	December 2021 was not sampled due to unsafe conditions

Greenstone Mine - Surface Water Quality Trigger Parameters
October 2021 - September 2022
Station 53

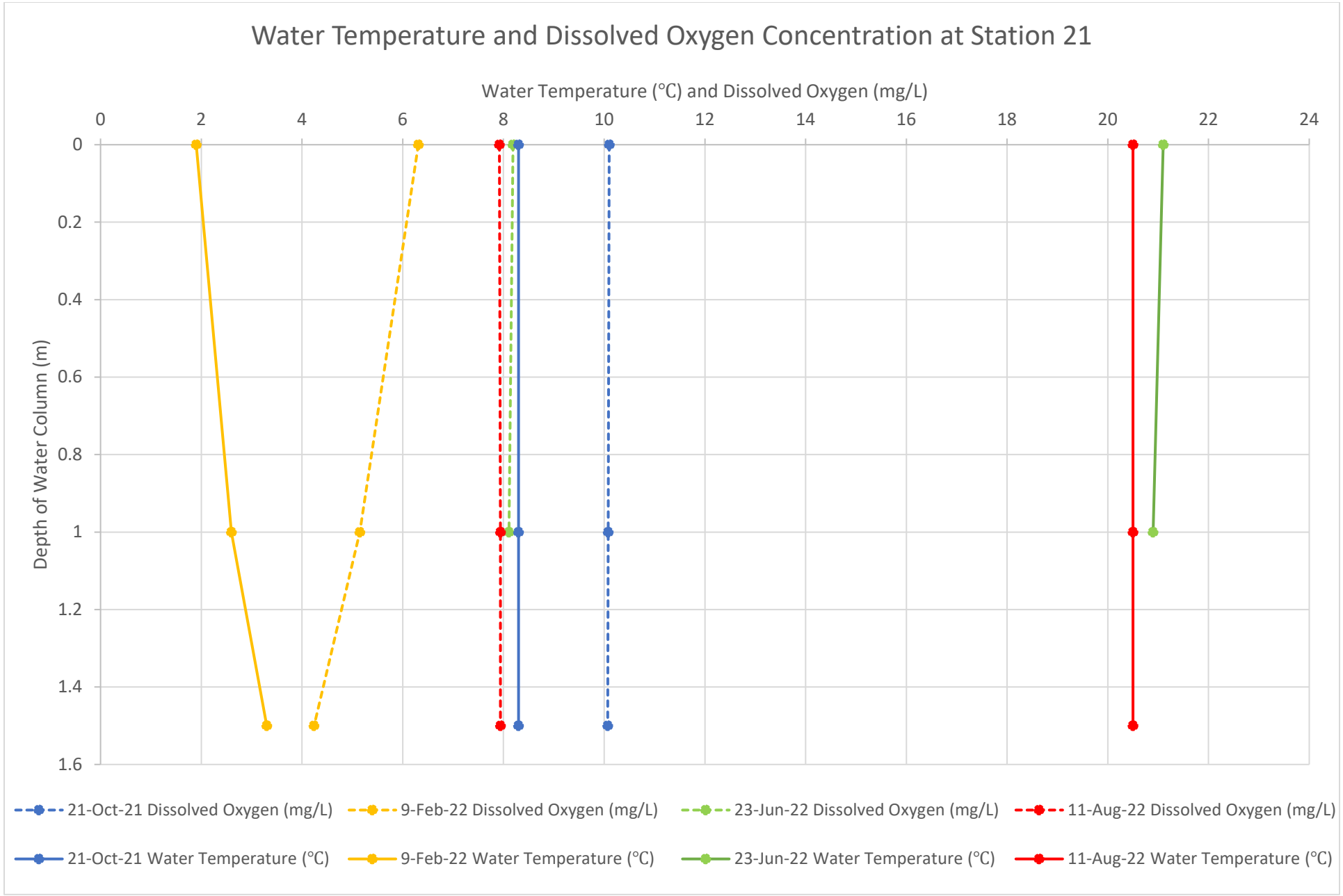
Season			Fall*				Winter					Spring					Summer					
Sample Date					19-Oct-21	3-Nov-21			11-Jan-22	2-Feb-22	8-Mar-22			12-Apr-22	17-May-22	27-Jun-22			4-Jul-22	12-Jul-22	2-Aug-22	6-Sep-22
Sample ID					53	53			49	49	49			53	53	53			53	53	53	53
Sampling Company					GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM			GGM	GGM	GGM	GGM
Laboratory					ALS	ALS			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK			TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			**95th**	**Oct-21**	**L2653518**	**L2659359**	**95th**	**Mar-22**	**452852**	**454449**	**456835**	**95th**	**Jun-22**	**459846**	**463246**	**467801**	**95th**	**Sep-22**	**468667**	**469370**	**472536**	**475972**
Laboratory Sample ID	**Units**	**PWQO**	**Percentile***	**RDL**	**L2653518-8**	**L2659359-4**	**Percentile***	**RDL**	**1720819**	**1726473**	**1734429**	**Percentile***	**RDL**	**1743783**	**1755259**	**1771229**	**Percentile***	**RDL**	**1774127**	**1776571**	**1784529**	**1796467**
Nutrients																						
Phosphorus, Total	mg/L	0.03_{s4} [C]	0.0369	0.001	0.0116	0.0087	0.0349	0.0010	0.005	0.005	0.003	0.0130	0.001	<0.001	0.009	0.027	0.0154	0.001	**0.409**	0.008	<0.001	0.028
Total Metals																						
Antimony	µg/L	20 [C]	0.13	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	0.05	0.1	<0.1	<0.1	<0.1	0.08	0.1	<0.1	0.1	<0.1	<0.1
Arsenic	µg/L	100 [A] 5 [C]	7.02	0.1	4.57	4.42	1.34	0.1	1.4	1.3	1	3.26	0.1	1.7	1.9	**6.2**	13.56	0.1	4.6	**5.8**	**6.9**	**12**
Cobalt	µg/L	0.9 [C]	0.05	0.1	<0.1	<0.1	0.05	0.1	0.1	<0.1	<0.1	0.1	0.1	0.3	0.1	<0.1	0.05	0.1	<0.1	0.3	<0.1	<0.1
Iron	µg/L	300 [A]	190	10	149	100	103	10	280	70	110	190	10	110	150	200	136	10	190	140	210	170
Uranium	µg/L	5_a [C]	0.262	0.01	0.227	0.23	0.322	0.010	0.32	0.31	0.31	0.148	0.010	0.29	0.08	0.12	0.229	0.01	0.15	0.14	0.16	0.19

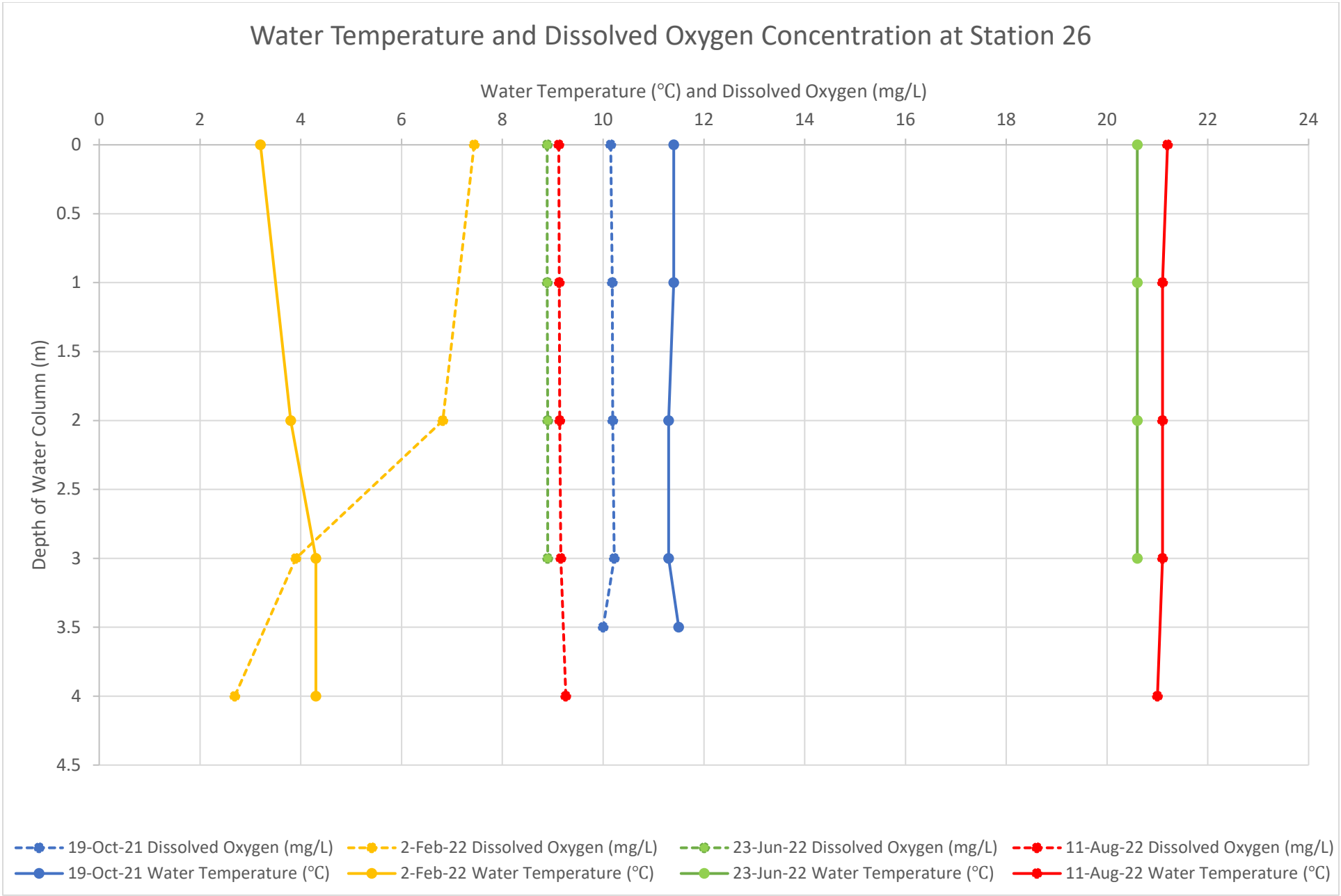
Notes:

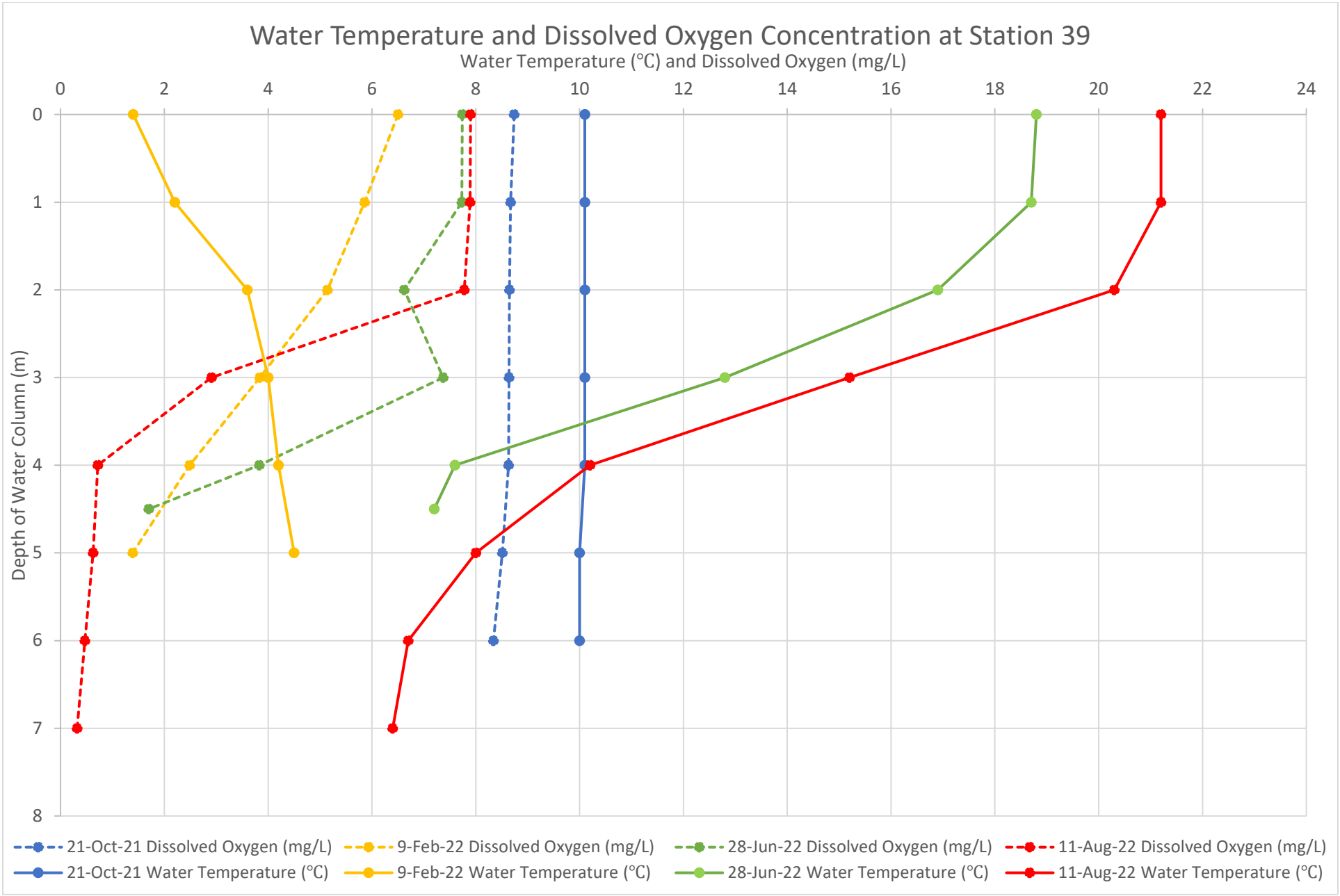
PWQO	Provincial Water Quality Objectives of the Ministry of Environment and Energy (MOEE, 1999)
A	PWQO Table 2
B	PWQO Table 2 - Calculated
C	PWQO Table 2 - Interim
6.5	Concentration exceeds the seasonal trigger and is 5x the detection limit
6.5	
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
a	This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.
s4	Applies to Phosphorus, total. PWQO is 0.03 mg/L for rivers and streams, 0.02 mg/L for lakes, and 0.01 mg/L for lakes naturally below this value.
*	Due to a limitied seasonal dataset, seasonal data from station 49 has been included in the sample count and 95th percentile calculations
**	December 2021 was not sampled due to unsafe conditions

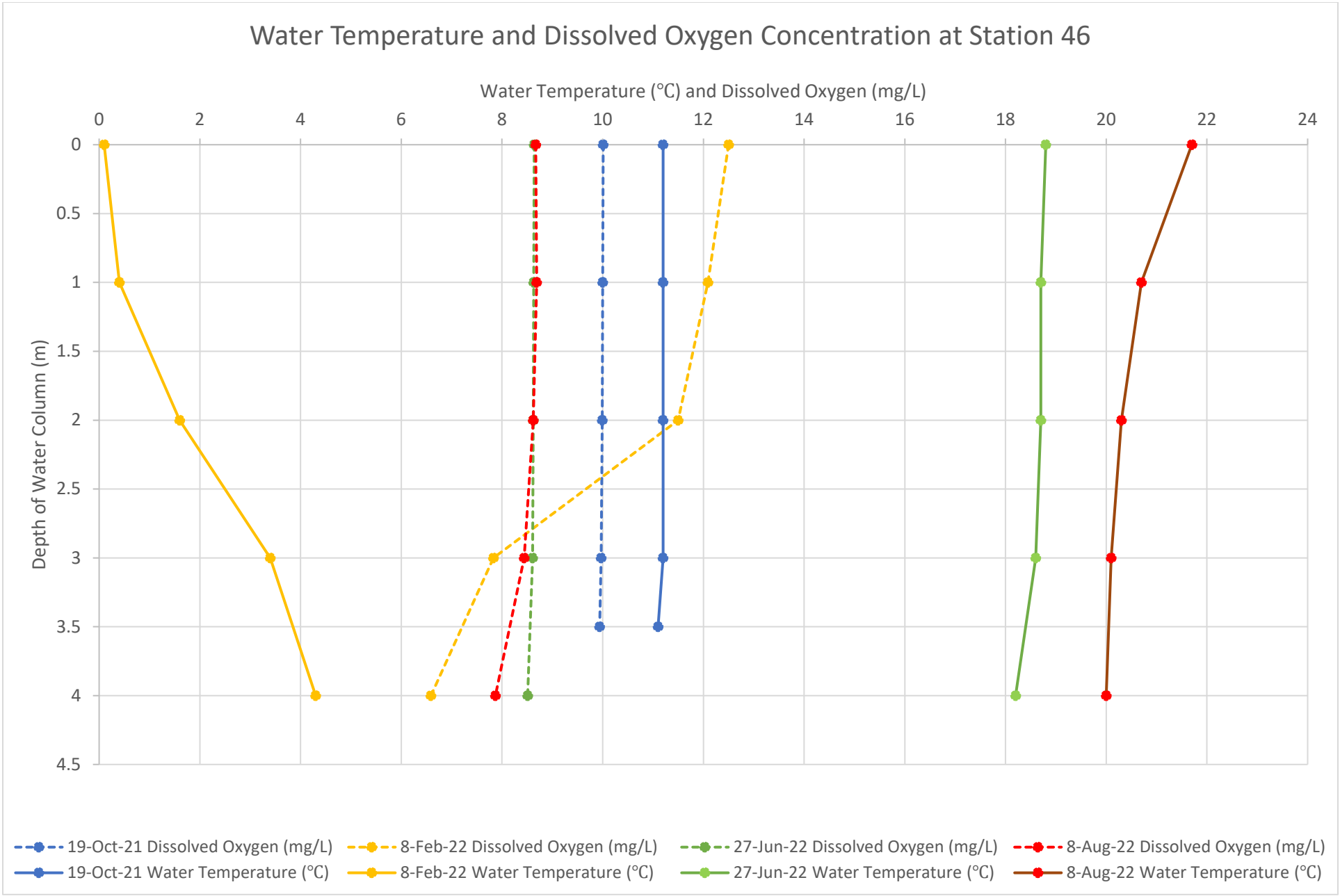
EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

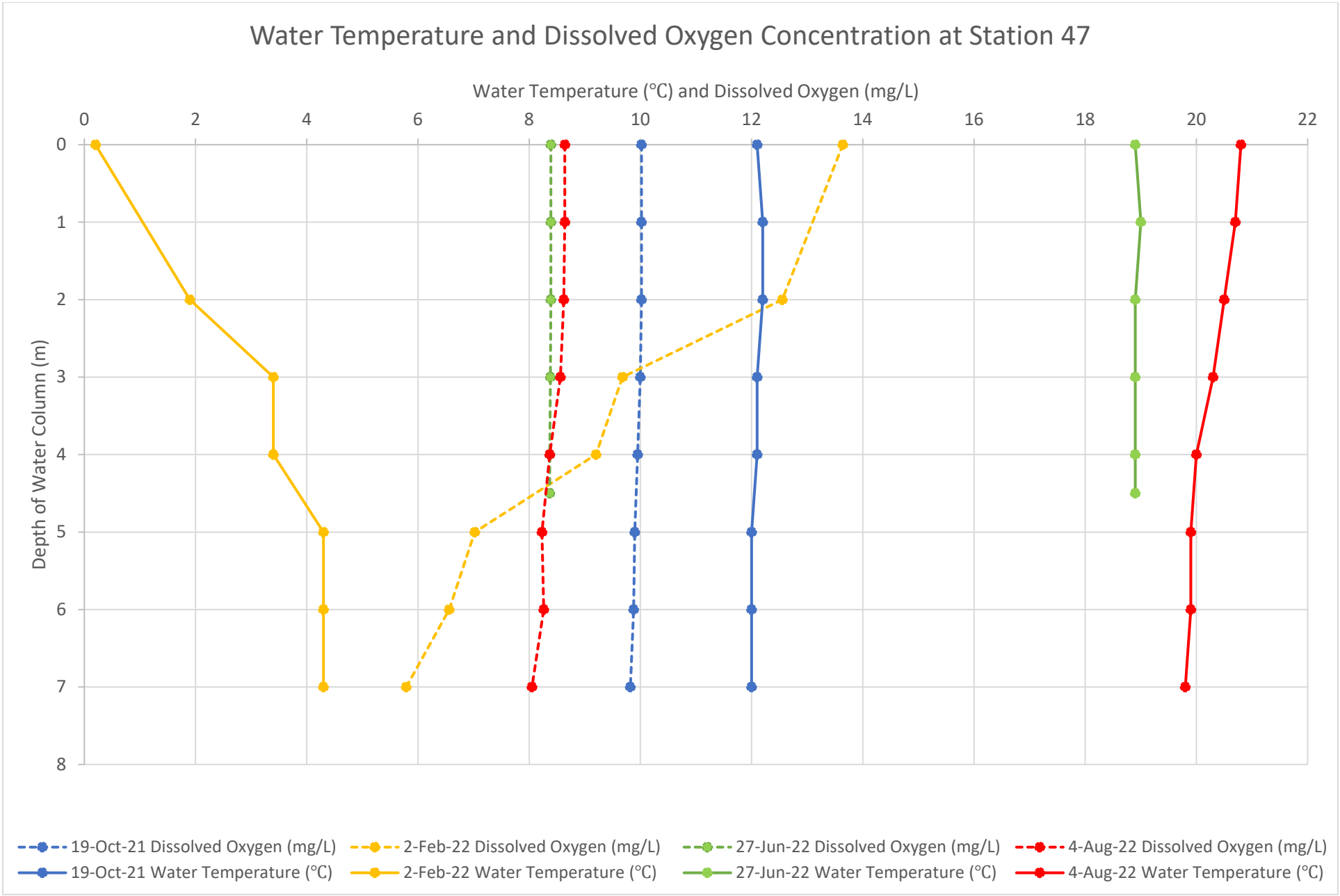
A-4
In-situ Dissolved Oxygen and Temperature Profiles and Graphs

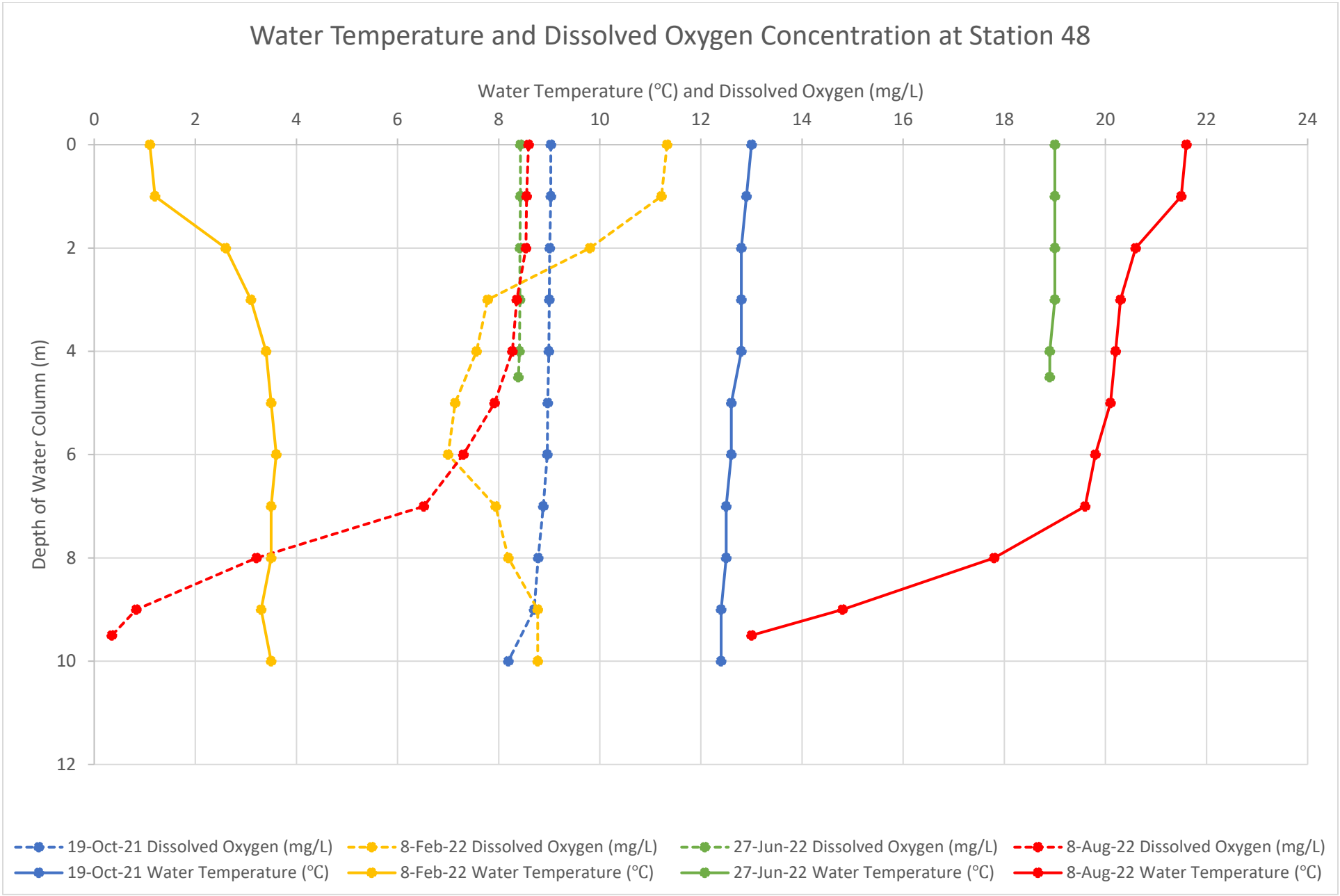

Water Temperature and Dissolved Oxygen Concentration at Station 21
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
24
Depth of Water Column (m)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
21-Oct-21 Dissolved Oxygen (mg/L)
9-Feb-22 Dissolved Oxygen (mg/L)
23-Jun-22 Dissolved Oxygen (mg/L)
11-Aug-22 Dissolved Oxygen (mg/L)
21-Oct-21 Water Temperature (°C)
9-Feb-22 Water Temperature (°C)
23-Jun-22 Water Temperature (°C)
11-Aug-22 Water Temperature (°C)

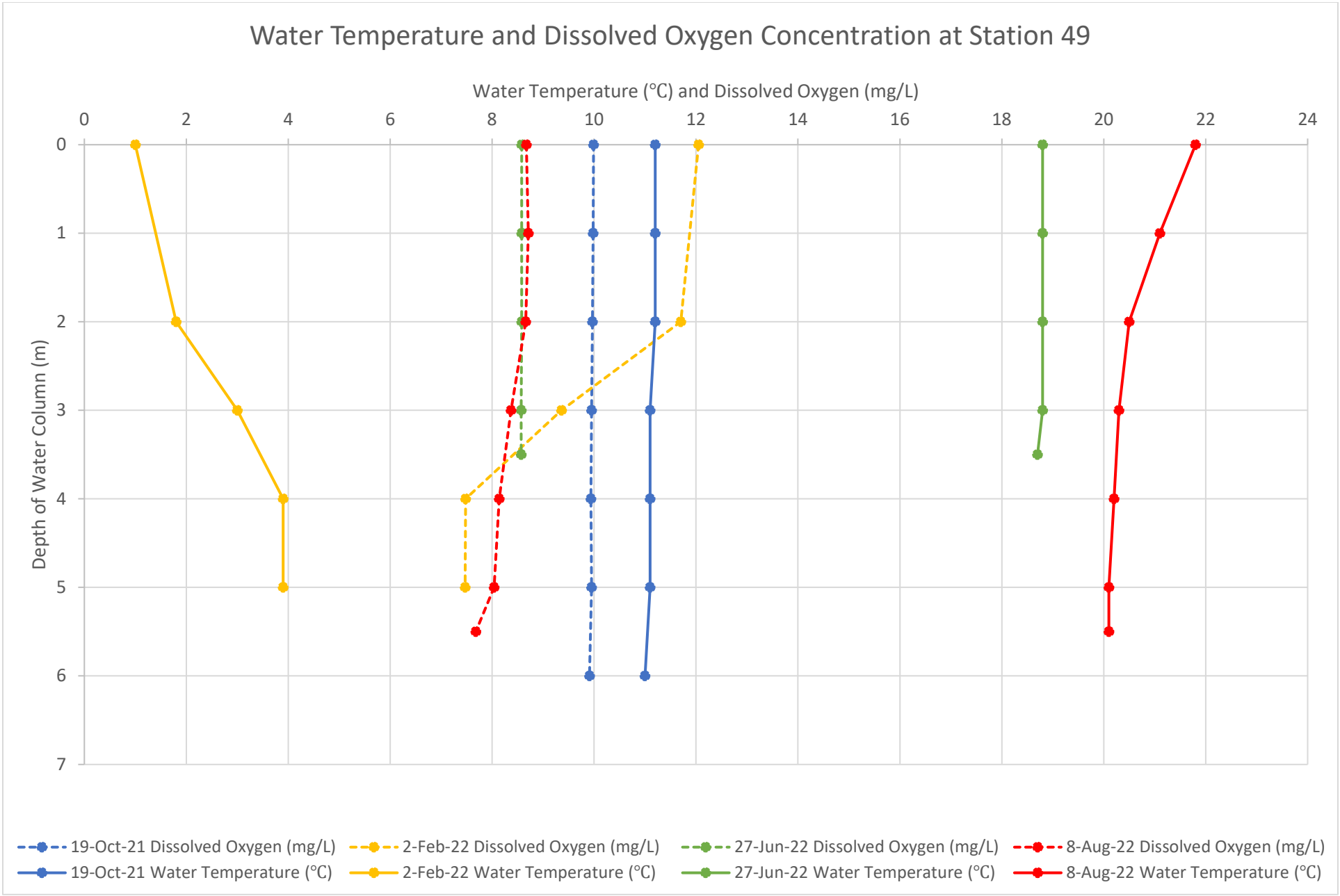

Water Temperature and Dissolved Oxygen Concentration at Station 26
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
24
Depth of Water Column (m)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
19-Oct-21 Dissolved Oxygen (mg/L)
2-Feb-22 Dissolved Oxygen (mg/L)
23-Jun-22 Dissolved Oxygen (mg/L)
11-Aug-22 Dissolved Oxygen (mg/L)
19-Oct-21 Water Temperature (°C)
2-Feb-22 Water Temperature (°C)
23-Jun-22 Water Temperature (°C)
11-Aug-22 Water Temperature (°C)

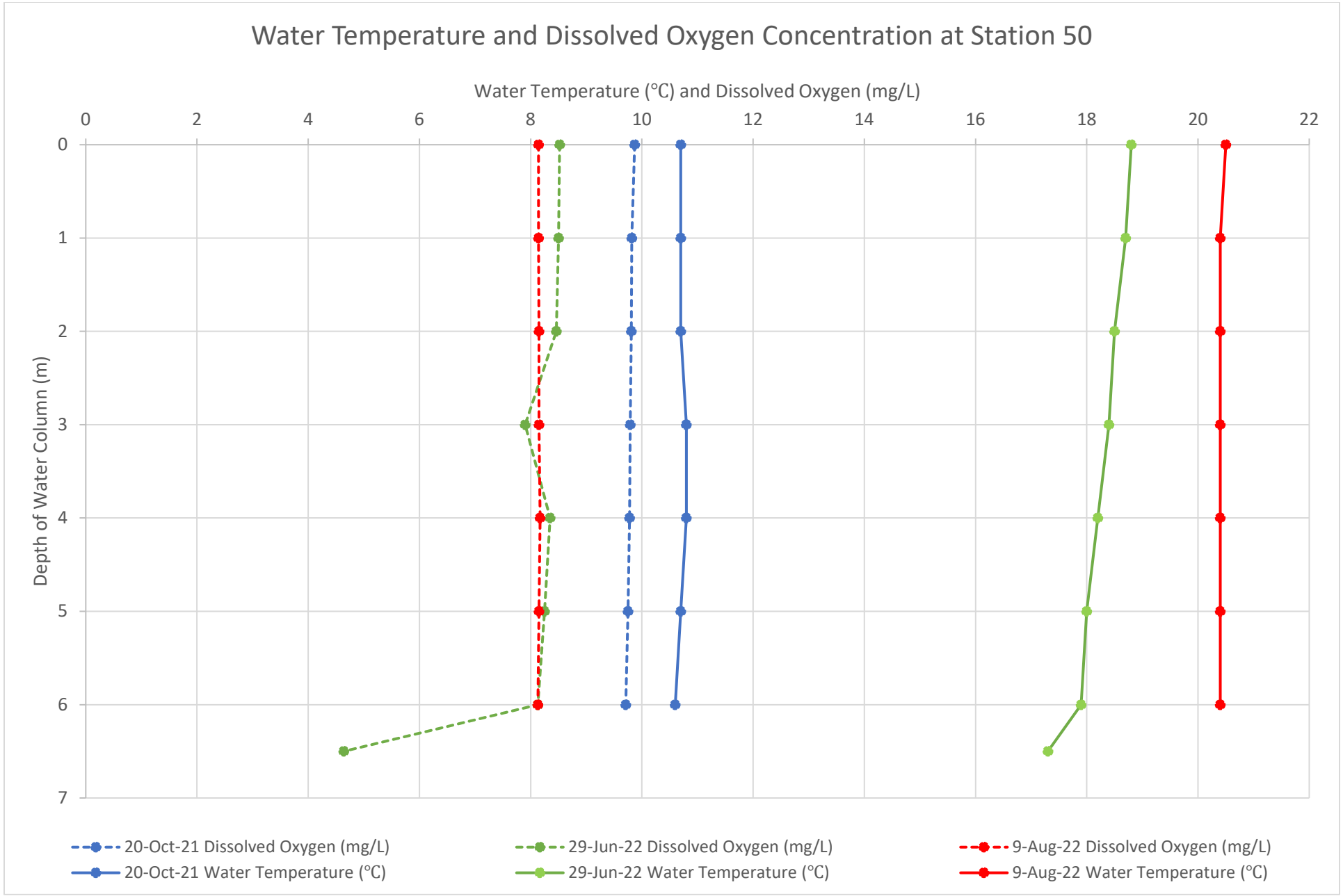

Water Temperature and Dissolved Oxygen Concentration at Station 39
Water Temperature (°C) and Dissolved Oxygen (mg/L)
Depth of Water Column (m)
0
2
4
6
8
10
12
14
16
18
20
22
24
0
1
2
3
4
5
6
7
8
21-Oct-21 Dissolved Oxygen (mg/L)
9-Feb-22 Dissolved Oxygen (mg/L)
28-Jun-22 Dissolved Oxygen (mg/L)
11-Aug-22 Dissolved Oxygen (mg/L)
21-Oct-21 Water Temperature (°C)
9-Feb-22 Water Temperature (°C)
28-Jun-22 Water Temperature (°C)
11-Aug-22 Water Temperature (°C)


Water Temperature and Dissolved Oxygen Concentration at Station 46
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
24
Depth of Water Column (m)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
19-Oct-21 Dissolved Oxygen (mg/L)
8-Feb-22 Dissolved Oxygen (mg/L)
27-Jun-22 Dissolved Oxygen (mg/L)
8-Aug-22 Dissolved Oxygen (mg/L)
19-Oct-21 Water Temperature (°C)
8-Feb-22 Water Temperature (°C)
27-Jun-22 Water Temperature (°C)
8-Aug-22 Water Temperature (°C)


Water Temperature and Dissolved Oxygen Concentration at Station 47
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
Depth of Water Column (m)
0
1
2
3
4
5
6
7
8
19-Oct-21 Dissolved Oxygen (mg/L)
2-Feb-22 Dissolved Oxygen (mg/L)
27-Jun-22 Dissolved Oxygen (mg/L)
4-Aug-22 Dissolved Oxygen (mg/L)
19-Oct-21 Water Temperature (°C)
2-Feb-22 Water Temperature (°C)
27-Jun-22 Water Temperature (°C)
4-Aug-22 Water Temperature (°C)


Water Temperature and Dissolved Oxygen Concentration at Station 48
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
24
Depth of Water Column (m)
0
2
4
6
8
10
12
19-Oct-21 Dissolved Oxygen (mg/L)
8-Feb-22 Dissolved Oxygen (mg/L)
27-Jun-22 Dissolved Oxygen (mg/L)
8-Aug-22 Dissolved Oxygen (mg/L)
19-Oct-21 Water Temperature (°C)
8-Feb-22 Water Temperature (°C)
27-Jun-22 Water Temperature (°C)
8-Aug-22 Water Temperature (°C)


Water Temperature and Dissolved Oxygen Concentration at Station 49
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
24
Depth of Water Column (m)
0
1
2
3
4
5
6
7
19-Oct-21 Dissolved Oxygen (mg/L)
2-Feb-22 Dissolved Oxygen (mg/L)
27-Jun-22 Dissolved Oxygen (mg/L)
8-Aug-22 Dissolved Oxygen (mg/L)
19-Oct-21 Water Temperature (°C)
2-Feb-22 Water Temperature (°C)
27-Jun-22 Water Temperature (°C)
8-Aug-22 Water Temperature (°C)


Water Temperature and Dissolved Oxygen Concentration at Station 50
Water Temperature (°C) and Dissolved Oxygen (mg/L)
0
2
4
6
8
10
12
14
16
18
20
22
Depth of Water Column (m)
0
1
2
3
4
5
6
7
20-Oct-21 Dissolved Oxygen (mg/L)
29-Jun-22 Dissolved Oxygen (mg/L)
9-Aug-22 Dissolved Oxygen (mg/L)
20-Oct-21 Water Temperature (°C)
29-Jun-22 Water Temperature (°C)
9-Aug-22 Water Temperature (°C)

Greenstone Mine - Surface Water Profile Data
October 2021 - September 2022

Sub-Location	Station Name	Date	Time	Sample Depth	Dissolved Oxygen, Field (mg/L)	Temperature, Field (deg C)
Lake A-322	21	2021-10-21	1:26:00 PM	0	10.1	8.3
Lake A-322	21	2021-10-21	1:28:00 PM	1	10.08	8.3
Lake A-322	21	2021-10-21	1:32:00 PM	1.5	10.07	8.3
Lake A-322	21	2022-02-09	10:25:00 AM	0	6.31	1.9
Lake A-322	21	2022-02-09	10:27:00 AM	1	5.15	2.6
Lake A-322	21	2022-02-09	10:30:00 AM	1.5	4.24	3.3
Lake A-322	21	2022-06-23	3:31:00 PM	0	8.19	21.1
Lake A-322	21	2022-06-23	3:35:00 PM	1	8.11	20.9
Lake A-322	21	2022-08-11	11:24:00 AM	0	7.92	20.5
Lake A-322	21	2022-08-11	11:26:00 AM	1	7.94	20.5
Lake A-322	21	2022-08-11	11:30:00 AM	1.5	7.94	20.5
Mosher Lake	26	2021-10-19	3:03:00 PM	0	10.15	11.4
Mosher Lake	26	2021-10-19	3:05:00 PM	1	10.18	11.4
Mosher Lake	26	2021-10-19	3:07:00 PM	2	10.19	11.3
Mosher Lake	26	2021-10-19	3:10:00 PM	3	10.22	11.3
Mosher Lake	26	2021-10-19	3:12:00 PM	3.5	10	11.5
Mosher Lake	26	2022-02-02	9:41:00 AM	0	7.44	3.2
Mosher Lake	26	2022-02-02	9:43:00 AM	2	6.82	3.8
Mosher Lake	26	2022-02-02	9:46:00 AM	3	3.9	4.3
Mosher Lake	26	2022-02-02	9:51:00 AM	4	2.69	4.3
Mosher Lake	26	2022-06-23	2:20:00 PM	0	8.89	20.6
Mosher Lake	26	2022-06-23	2:22:00 PM	1	8.89	20.6
Mosher Lake	26	2022-06-23	2:23:00 PM	2	8.9	20.6
Mosher Lake	26	2022-06-23	2:25:00 PM	3	8.9	20.6
Mosher Lake	26	2022-08-11	3:36:00 PM	0	9.12	21.2
Mosher Lake	26	2022-08-11	3:38:00 PM	1	9.13	21.1
Mosher Lake	26	2022-08-11	3:41:00 PM	2	9.14	21.1
Mosher Lake	26	2022-08-11	3:45:00 PM	3	9.16	21.1
Mosher Lake	26	2022-08-11	3:49:00 PM	4	9.26	21
Southwest Pond 3	39	2021-10-21	2:41:00 PM	0	8.74	10.1
Southwest Pond 3	39	2021-10-21	2:43:00 PM	1	8.67	10.1
Southwest Pond 3	39	2021-10-21	2:45:00 PM	2	8.65	10.1
Southwest Pond 3	39	2021-10-21	2:47:00 PM	3	8.64	10.1
Southwest Pond 3	39	2021-10-21	2:49:00 PM	4	8.63	10.1
Southwest Pond 3	39	2021-10-21	2:53:00 PM	5	8.51	10
Southwest Pond 4	39	2021-10-21	2:59:00 PM	6	8.34	10
Southwest Pond 5	39	2022-02-09	1:17:00 PM	0	6.5	1.4
Southwest Pond 6	39	2022-02-09	1:19:00 PM	1	5.86	2.2
Southwest Pond 7	39	2022-02-09	1:22:00 PM	2	5.14	3.6
Southwest Pond 8	39	2022-02-09	1:25:00 PM	3	3.84	4
Southwest Pond 9	39	2022-02-09	1:28:00 PM	4	2.49	4.2
Southwest Pond 10	39	2022-02-09	1:30:00 PM	5	1.39	4.5
Southwest Pond 11	39	2022-06-28	3:22:00 PM	0	7.74	18.8
Southwest Pond 12	39	2022-06-28	3:22:00 PM	1	7.73	18.7
Southwest Pond 13	39	2022-06-28	3:22:00 PM	2	6.62	16.9
Southwest Pond 14	39	2022-06-28	3:22:00 PM	3	7.37	12.8
Southwest Pond 15	39	2022-06-28	3:22:00 PM	4	3.83	7.6
Southwest Pond 3	39	2022-06-28	3:22:00 PM	4.5	1.7	7.2
Southwest Pond 3	39	2022-08-11	2:04:00 PM	0	7.9	21.2
Southwest Pond 3	39	2022-08-11	2:06:00 PM	1	7.89	21.2
Southwest Pond 3	39	2022-08-11	2:10:00 PM	2	7.78	20.3
Southwest Pond 3	39	2022-08-11	2:12:00 PM	3	2.91	15.2

Southwest Pond 3	39	2022-08-11	2:15:00 PM	4	0.72	10.2
Southwest Pond 3	39	2022-08-11	2:20:00 PM	5	0.63	8
Southwest Pond 3	39	2022-08-11	2:23:00 PM	6	0.47	6.7
Southwest Pond 3	39	2022-08-11	2:26:00 PM	7	0.32	6.4
Southwest Arm	46	2021-10-19	10:08:00 AM	0	10.01	11.2
Southwest Arm	46	2021-10-19	10:12:00 AM	1	10	11.2
Southwest Arm	46	2021-10-19	10:15:00 AM	2	9.99	11.2
Southwest Arm	46	2021-10-19	10:17:00 AM	3	9.97	11.2
Southwest Arm	46	2021-10-19	10:19:00 AM	3.5	9.94	11.1
Southwest Arm	46	2022-02-08	11:48:00 AM	0	12.5	0.1
Southwest Arm	46	2022-02-08	11:50:00 AM	1	12.09	0.4
Southwest Arm	46	2022-02-08	11:53:00 AM	2	11.5	1.6
Southwest Arm	46	2022-02-08	11:54:00 AM	3	7.83	3.4
Southwest Arm	46	2022-02-08	11:55:00 AM	4	6.59	4.3
Southwest Arm	46	2022-06-27	12:22:00 PM	0	8.64	18.8
Southwest Arm	46	2022-06-27	12:24:00 PM	1	8.63	18.7
Southwest Arm	46	2022-06-27	12:26:00 PM	2	8.62	18.7
Southwest Arm	46	2022-06-27	12:28:00 PM	3	8.61	18.6
Southwest Arm	46	2022-06-27	12:30:00 PM	4	8.51	18.2
Southwest Arm	46	2022-08-08	3:55:00 PM	0	8.67	21.7
Southwest Arm	46	2022-08-08	3:57:00 PM	1	8.69	20.7
Southwest Arm	46	2022-08-08	4:00:00 PM	2	8.62	20.3
Southwest Arm	46	2022-08-08	4:03:00 PM	3	8.44	20.1
Southwest Arm	46	2022-08-08	4:06:00 PM	4	7.87	20
Central Basin	47	2021-10-19	11:35:00 AM	0	10.02	12.1
Central Basin	47	2021-10-19	11:37:00 AM	1	10.02	12.2
Central Basin	47	2021-10-19	11:39:00 AM	2	10.02	12.2
Central Basin	47	2021-10-19	11:41:00 AM	3	10	12.1
Central Basin	47	2021-10-19	11:43:00 AM	4	9.95	12.1
Central Basin	47	2021-10-19	11:45:00 AM	5	9.9	12
Central Basin	47	2021-10-19	11:47:00 AM	6	9.88	12
Central Basin	47	2021-10-19	11:49:00 AM	7	9.82	12
Central Basin	47	2022-02-02	1:04:00 PM	0	13.64	0.2
Central Basin	47	2022-02-02	1:06:00 PM	2	12.55	1.9
Central Basin	47	2022-02-02	1:08:00 PM	3	9.68	3.4
Central Basin	47	2022-02-02	1:10:00 PM	4	9.2	3.4
Central Basin	47	2022-02-02	1:12:00 PM	5	7.02	4.3
Central Basin	47	2022-02-02	1:14:00 PM	6	6.56	4.3
Central Basin	47	2022-02-02	1:16:00 PM	7	5.79	4.3
Central Basin	47	2022-06-27	1:30:00 PM	0	8.39	18.9
Central Basin	47	2022-06-27	1:32:00 PM	1	8.39	19
Central Basin	47	2022-06-27	1:34:00 PM	2	8.39	18.9
Central Basin	47	2022-06-27	1:36:00 PM	3	8.38	18.9
Central Basin	47	2022-06-27	1:38:00 PM	4	8.37	18.9
Central Basin	47	2022-06-27	1:40:00 PM	4.5	8.37	18.9
Central Basin	47	2022-08-04	3:26:00 PM	0	8.64	20.8
Central Basin	47	2022-08-04	3:30:00 PM	1	8.64	20.7
Central Basin	47	2022-08-04	3:33:00 PM	2	8.62	20.5
Central Basin	47	2022-08-04	3:36:00 PM	3	8.56	20.3
Central Basin	47	2022-08-04	3:40:00 PM	4	8.37	20
Central Basin	47	2022-08-04	3:42:00 PM	5	8.23	19.9
Central Basin	47	2022-08-04	3:45:00 PM	6	8.26	19.9
Central Basin	47	2022-08-04	3:47:00 PM	7	8.05	19.8
Outlet Basin	48	2021-10-19	1:17:00 PM	0	9.03	13
Outlet Basin	48	2021-10-19	1:20:00 PM	1	9.03	12.9
Outlet Basin	48	2021-10-19	1:22:00 PM	2	9.01	12.8
Outlet Basin	48	2021-10-19	1:24:00 PM	3	9	12.8
Outlet Basin	48	2021-10-19	1:26:00 PM	4	8.99	12.8

Outlet Basin	48	2021-10-19	1:28:00 PM	5	8.97	12.6
Outlet Basin	48	2021-10-19	1:30:00 PM	6	8.96	12.6
Outlet Basin	48	2021-10-19	1:32:00 PM	7	8.88	12.5
Outlet Basin	48	2021-10-19	1:34:00 PM	8	8.78	12.5
Outlet Basin	48	2021-10-19	1:36:00 PM	9	8.7	12.4
Outlet Basin	48	2021-10-19	1:38:00 PM	10	8.19	12.4
Outlet Basin	48	2022-02-08	10:49:00 AM	0	11.33	1.1
Outlet Basin	48	2022-02-08	10:50:00 AM	1	11.22	1.2
Outlet Basin	48	2022-02-08	10:53:00 AM	2	9.8	2.6
Outlet Basin	48	2022-02-08	10:54:00 AM	3	7.78	3.1
Outlet Basin	48	2022-02-08	10:55:00 AM	4	7.56	3.4
Outlet Basin	48	2022-02-08	10:56:00 AM	5	7.14	3.5
Outlet Basin	48	2022-02-08	10:57:00 AM	6	7	3.6
Outlet Basin	48	2022-02-08	10:59:00 AM	7	7.94	3.5
Outlet Basin	48	2022-02-08	11:00:00 AM	8	8.19	3.5
Outlet Basin	48	2022-02-08	11:01:00 AM	9	8.77	3.3
Outlet Basin	48	2022-02-08	11:02:00 AM	10	8.77	3.5
Outlet Basin	48	2022-06-27	2:45:00 PM	0	8.43	19
Outlet Basin	48	2022-06-27	2:47:00 PM	1	8.43	19
Outlet Basin	48	2022-06-27	2:49:00 PM	2	8.42	19
Outlet Basin	48	2022-06-27	2:51:00 PM	3	8.42	19
Outlet Basin	48	2022-06-27	2:53:00 PM	4	8.41	18.9
Outlet Basin	48	2022-06-27	2:55:00 PM	4.5	8.39	18.9
Outlet Basin	48	2022-08-08	2:20:00 PM	0	8.59	21.6
Outlet Basin	48	2022-08-08	2:22:00 PM	1	8.55	21.5
Outlet Basin	48	2022-08-08	2:25:00 PM	2	8.54	20.6
Outlet Basin	48	2022-08-08	2:27:00 PM	3	8.36	20.3
Outlet Basin	48	2022-08-08	2:30:00 PM	4	8.27	20.2
Outlet Basin	48	2022-08-08	2:33:00 PM	5	7.92	20.1
Outlet Basin	48	2022-08-08	2:35:00 PM	6	7.3	19.8
Outlet Basin	48	2022-08-08	2:39:00 PM	7	6.52	19.6
Outlet Basin	48	2022-08-08	2:41:00 PM	8	3.21	17.8
Outlet Basin	48	2022-08-08	2:43:00 PM	9	0.83	14.8
Outlet Basin	48	2022-08-08	2:46:00 PM	9.5	0.35	13
Southwest Arm	49	2021-10-19	11:00:00 AM	0	9.99	11.2
Southwest Arm	49	2021-10-19	11:03:00 AM	1	9.98	11.2
Southwest Arm	49	2021-10-19	11:05:00 AM	2	9.97	11.2
Southwest Arm	49	2021-10-19	11:09:00 AM	3	9.95	11.1
Southwest Arm	49	2021-10-19	11:11:00 AM	4	9.94	11.1
Southwest Arm	49	2021-10-19	11:13:00 AM	5	9.95	11.1
Southwest Arm	49	2021-10-19	11:15:00 AM	6	9.91	11
Southwest Arm	49	2022-02-02	1:54:00 PM	0	12.05	1
Southwest Arm	49	2022-02-02	1:55:00 PM	2	11.7	1.8
Southwest Arm	49	2022-02-02	1:57:00 PM	3	9.36	3
Southwest Arm	49	2022-02-02	1:59:00 PM	4	7.48	3.9
Southwest Arm	49	2022-02-02	2:01:00 PM	5	7.47	3.9
Southwest Arm	49	2022-06-27	1:00:00 PM	0	8.58	18.8
Southwest Arm	49	2022-06-27	1:00:00 PM	1	8.58	18.8
Southwest Arm	49	2022-06-27	1:00:00 PM	2	8.58	18.8
Southwest Arm	49	2022-06-27	1:00:00 PM	3	8.57	18.8
Southwest Arm	49	2022-06-27	1:00:00 PM	3.5	8.57	18.7
Southwest Arm	49	2022-08-08	3:27:00 PM	0	8.67	21.8
Southwest Arm	49	2022-08-08	3:29:00 PM	1	8.71	21.1
Southwest Arm	49	2022-08-08	3:32:00 PM	2	8.66	20.5
Southwest Arm	49	2022-08-08	3:35:00 PM	3	8.37	20.3
Southwest Arm	49	2022-08-08	3:38:00 PM	4	8.14	20.2
Southwest Arm	49	2022-08-08	3:41:00 PM	5	8.04	20.1
Southwest Arm	49	2022-08-08	3:45:00 PM	5.5	7.68	20.1

Gamsby Lake	50	2021-10-20	2:20:00 PM	0	9.87	10.7
Gamsby Lake	50	2021-10-20	2:21:00 PM	1	9.82	10.7
Gamsby Lake	50	2021-10-20	2:23:00 PM	2	9.81	10.7
Gamsby Lake	50	2021-10-20	2:24:00 PM	3	9.79	10.8
Gamsby Lake	50	2021-10-20	2:25:00 PM	4	9.78	10.8
Gamsby Lake	50	2021-10-20	2:26:00 PM	5	9.75	10.7
Gamsby Lake	50	2021-10-21	2:27:00 PM	6	9.71	10.6
Gamsby Lake	50	2022-02	unsafe	0	-	-
Gamsby Lake	50	2022-02	unsafe	1	-	-
Gamsby Lake	50	2022-02	unsafe	2	-	-
Gamsby Lake	50	2022-02	unsafe	3	-	-
Gamsby Lake	50	2022-02	unsafe	4	-	-
Gamsby Lake	50	2022-02	unsafe	5	-	-
Gamsby Lake	50	2022-02	unsafe	6	-	-
Gamsby Lake	50	2022-06-29	2:06:00 PM	0	8.52	18.8
Gamsby Lake	50	2022-06-29	2:09:00 PM	1	8.5	18.7
Gamsby Lake	50	2022-06-29	2:12:00 PM	2	8.46	18.5
Gamsby Lake	50	2022-06-29	2:15:00 PM	3	7.9	18.4
Gamsby Lake	50	2022-06-29	2:18:00 PM	4	8.35	18.2
Gamsby Lake	50	2022-06-29	2:21:00 PM	5	8.25	18
Gamsby Lake	50	2022-06-29	2:24:00 PM	6	8.13	17.9
Gamsby Lake	50	2022-06-29	2:28:00 PM	6.5	4.64	17.3
Gamsby Lake	50	2022-08-09	12:40:00 PM	0	8.14	20.5
Gamsby Lake	50	2022-08-09	12:43:00 PM	1	8.14	20.4
Gamsby Lake	50	2022-08-09	12:45:00 PM	2	8.15	20.4
Gamsby Lake	50	2022-08-09	12:47:00 PM	3	8.15	20.4
Gamsby Lake	50	2022-08-09	12:51:00 PM	4	8.17	20.4
Gamsby Lake	50	2022-08-09	12:53:00 PM	5	8.15	20.4
Gamsby Lake	50	2022-08-09	12:55:00 PM	6	8.13	20.4

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

A-5
Trigger Threshold Investigation Reports

Stantec

Memo

To:	Shane Hayes Greenstone Gold Mines	From:	Igor Iskra Stantec Consulting Ltd.
File:	160900981 HP-MG003-EV-119-0070_0	Date:	April 8, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in conditions of approval for the federal Environmental Impact Statement (EIS) and provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are deemed mine related. Trigger Threshold 1 and 2 were exceeded for arsenic at Station 8 and therefore the respective action plans were initiated. Station 8 is located in Kenogamisis Lake, at the narrows between the Central Basin and the Outlet Basin. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for arsenic at Station 8.

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for a given parameter is calculated based on data collected prior to September 15th 2021. The concentration of arsenic at Station 8 exceeded the seasonal 95th percentile baseline concentration and was five times the detection limit for October and November 2021 and January 2022. There was no sampling completed at Station 8 in December 2021 due to unsafe ice conditions. Therefore, in January 2022, arsenic at Station 8 exceeded surface water quality Trigger Threshold 1.

Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the response plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 8. No anomalies in the sampling methods, sample handling. or laboratory reporting were noted. Therefore, resampling of Station 8 was completed in February 2022, which also accounted for the scheduled February monthly surface water sampling event.

The results of the February sampling event showed that arsenic at Station 8 continued to exceed the associated seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for arsenic at Station 8 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

The trend analysis for arsenic at Station 8 was completed using the Mann-Kendall test. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. There were no upward trends observed in the baseline concentration of arsenic at Station 8.

The trend analysis was then completed on the entire available data set for arsenic at Station 8. A statistically significant increasing trend in the concentration of arsenic at station 8 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for arsenic at Station 8. Therefore, Trigger Threshold 2 action plan was undertaken for this parameter and station.

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of sample variation, a single anomalous event, such as a meteorological event, or seasonal variation.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

As per step 1 of the Trigger Threshold 2 action plan, the IAA, MECP, and the EACs were notified of the Trigger Threshold 2 exceedance.

Step 2 of the Trigger Threshold 2 action plan requires an investigation to assess whether the exceedance is mine related while step 3 requires a quantitative risk evaluation. The following summarizes the results of the investigation and quantitative risk evaluation for the Trigger Threshold 2 exceedance of arsenic at Station 8.

Station 8 is located at the outlet of Central Basin of Kenogamisis Lake. Fall arsenic concentrations at Station 8 are presented in **Table 1**. The baseline fall 95th percentile arsenic concentration of 17.7 µg/L was exceeded in October and November of 2021. No sampling was taken in December due to safety concerns.

Winter arsenic concentrations at Station 8 are presented in **Table 2**. The baseline winter 95th percentile arsenic concentration of 6.06 ug/L was exceeded in January 2022 and during the resampling that occurred in February of 2022, which also accounted for the February 2022 monthly sampling event.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

Table 1: Fall Arsenic Concentrations (µg/L) at Station 8

Baseline Sampling*								Mine Construction Sampling**	
23-Oct-13	15-Oct-14	19-Oct-15	27-Oct-16	10-Oct-17	6-Nov-18	5-Nov-19	95th Percentile	19-Oct-21	9-Nov-21
13.3	11	17.1	18	13.9	11.7	12.3	17.7	19	19.2

Notes:

*: Baseline samples are considered those samples collected between the start of monitoring (2013) up until September 15, 2022

**: Mine construction samples are considered samples collected on or after September 15, 2022 which corresponds with the commissioning of the temporary ETP.

Table 2: Winter Arsenic Concentrations (µg/L) at Station 8

Baseline Sampling														Mine Construction Sampling	
28-Jan-14	25-Feb-14	27-Mar-14	20-Jan-15	26-Feb-15	25-Mar-15	17-Feb-17	13-Mar-17	15-Jan-18	13-Feb-18	19-Mar-18	13-Feb-19	22-Mar-21	95th Percentile	6-Jan-22	1-Feb-22
1.8	2.1	2.3	2.9	3.1	2.7	5.66	4.89	2.72	6.66	1.85	3.14	3.08	6.06	10.9	7.4

Notes:

*: Baseline samples are considered those samples collected between the start of monitoring (2013) up until September 15, 2022

**: Mine construction samples are considered samples collected on or after September 15, 2022 which corresponds with the commissioning of the temporary ETP.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

Figure 1 shows the concentration of arsenic over time at Station 8 with a trendline. Monthly sampling of Station 8 commenced in 2013.

Based on conducted analysis it was concluded that the two seasonal 95th percentile exceedances of arsenic in fall 2021 and two exceedances in winter 2022 are not project related based on following observations:

- The highest concentration of arsenic at Station 8 was measured in the September 2021 sample, the last sample collected under baseline conditions. The concentration of arsenic at Station 8 in September 2021 was 24.8 µg/L, which exceeds the summer 95th percentile of 23.4 µg/L. Figure 1 shows strong natural seasonal cyclical trends of arsenic throughout a given year at Station 8 with high concentrations in summer and fall and low concentrations in winter and spring. As the highest concentration of arsenic under baseline conditions was observed in September 2021 it is reasonable that the concentration of arsenic in fall 2021 and winter 2022 would continue to follow the pre-construction trend of slightly elevated concentrations of arsenic for the 2021/2022 annual cycle compared to the historical annual cycles. It is also reasonable to predict that the concentration of arsenic for the remainder of the annual cyclical trend (winter and possibly spring 2022) will continue to be slightly elevated relative to the 95th percentile.
- Spatial extent of arsenic exceedance was assessed, and it was concluded that the exceedance event at Station 8 (highway bridge at outlet of Central Basin) is isolated to one monitoring station. No trigger thresholds were exceeded for upstream trigger stations 4, 49, and 53.
- Potential sources of contamination were investigated, and no obvious sources of arsenic were found at Station 8. The only mine discharges occurring were related to intermittent discharge from the TETP. The TETP commenced discharging (intermittently) in September 2022, after the highest concentration of arsenic on record was observed at Station 8. Based on 2D continuous and 3D instantaneous effluent modeling, the TETP mixing zone does not extend to Station 8.
- Potential changing trends associated with other parameters at Station 8 were not observed.
- The magnitude of the exceedance above the seasonal 95th percentile was assessed. It was noted that the arsenic exceedance represents a minor deviation from the seasonal 95th percentile which is used in Trigger Threshold 1. Figure 1 shows strong seasonal natural variability of arsenic at Station 8 with high concentrations in summer-fall and low concentrations in winter and spring. The same variability of concentrations is observed in Fall 2021 and Winter of 2022.
- The concentration of arsenic as well as monthly loads in the TETP effluent are very low (**Table 3**). The maximum daily effluent concentration of arsenic was 6.5 µg/L, which was similar to baseline arsenic concentrations in the receiver. Therefore, the TETP discharge is not contributing appreciably to additional mass loading of arsenic in Kenogamisis Lake.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

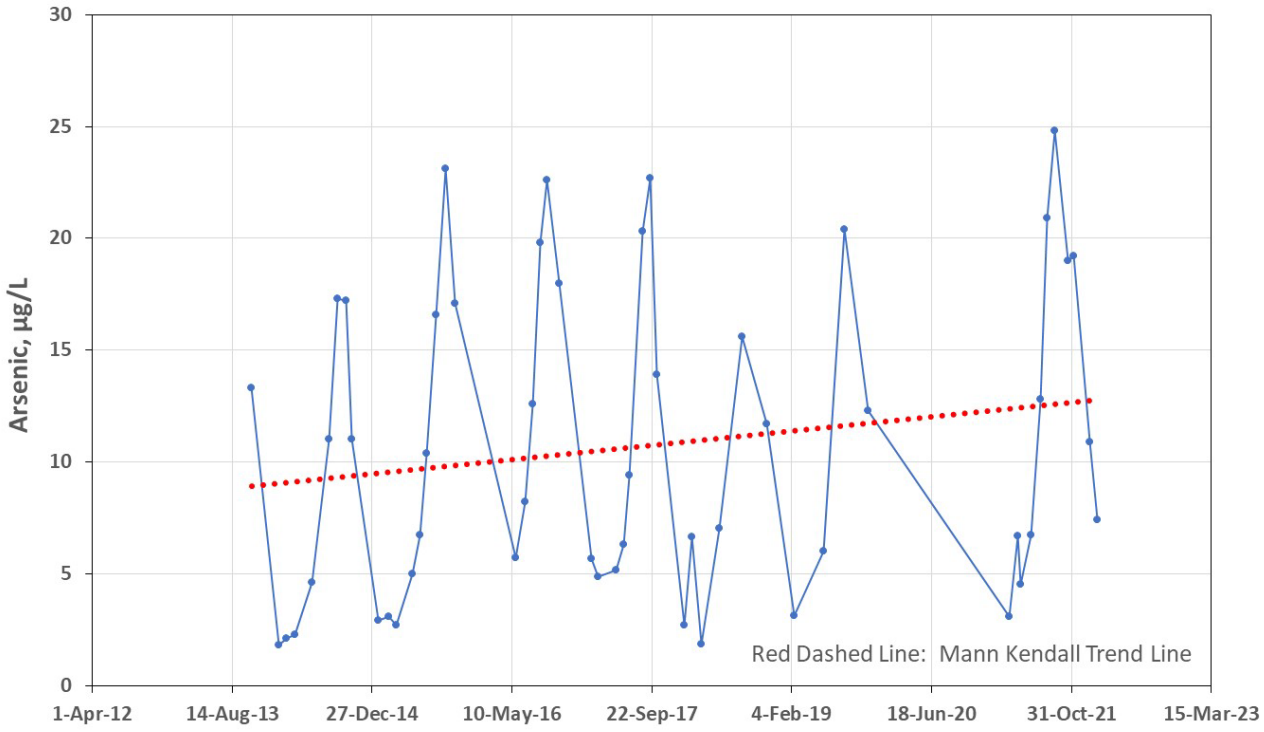


Figure 1: Arsenic Concentration at Station 8

Table 3: TETP Effluent Concentration and Mass Loading of Arsenic in 2021

Period	Discharge Volume (m3)	Value	Arsenic
September 2021	4,262	Monthly average concentration (mg/L)	0.0051
		Load (kg/month)	0.0219
October 2021	13,045	Monthly average concentration (mg/L)	0.0045
		Load (kg/month)	0.0591
November 2021	11,168	Monthly average concentration (mg/L)	0.0039
		Load (kg/month)	0.0439
Annual (2021)	28,475	2021 Annual load (kg/year)	0.1248

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

SUMMARY AND CLOSING

In summary, during the September 2022 reporting period Trigger Threshold 2 was exceeded for iron at Station 8. The Trigger Threshold 2 action plan was completed and was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggest the elevated concentrations of iron at Station 8 may be related to either natural variability or laboratory analyses affecting the results for iron. Therefore, the investigation into the laboratory data needs to be completed prior to concluding the potential source of increased iron concentrations at Station 8.

As the concentration of iron at Station 8 is notably below the PWQO, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time while the investigation into the laboratory analyses is completed. Once the investigation into the laboratory analyses is completed, a review of the trigger threshold exceedances to date will be completed to understand if the results of the laboratory investigation alter the previously noted trigger threshold exceedances and associated investigations.

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

Igor Iskra Ph.D., P. Eng.
Senior Water Resources Engineer

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Stantec

Memo

To:	Shane Hayes	From:	Igor Iskra
	Greenstone Gold Mines		Stantec Consulting Ltd.
File:	160900981	Date:	October 31, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

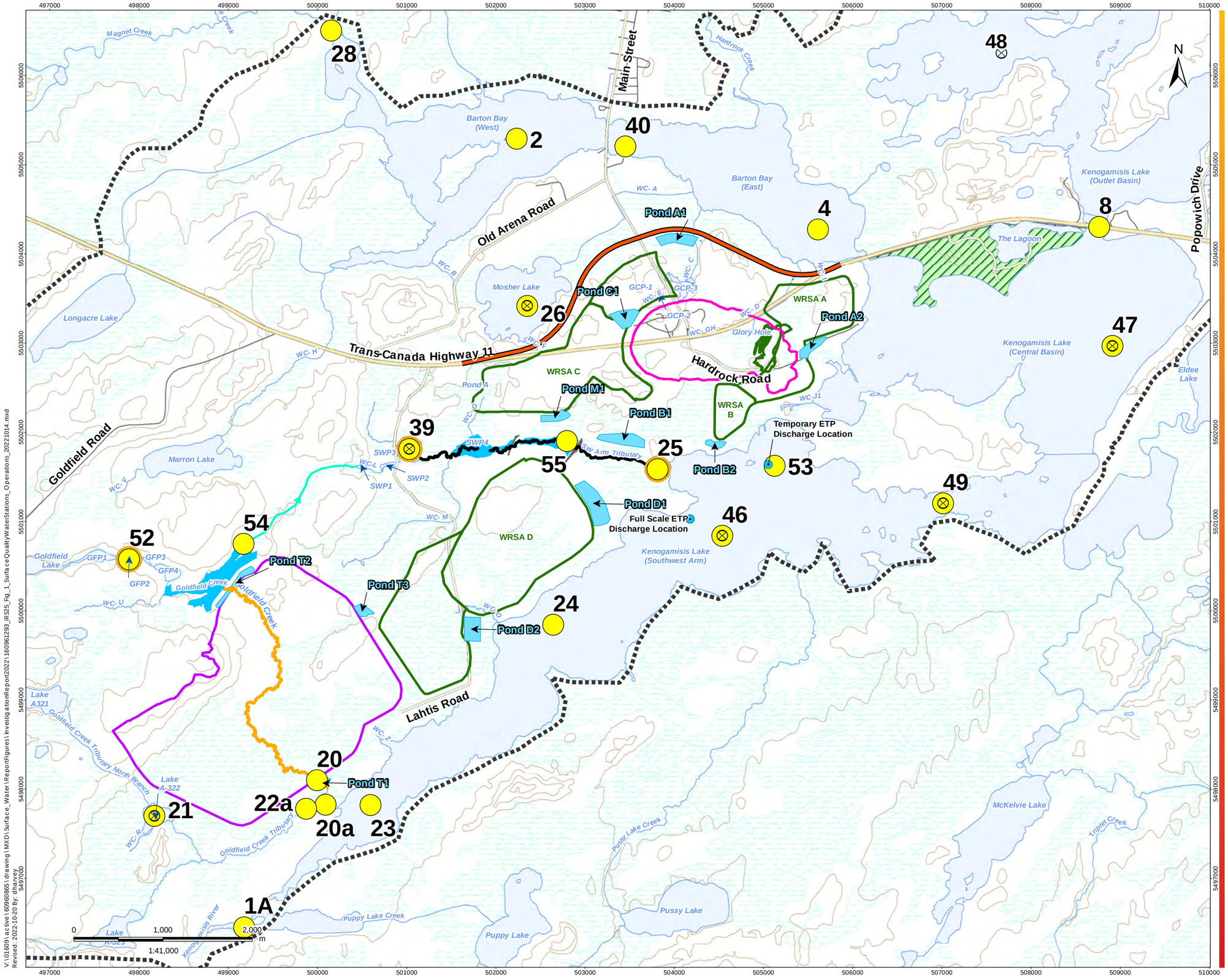
The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are determined to be mine related. Trigger Threshold 1 and 2 were exceeded for iron at Station 8 and therefore the respective action plans were initiated. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for iron at Station 8.

Station 8 is located in Central Basin at the bridge on HWY 11 (**Figure 1**). Station 8 is located downstream of Barton Bay and Southwest Arm and downstream of mine activities.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.



Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Existing Portion of Goldfield Creek (to be overprinted)
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

October 2022
160961293

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water
Quality Monitoring Locations

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Revised: 2022-10-20 By: dhavey

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for each season for a given parameter is calculated based on data collected prior to September 15th 2021.

The concentration of iron at Station 8 exceeded the spring seasonal 95th percentile baseline concentration in May and June of 2022 and the summer seasonal 95th percentile baseline concentration in July, August and September. Therefore, the surface water quality Trigger Threshold 1 was exceeded for iron at Station 8 in July. The exceedance of the summer seasonal 95th percentile was confirmed in August and September.

The Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the action plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 8. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted. Therefore, resampling of Station 8 was completed in August 2022, which also accounted for the scheduled August monthly surface water sampling event.

The results of the August and September sampling event showed that iron at Station 8 continued to exceed the associated summer seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for iron at Station 8 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2 is completed.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

The trend analysis for iron at Station 8 was completed using the Mann-Kendall test. The Mann-Kendall test is a non-parametric test used to determine whether a time series has a monotonic upward or downward trend, the trend may or may not be linear. The test does not require that the data be normally distributed or linear. However, the test does require that there is no autocorrelation. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. No upward trend was observed in the baseline concentration of iron at Station 8.

The trend analysis was then completed on the entire available data set for iron at Station 8. A statistically significant increasing trend in the concentration of iron at Station 8 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for iron at Station 8 and the Trigger Threshold 2 action plan was undertaken for this parameter and station.

Figure 2 shows the concentration of iron over time at Station 8 with a linear trendline. Monthly sampling of Station 8 commenced in October 2013.

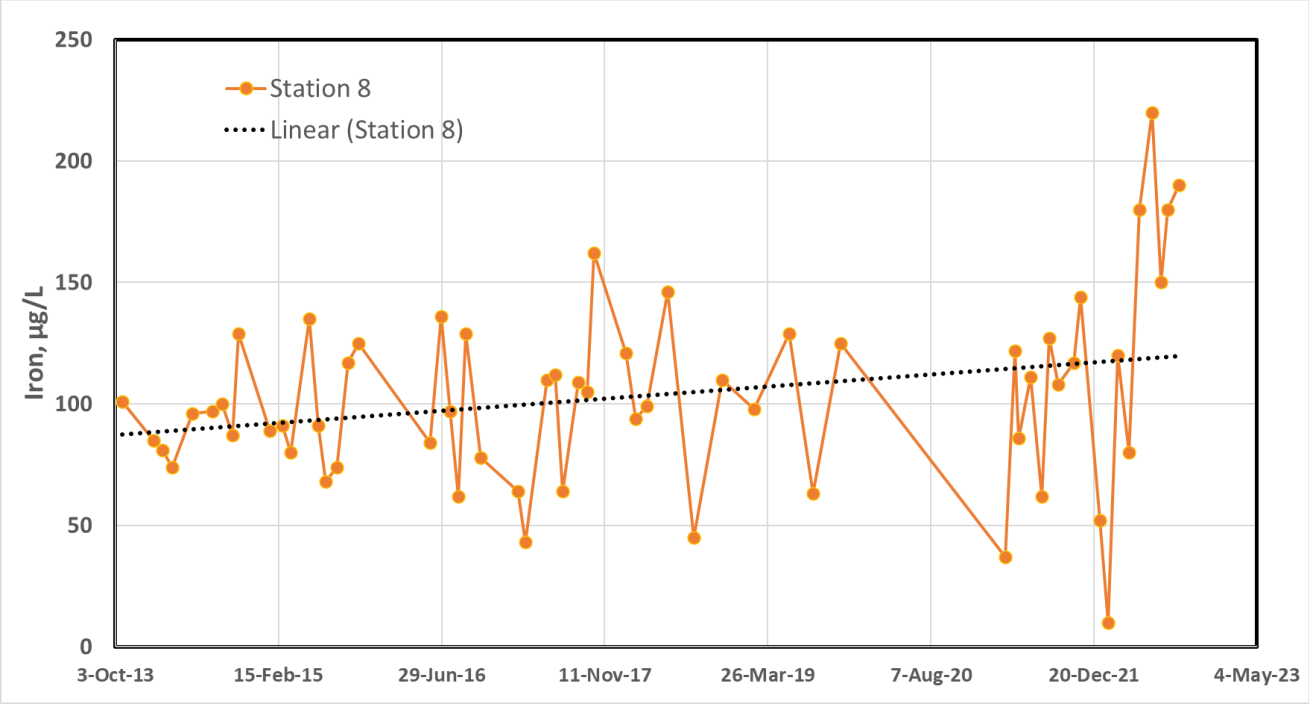


Figure 2: Iron Concentration at Station 8

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of continued natural trends or extended seasonal conditions such as a very dry or wet spring or summer period.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has four steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation, and identification of exceedance sources for the Trigger Threshold 2 exceedance of iron at Station 8.

Iron concentrations at Station 8 for the last five months, when the baseline 95th percentile of iron concentration was exceeded, are presented in **Table 1**.

Table 1: Iron Concentrations at Station 8

Parameter	Spring		Summer		
	09-May-22	16-Jun-22	13-Jul-22	04-Aug-22	07-Sep-22
Total Iron, µg/L	180	220	150	180	190
Baseline 95th Percentile Seasonal, µg/L	141	141	127	127	127
99th Percentile Baseline Annual, µg/L	154	154	154	154	154
Dissolved Iron, µg/L	70	140	60	70	60
Ratio of Dissolved Form, %	39	64	40	39	32

No obvious changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were observed at Station 8 in 2022. In particular, TSS and turbidity at Station 8 are low (less than 8 NTU), indicating that erosion and sediment resuspension is not a factor in elevated iron concentrations. **Table 2** presents general water quality at Station 8.

Table 2: General Water Quality at Station 8

Parameter	5-Apr-22	09-May-22	16-Jun-22	13-Jul-22	04-Aug-22	07-Sep-22
Total Iron, µg/L	80	180	220	150	180	190
95th Percentile	141	141	141	127	127	127
Sulphate, mg/L	2.5	5.5	2.5	3.2	0.9	3.8
True Color, TCU	30.1	42.6	68.1	73.8	50.7	48.1
pH, field	7.39	7.01	8.78	8.04	8.04	8.04
Conductivity, uS/cm	242	204	99	153	163	141
DOC, mg/L	9.9	11.5	15.1	13.8	12.0	13.9

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

Parameter	5-Apr-22	09-May-22	16-Jun-22	13-Jul-22	04-Aug-22	07-Sep-22
Hardness, mg/L	124	99.6	65.1	76.6	81.4	81.1
Turbidity, NTU	0.4	1.5	0.8	0.8	1.9	1.2
TDS, mg/L	90	130	125	140	90	155
TSS, mg/L	<0.67	<0.67	4	1.7	2.7	3.0

The SWAT realignment work is ongoing, the diversion channel is not yet operational. Concentrations of iron were elevated above the baseline seasonal 95th percentiles at surface water quality Station 39 located along the SWAT, which may suggest Mine influence on the concentration of iron. Review was completed of ESC measures for construction and confirmed that GGM is following the ESC plan for construction. Visual observation of the construction areas show ESC measures in place and operable. General water chemistry (Table 2), particularly, turbidity, TSS, color, do not show changes in water chemistry along the SWAT indicating that erosion and sediment disturbance is not a factor in trigger exceedances.

Background water quality was reviewed to understand potential influence of background water quality on station 8 water quality. Table 3 shows the iron concentrations at stations located upstream (1A, 2, 28), midstream (4, 24, 49) and downstream (8) of the project footprint. Upstream stations (1A, 2 and 28) show similar or higher concentrations of iron than downstream station (8).

Table 3: Iron Concentrations, µg/L

Station	Winter			Spring			Summer		
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
Station 1A	N/A	60	140	N/A	190	190	160	210	160
Station 2	380	230	250	140	160	330	290	340	290
Station 4	260	120	170	130	240	730	150	280	280
Station 8	52	<0.01	120	80	180	220	150	180	190
Station 24	280	70	170	120	140	210	170	200	200
Station 28	550	430	670	N/A	170	340	420	500	430
Station 49	260	100	120	110	160	200	230	190	190

Background Stations 1A (mouth of Kenagamisis River in SWA) and 28 (mouth of Magnet Creek into BBW) were investigated for trends and it was found that both stations show no upward trend under baseline conditions for iron. The trend analysis was then completed on the entire available data set for iron at Stations 1A and 28. A statistically significant increasing trend in the concentration of iron at Stations 1A and 28 was identified through the Mann-Kendall analysis. Therefore, as stations located upstream beyond the extent of potential mine influence also demonstrated an increasing iron trend at the same time that station 8 shows an increasing trend, natural variability is considered a potential source of increasing iron concentrations at Station 8.

Figures 3 and 4 show the concentration of iron over time at background Stations 1A and 28 with a linear trendline. Monthly sampling at both stations commenced in October 2013.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

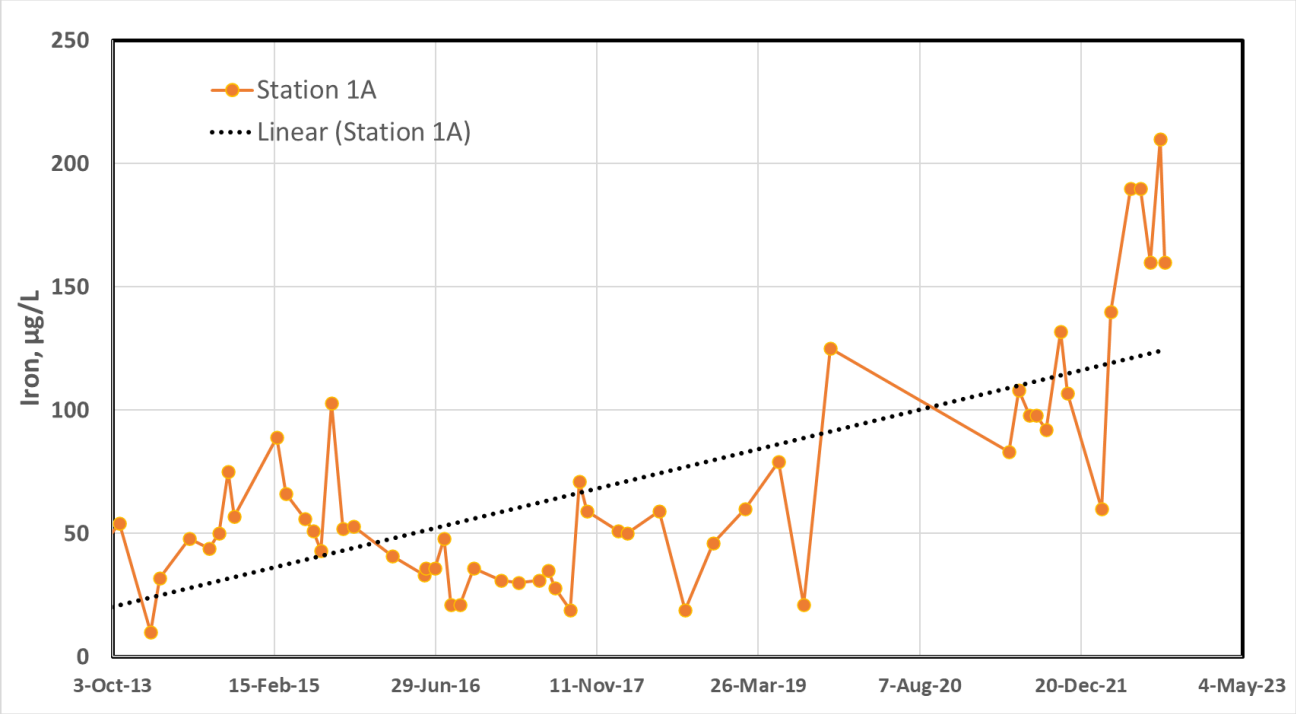


Figure 3: **Iron Concentration at Station 1A**

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022**

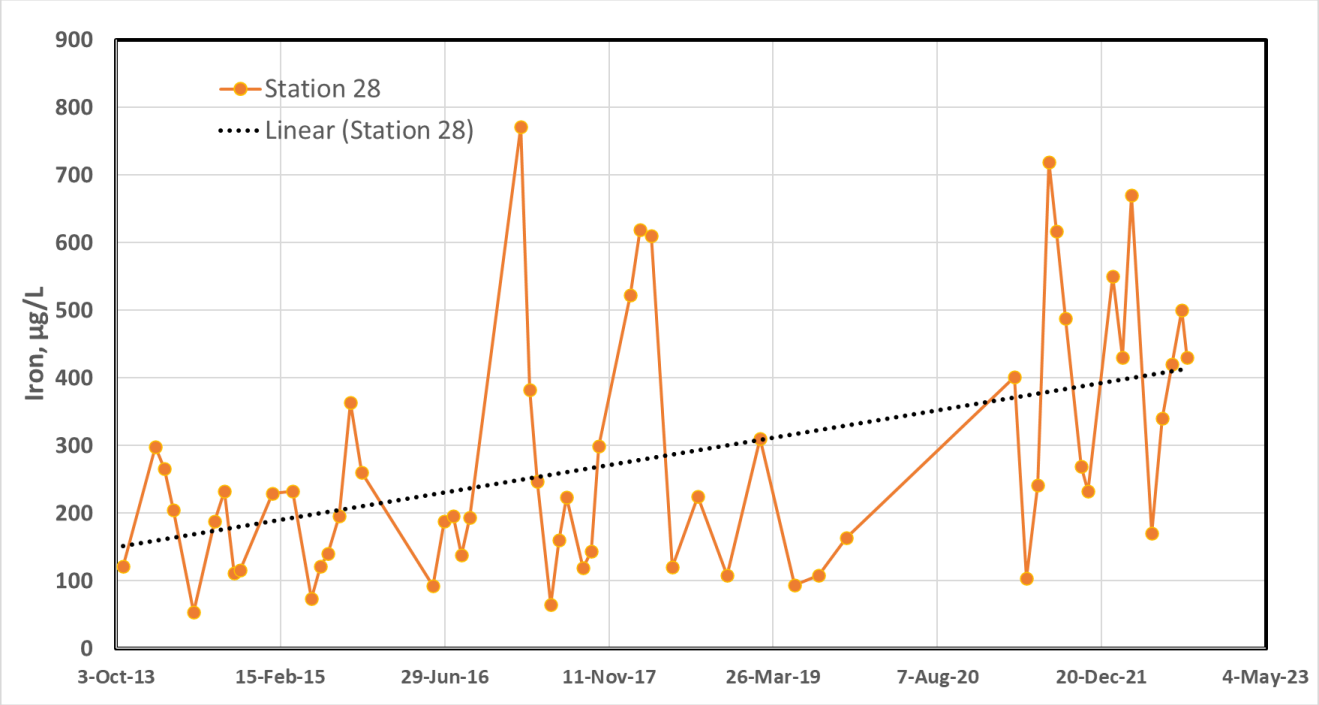


Figure 4: Iron Concentration at Station 28

The change in the trend in concentration of iron at Station 8 as well as background stations 1A and 28 correlates to January 2022. The timing of increased iron concentration observations may suggests other factors, other than natural variability, that may be resulting in increased concentrations of iron at Station 8. Other factors may be laboratory analyses. As part of Trigger Threshold 1 action plan the laboratory certificates of analyses, which includes the laboratory's QA/QC results, were reviewed with no exceptions to the analyses noted. Prior to January 2021, the baseline surface water quality samples were analyzed by ALS. In January 2021, GGM contracted Testmark Laboratories to complete the water analyses for the Mine. Given the number of elevated concentrations of parameters observed since January 2022 compared to baseline concentrations, GGM has commenced an investigation into the results of the laboratory analyses. The investigation involves collecting duplicate samples for analyses by ALS. Preliminary analytical results show a difference in concentrations between laboratories, particularly iron which is consistently elevated in the results from Testmark Laboratories versus ALS. The investigation is ongoing and is widening to include a third laboratory to understand the potential bias in the laboratory results.

Based on the investigation the following observations were made for iron at Station 8:

- The Station 8 May-September data presented in Table 1 exceed the 99th annual percentile of baseline iron concentration (154 µg/L) and the maximum observed baseline iron concentration (162 µg/L, October 10, 2017) in four out of five instances. Standard deviation of iron in baseline data is 27.5, while standard deviation of iron during construction is more than 2 times higher, i, e, 63.9. It indicates that variability of iron concentrations for the last 10 months is notably higher than from October 2013 to September 2021.

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 8 for Reporting Period May through September 2022

- A ratio of dissolved forms of iron to suspended forms varies from 32 to 64% (**Table 1**). It indicates that both forms are unequally distributed. Without contribution of suspended forms all dissolved concentrations of iron are below the seasonal trigger thresholds.
- Concentrations of iron were elevated above the baseline seasonal 95th percentiles at surface water quality Station 39 located along the SWAT, which may suggest Mine influence on the concentration of iron. Review was completed of ESC measures for construction and confirmed that GGM is following the ESC plan for construction, and visual observation of the construction areas show ESC measures in place and operable. General water chemistry (**Table 2**), particularly, turbidity, TSS, color, do not show changes in water chemistry along the SWAT indicating that erosion and sediment disturbance is not a factor in trigger exceedances.
- Spatial extent of iron exceedance was assessed (Table 3). The iron concentrations in background stations (i.e. upstream of the mine footprint, stations 1A and 28) are generally higher than in stations located downstream of the Mine. In addition, the Mann-Kendall trend analyses of the concentration of iron at background stations also resulted in a statistically significant upward trend in iron compared to baseline where no statistically significant trend in the data was noted. The data suggests that natural variability may influence the concentration of iron downgradient of the Mine.
- Water quality analysis from 2013 to December 2021 was completed using ALS. Starting January 2022, water quality analyses has been completed by Testmark Laboratories. In August 2022, Stations 8 and 25 water quality samples were tested simultaneously in both labs and it appeared that Testmark iron concentrations are higher than ALS iron results by 51 to 63%. GGM is conducting further investigation using a third lab to determine if laboratory bias is a factor in the trigger exceedances.

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. The May-September iron concentrations are above the predicted levels for construction and operation in the EIS/EA (Section 10). However, the concentration of iron at Station 8 was notably below PWQO (300 µg/L) and does not represent potential concern to the environment. Given the uncertainty in the laboratory data, the laboratory investigation needs to be completed so that the quantitative risk evaluation could be completed. As the concentration of iron at station 8 is less than the PWQO, environmental risk of the elevated iron in construction compared to baseline conditions is limited while the laboratory investigation is completed and the concentrations of iron can be confirmed.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. The source of iron is inconclusive and additional investigations are required. Based on existing evidence the potential sources of exceedances in iron at Station 8 are the following:

1. Laboratory bias (based on inconsistencies in analyses between ALS and Testmark)

2. Natural variability (based on change to increasing trend of iron concentration compared to baseline conditions at each background station, which may also be the result of changing laboratories)

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 8 for Reporting Period October 2021 through February 2022**

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. Based on the above evaluation, the source of exceedance of arsenic at Station 8 is natural variability.

SUMMARY AND CLOSING

In summary, during the February 2022 reporting period Trigger Threshold 2 was exceeded for arsenic at Station 8. The Trigger Threshold 2 action plan was completed and concluded that arsenic exceedances at Station 8 are not mine related but can be attributed to natural variability.

As the Trigger Threshold 2 exceedance of arsenic at Station 8 is not mine related, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time. It is reasonable to predict that the concentration of arsenic for the remainder of the annual cyclical trend (winter and possibly spring 2022) will continue to be slightly elevated relative to the 95th percentile.

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

Igor Iskra
Water Resources Engineer

Phone: 905 415 6371
Fax: 905 474 9889
Igor.Iskra@stantec.com

Stantec

Memo

To:	Shane Hayes Greenstone Gold Mines	From:	Igor Iskra Stantec Consulting Ltd.
File:	160900981	Date:	November 30, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processing plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- Conditions 8.17 through 8.18 of the full scale effluent treatment plant (ETP) Environmental Compliance Approval (ECA) number 0735-C9PMD6
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are determined to be mine related. Trigger Threshold 1 and 2 were exceeded for iron at Stations 24, 49 and 53 and therefore, the respective action plans were initiated. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

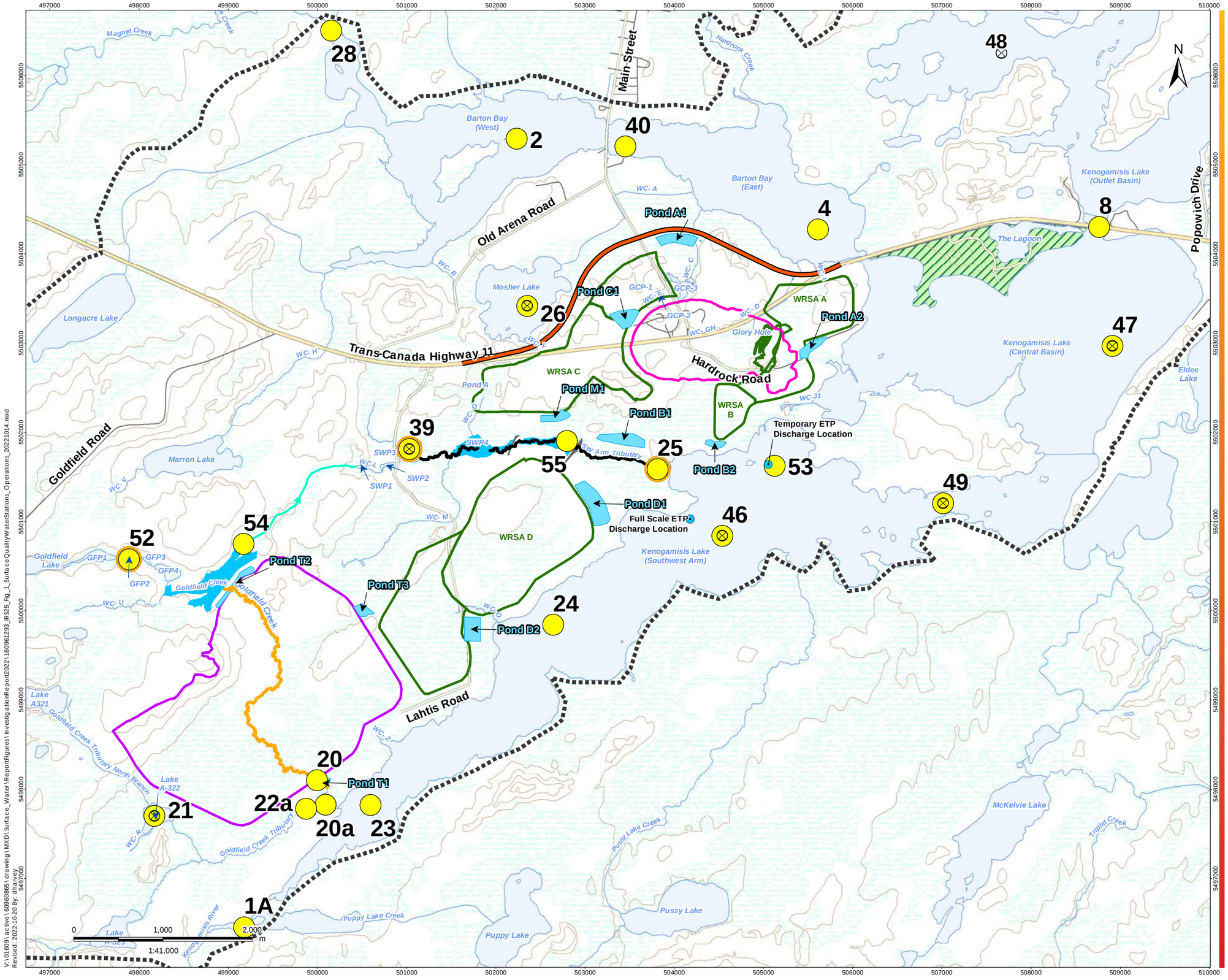
[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for iron at Stations 24, 49 and 53.

Station 24, 49 and 53 are all located in the Southwest Arm of Kenogamisis Lake. (**Figure 1**).



Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Existing Portion of Goldfield Creek (to be overprinted)
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

October 2022
160961293

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water
Quality Monitoring Locations

V:\01609\active\609608651\drawing\MXD\Surface_Water\ReportFigures\InvestigationReport2022\160961293_IR525_Fig_1_SurfaceQualityWaterStations_Operations_20221014.mxd
Revised: 2022-10-20 By: dhavey

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for each season for a given parameter is calculated based on data collected prior to September 15th, 2021.

The concentration of iron at Stations 24, 49 and 53 exceeded the spring seasonal 95th percentile baseline concentration in June of 2022, the summer seasonal 95th percentile baseline concentration in July, August and September 2022, and the fall seasonal 95th percentile baseline concentration in October 2022. Therefore, the surface water quality Trigger Threshold 1 was exceeded for iron at Stations 24, 49 and 53 in August 2022. The exceedance of the seasonal 95th percentile was confirmed by the September and October sampling events.

The Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the action plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Stations 24, 49 and 53. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted however given the number of exceedances of Trigger Threshold 1 for iron in 2022 (when GGM switched analytical laboratories from ALS to Testmark), duplicate sampling was completed in August for select stations (8 and 25) with one set of samples submitted to Testmark and the other set of samples submitted to ALS for laboratory analyses. Inconsistencies were noted between the laboratory analyses, particularly for iron. The duplicate analysis showed between 12% and 77% higher iron concentration in Testmark results than in ALS results. Additional quality control sampling was completed in October, in which triplicate samples were collected for analyses by Testmark, ALS, and Bureau Veritas (BV) laboratories for select stations. The inconsistency in the concentration of iron remained between Testmark and the remaining labs and is discussed further below. Given that the investigation into the laboratory results is ongoing, the investigation may conclude that no Trigger Threshold 1 exceedances present as Testmark iron results may prove to be erroneous. It was conservatively assumed for this report that the Trigger Threshold 1 was exceeded so we can conduct the action plan while we await the results of the lab investigation.

The Trigger Threshold 1 response plan was followed and resampling of Stations 24, 49 and 49 was completed in September and October 2022. The resampling completed in September and October 2022 also accounted for the scheduled September and October monthly surface water sampling event.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

The results of the September sampling event showed that iron at Stations 24, 49 and 53 continued to exceed the associated summer seasonal 95th percentile. As the results of the laboratory investigation is ongoing, a conservative assessment of Trigger Threshold 1 was completed and as such, the Trigger Threshold 1 exceedance for iron at Stations 24, 49 and 53 was assumed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2 is completed.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

The trend analysis for iron at Stations 24, 49 and 53 was completed using the Mann-Kendall test. The Mann-Kendall test is a non-parametric test used to determine whether a time series has a monotonic upward or downward trend, the trend may or may not be linear. The test does not require that the data be normally distributed or linear. However, the test does require that there is no autocorrelation. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2021 was considered baseline data. No upward trend was observed in the baseline concentration of iron at Stations 24, 49 and 53.

The trend analysis was then completed on the entire available data set, up to and including October 2022 data, for iron at Stations 24, 49 and 53. A statistically significant increasing trend in the concentration of iron at Stations 24, 49 and 53 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for iron at Stations 24, 49 and 53 and Trigger Threshold 2 action plan was undertaken for this parameter and station.

Figures 2, 3 and **4** show the concentration of iron over time at Stations 24, 49 and 53 with a linear trendline. Monthly sampling of Station 24 commenced in October 2013. Monthly sampling of Station 53 commenced in May 2016. Monthly sampling of Station 49 commenced in September 2016.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

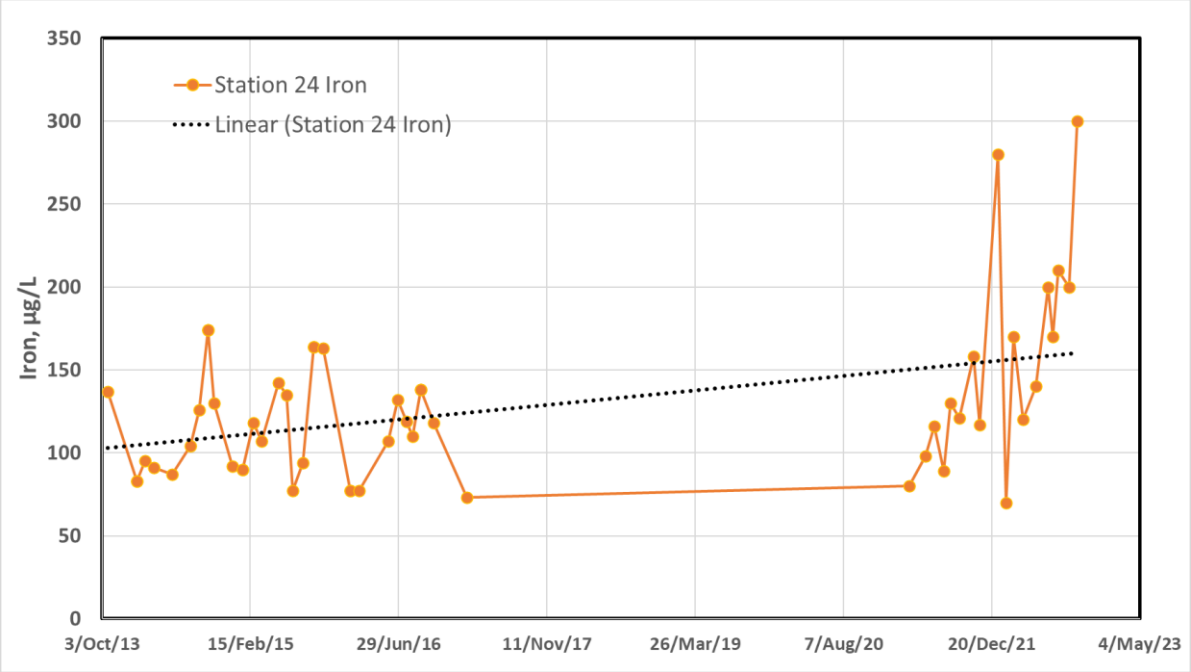


Figure 2: Iron Concentration at Station 24

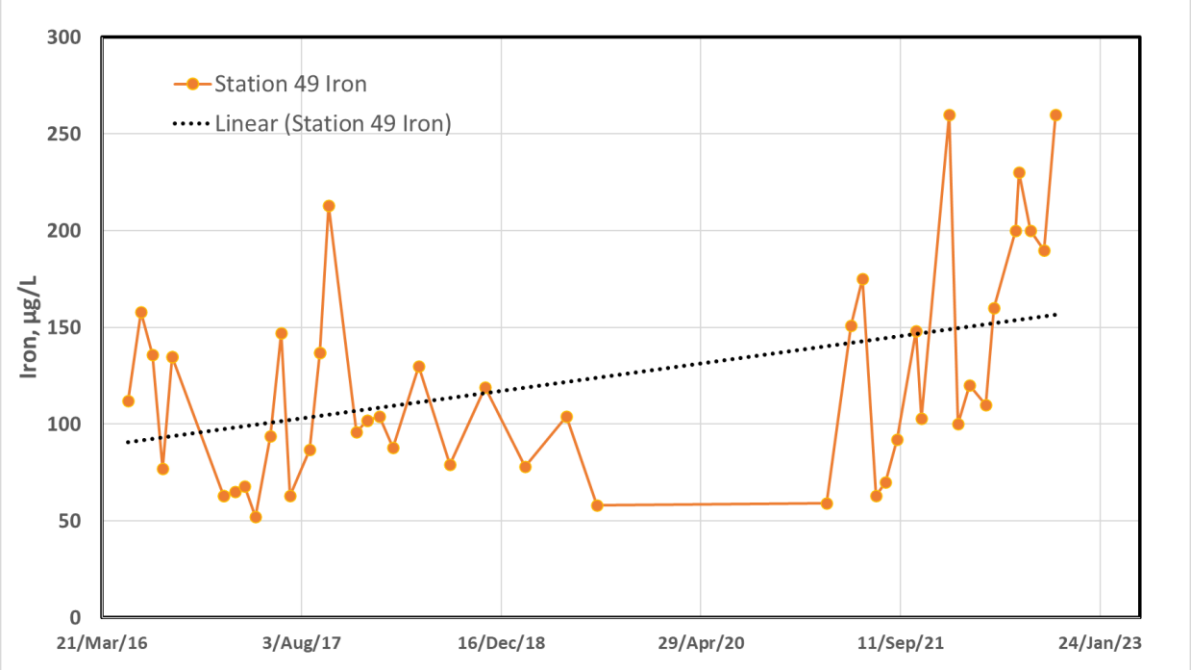


Figure 3: Iron Concentration at Station 49

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

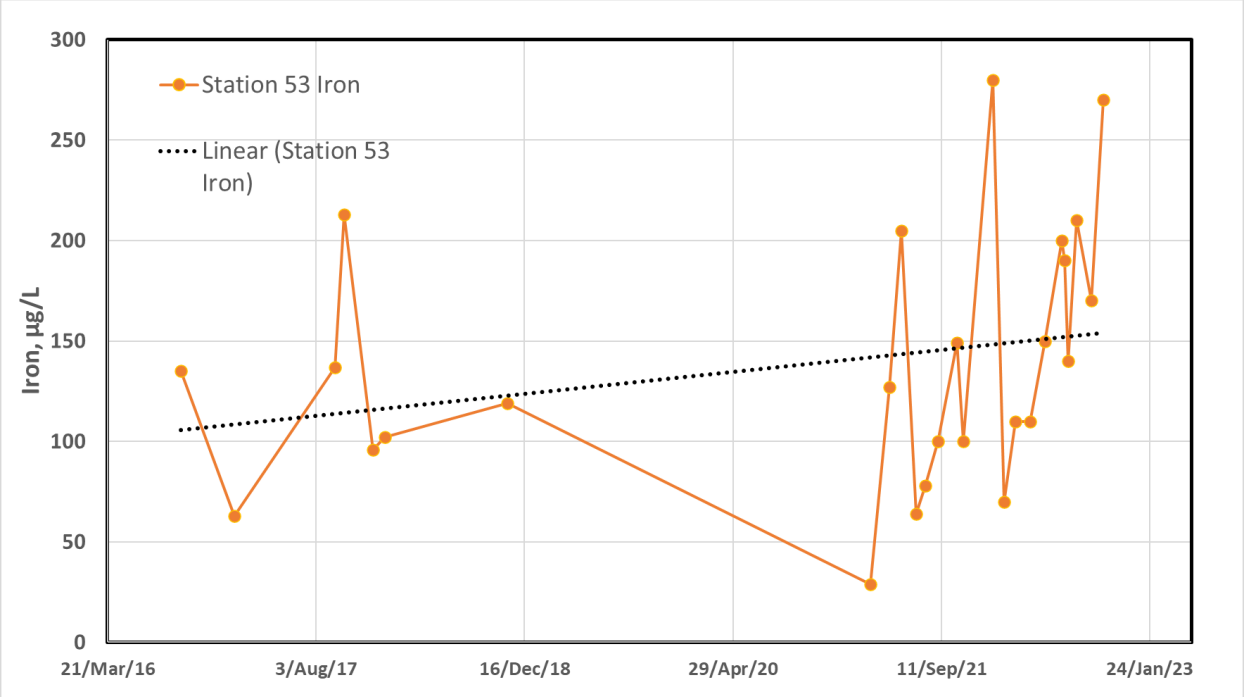


Figure 4: Iron Concentration at Station 53

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of continued natural trends or extended seasonal conditions such as a very dry or wet spring or summer period.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has four steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation, and identification of exceedance sources for the Trigger Threshold 2 exceedance of iron at Stations 24, 49 and 53.

Iron concentrations at Stations 24, 49 and 53 for the last five months, when the baseline 95th percentile of iron concentration was exceeded, are presented in **Tables 1, 2** and **3**.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Table 1: Iron Concentrations at Station 24

Parameter	Spring	Summer			Fall
	27-Jun-22	13-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	200	170	210	200	300
Baseline 95th Percentile Seasonal, µg/L	140	169	169	169	190
99th Percentile Baseline Annual, µg/L	174	174	174	174	174
Dissolved Iron, µg/L	30	60	40	60	60
Ratio of Dissolved Form, %	15	35	19	30	22

Table 2: Iron Concentrations at Station 49

Parameter	Spring	Summer			Fall
	27-Jun-22	4-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	200	230	200	190	260
Baseline 95th Percentile Seasonal, µg/L	141	127	127	127	190
99th Percentile Baseline Annual, µg/L	200	200	200	200	212
Dissolved Iron, µg/L	60	100	40	90	50
Ratio of Dissolved Form, %	30	43	20	47	19

Table 3: Iron Concentrations at Station 53

Parameter	Spring	Summer			Fall
	27-Jun-22	12-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	200	140	210	170	270
Baseline 95th Percentile Seasonal, µg/L	190	136	136	136	190
99th Percentile Baseline Annual, µg/L	212	212	212	212	212
Dissolved Iron, µg/L	50	90	40	50	50
Ratio of Dissolved Form, %	25	64	19	29	19

No obvious changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were observed at Stations 24, 49 and 53 in 2022. In particular, TSS and turbidity at Stations 24, 49 and 53 are low (less than 8 NTU), indicating that erosion and sediment resuspension is not a factor in elevated iron concentrations. **Tables 4, 5 and 6** present general water quality at Stations 24, 49 and 53.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Table 4: General Water Quality at Station 24

Parameter	17-May-22	27-Jun-22	13-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	140	200	170	210	200	300
95th Percentile	140	140	169	169	169	158
Sulphate, mg/L	1.3	1.1	1.5	1.5	1.7	1.3
True Color, TCU	92.7	49.8	55.4	41.3	64.2	42.2
pH, field	7.08	7.91	8.04	7.72	8.16	7.87
Conductivity, uS/cm	103	153	160	135	174	188
DOC, mg/L	14.1	10.2	11.8	11	11.6	10.2
Hardness, mg/L	53.7	83.2	82.6	92	87.4	100
Turbidity, NTU	1	1	1.2	2	3.1	1.7
TDS, mg/L	120	105	115	140	180	145
TSS, mg/L	1	2.5	1	2.7	3	2.7

Table 5: General Water Quality at Station 49

Parameter	3-May-22	27-Jun-22	4-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	160	200	230	200	190	260
95th Percentile	141	141	127	127	127	190
Sulphate, mg/L	3.5	1.3	1.3	1	3.9	2.6
True Color, TCU	42.8	78.9	55.8	44.7	32.1	31.3
pH, field	6.4	7.85	7.69	7.74	8.07	7.81
Conductivity, uS/cm	135	149	153	166	181	178
DOC, mg/L	10	10.6	11.5	11.5	11.6	10.9
Hardness, mg/L	69.6	77.4	81.6	86.5	82.2	93.2
Turbidity, NTU	0.9	0.8	1.4	2.1	2.1	1.6
TDS, mg/L	145	125	135	145	130	170
TSS, mg/L	<1.3	3.5	2	2.3	2.3	2.3

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Table 6: General Water Quality at Station 53

Parameter	17-May-22	27-Jun-22	12-Jul-22	2-Aug-22	6-Sep-22	5-Oct-22
Total Iron, µg/L	150	200	140	210	170	270
95th Percentile	190	190	136	136	136	190
Sulphate, mg/L	1.7	1.9	1.7	2.6	2.1	2
True Color, TCU	83.2	66.7	49.8	42.6	46.8	36.6
pH, field	7.19	7.82	7.79	7.78	8.15	7.82
Conductivity, uS/cm	104	151	154	176	172	183
DOC, mg/L	14.8	10.8	12.4	11.2	12.4	10.5
Hardness, mg/L	49.2	78.3	84	91.8	81.4	98
Turbidity, NTU	0.9	0.8	1.1	3.4	1.4	1.7
TDS, mg/L	130	130	175	120	130	175
TSS, mg/L	<0.67	4.5	<1	2.3	3	3

The SWAT realignment work is ongoing, the diversion channel is not completed yet. Concentrations of iron were elevated above the baseline seasonal 95th percentiles at surface water quality Station 39 located along the SWAT, which may suggest Mine influence on the concentration of iron. Review was completed of ESC measures for construction and confirmed that GGM is following the ESC plan for construction. Visual observation of the construction areas shows that ESC measures in place and operable. General water chemistry (**Tables 4, 5, and 6**), particularly, turbidity, TSS, color, do not show changes in water chemistry along SWAT indicating that erosion and sediment disturbance is not a factor in trigger exceedances. Additionally, Station 24 is located upstream of the SWAT diversion and it also shows elevated iron.

Background water quality was reviewed to understand potential influence of background water quality on Stations 24, 49 and 53 water quality. **Table 7** shows the iron concentrations at stations located upstream (Station 1A) and downstream (Station 8) of the project footprint along the SWA. Upstream Station 1A shows similar or higher concentrations of iron than downstream Station 8.

Table 7: Iron Concentrations, µg/L

Station	Winter			Spring			Summer			Fall
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22
Station 1A	N/A	60	140	N/A	190	190	160	210	160	160
Station 8	52	<0.01	120	80	180	220	150	180	190	150
Station 24	280	70	170	120	140	210	170	200	200	300
Station 49	260	100	120	110	160	200	230	190	190	260
Station 53	280	70	110	110	150	200	190	210	170	270

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Background Station 1A (mouth of the Southwest Arm of Kenogamisis River) was investigated for trends and it was found that this station showed no upward trend under baseline conditions for iron. The trend analysis was then completed on the entire available data set for iron at Station 1A. A statistically significant increasing trend in the concentration of iron at Station 1A was identified through the Mann-Kendall analysis. Since Station 1A is located upstream and beyond the extent of potential mine influence and demonstrated an increasing iron trend while Stations 24, 49 and 53 also showed an increasing trend, natural variability is considered a potential source of increasing iron concentrations at Stations 24, 49 and 53.

Figure 5 shows the concentration of iron over time at background Station 1A with a linear trendline. Monthly sampling commenced in October 2013 at Station 1A.

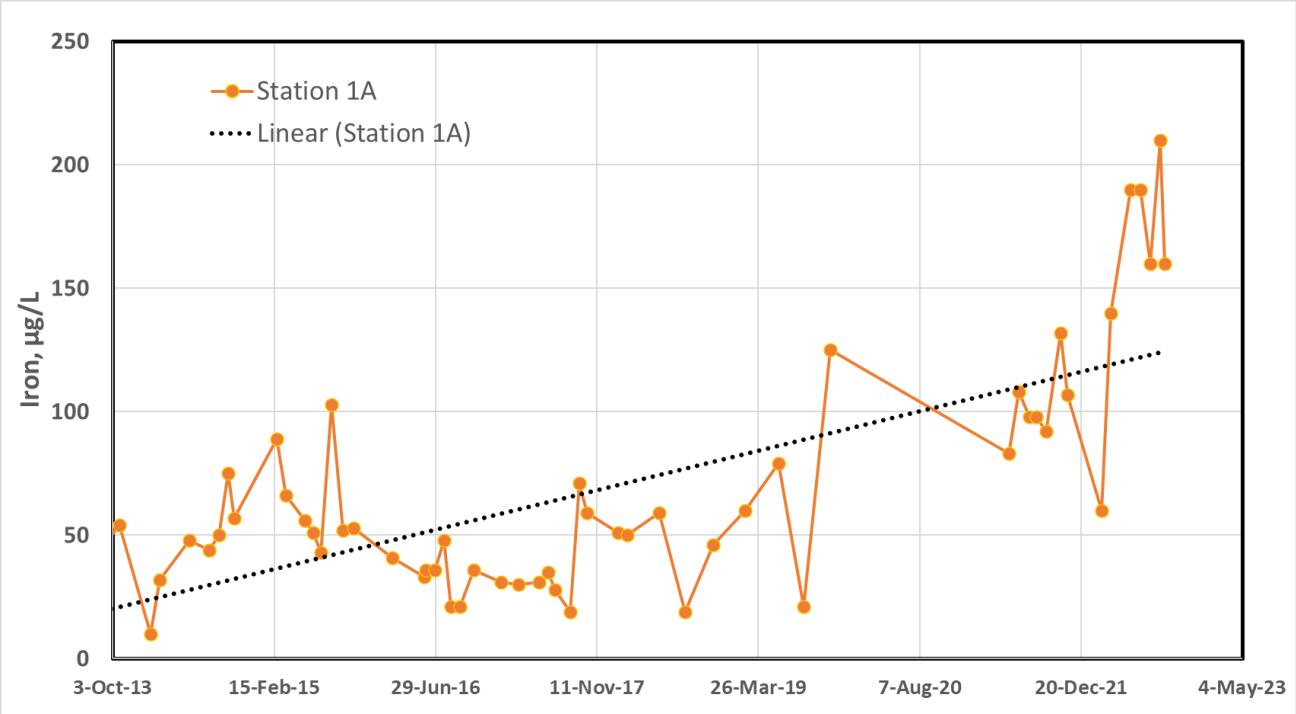


Figure 5: Iron Concentration at Station 1A

The change in the trend in concentration of iron at Stations 24, 49 and 53 as well as background Station 1A and downstream Station 8 correlates to January 2022 when a new laboratory (Testmark Laboratories) was contracted by GGM to do water quality analysis. As part of Trigger Threshold 1 action plan the laboratory results were reviewed and inconsistencies in iron analysis were observed. GGM has commenced an investigation into the results of the laboratory analyses.

The lab assessment investigation involved collection of duplicate samples at select locations with analysis by Testmark and ALS Labs in August 2022. Preliminary analytical results showed a difference in concentrations between laboratories, particularly iron which is consistently elevated in the results from Testmark Laboratories versus ALS Labs. The investigation was expanded in October 2022 when triplicate samples from 5 different monitoring locations (Station 8, 25, 20A, 39, and 55) were collected with each sample sent to a different

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

laboratory to analyze. Results are presented in **Table 8**. Data from the selected stations reported by Testmark Laboratories continued to show elevated iron concentrations when compared to the data reported by Bureau Veritas and ALS. The investigation of the potential for laboratory bias is ongoing.

Table 8: Iron Concentrations Reported by Different labs in October Samples, µg/L

Station 8			Station 25			Station 20A			Station 39			Station 55		
Testmark	BV	ALS	Testmark	BV	ALS	Testmark	BV	ALS	Testmark	BV	ALS	Testmark	BV	ALS
160	110	114	130	<100	79	220	190	176	200	140	131	120	<100	42

Based on the investigation conducted the following observations were made for iron at Stations 24, 49 and 53:

- Iron concentrations at Stations 24, 49 and 53 exceed the 95th percentile and in most cases, they exceed the 99th annual percentile of baseline iron concentration in the reported period (**Tables 1, 2,** and **3**).
- A ratio of dissolved forms of iron to suspended forms varies from 15% to 35% for Station 24, from 19% to 64% for Station 53 and from 19% to 47% for Station 49 (**Tables 1, 2** and **3**). It indicates that particulate forms generally dominate in total iron concentration. Without contribution of suspended forms all dissolved concentrations of iron are below the seasonal trigger thresholds.
- Concentrations of iron were elevated above the baseline seasonal 95th percentiles at surface water quality Station 39 located along the SWAT, which may suggest Mine influence on the concentration of iron. However, exceedances of iron were also observed in stations upstream of SWAT and upstream of the mine.
- General water chemistry (**Tables 4, 5** and **6**), particularly, turbidity, TSS, color, do not show changes in water chemistry in Stations 24, 49 and 53 indicating that erosion and sediment disturbance is not a factor in trigger exceedances.
- Spatial extent of iron exceedance was assessed (**Table 7**). The iron concentrations in background station (i.e. upstream of the mine footprint) Station 1A is generally higher than in stations located downstream of the Mine (Station 8). In addition, the Mann-Kendall trend analyses of the concentration of iron at background Station 1A also resulted in a statistically significant upward trend in iron compared to baseline where no statistically significant trend in the data was noted. The data suggests that natural variability may influence the concentration of iron downgradient of the Mine.
- Water quality analysis from 2013 to December 2021 was completed using ALS. Starting January 2022, water quality analyses have been completed by Testmark Laboratories. In August 2022, Stations 8 and 25 water quality samples were tested simultaneously in both laboratories and it appeared that Testmark iron concentrations are higher than ALS iron results by 51-63%. In October 2022, Stations 8, 25, 20A, 39 and 55 water quality samples were tested simultaneously by Testmark, ALS and Bureau Veritas (**Table 8).** Iron concentrations reported by Testmark exceed values reported by ALS and Bureau Veritas by 20-280%. GGM is conducting further investigation to confirm if laboratory bias is a potential factor in the trigger threshold exceedances.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. The June-October iron concentrations are above the predicted levels for construction and operation in the EIS/EA (Section 10). However, the concentrations of iron at Stations 24, 49 and 53 do not exceed the PWQO (300 µg/L) and do not represent potential concern to the environment. Given the uncertainty in the laboratory data, the laboratory investigation needs to be completed before the quantitative risk evaluation could be completed. As the concentrations of iron at stations 24, 49 and 53 do not exceed the PWQO, environmental risk of the elevated iron in construction compared to baseline conditions is limited while the laboratory investigation is completed and the concentrations of iron can be confirmed.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. The source of iron is inconclusive and additional investigations are required. Based on existing evidence the potential sources of exceedances in iron at Stations 24, 49 and 53 are the following:

1. Laboratory bias (based on higher iron values reported by Testmark in comparison with ALS and Bureau Veritas).

2. Natural variability (based on an increasing trend of iron concentration compared to baseline conditions at each background station).

SUMMARY AND CLOSING

In summary, during the September 2022 reporting period Trigger Threshold 2 was exceeded for iron at Stations 24, 49 and 53. Iron concentrations continued to exceed Trigger Thresholds 1 and 2 in October 2022 for all three stations. The Trigger Threshold 2 action plan was completed and was inconclusive as to the source of the increased iron concentrations relative to baseline conditions. Preliminary investigations suggest the elevated concentrations of iron at Stations 24, 49 and 53 may be related to either natural variability or laboratory analyses affecting the results for iron. Therefore, the investigation into the laboratory data needs to be completed prior to concluding the potential source of increased iron concentrations at Stations 24, 49 and 53.

As the concentration of iron at Stations 24, 49 and 53 do not exceed the PWQO, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time while the investigation into the laboratory analyses is completed. Once the investigation into the laboratory analyses is completed, a review of the trigger threshold exceedances to date will be completed to understand if the results of the laboratory investigation alter the previously noted trigger threshold exceedances and associated investigations.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Stations 24, 49 and 53 for Reporting Period May through October 2022**

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

Igor Iskra Ph.D., P. Eng.
Senior Water Resources Engineer

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Igor.Iskra@stantec.com

Stantec

Memo

To:	Shane Hayes Greenstone Gold Mines	From:	Igor Iskra Stantec Consulting Ltd.
File:	160900981	Date:	July 29, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are deemed mine related. Trigger Threshold 1 and 2 were exceeded for total phosphorus at Station 25 and therefore the respective action plans were initiated. Station 25 is located in the mouth of Southwest Arm Tributary (SWAT). The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022**

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for total phosphorus at Station 25.

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for a given parameter is calculated based on data collected prior to September 8th 2021. The concentration of total phosphorus at Station 25 exceeded the seasonal 95th percentile baseline concentration and was more than five times the detection limit in February through June 2022. Therefore, in April 2022, total phosphorus at Station 25 exceeded the surface water quality Trigger Threshold 1.

Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the response plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 25. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted. Therefore, resampling of Station 25 was completed in May 2022, which also accounted for the scheduled May monthly surface water sampling event.

The results of the May sampling event showed that total phosphorus at Station 25 continued to exceed the associated seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for total phosphorus at Station 25 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

The trend analysis for phosphorus at Station 25 was completed using the Mann-Kendall test. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. There were no upward trends observed in the baseline concentration of total phosphorus at Station 25.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022**

The trend analysis was then completed on the entire available data set for total phosphorus at Station 25. A statistically significant increasing trend in the concentration of total phosphorus at station 25 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for total phosphorus at Station 25 and Trigger Threshold 2 action plan was undertaken for this parameter and station.

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of sample variation, a single anomalous event, such as a meteorological event, or seasonal variation.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has 4 steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation and identification of exceedance sources for the Trigger Threshold 2 exceedance of total phosphorus at Station 25.

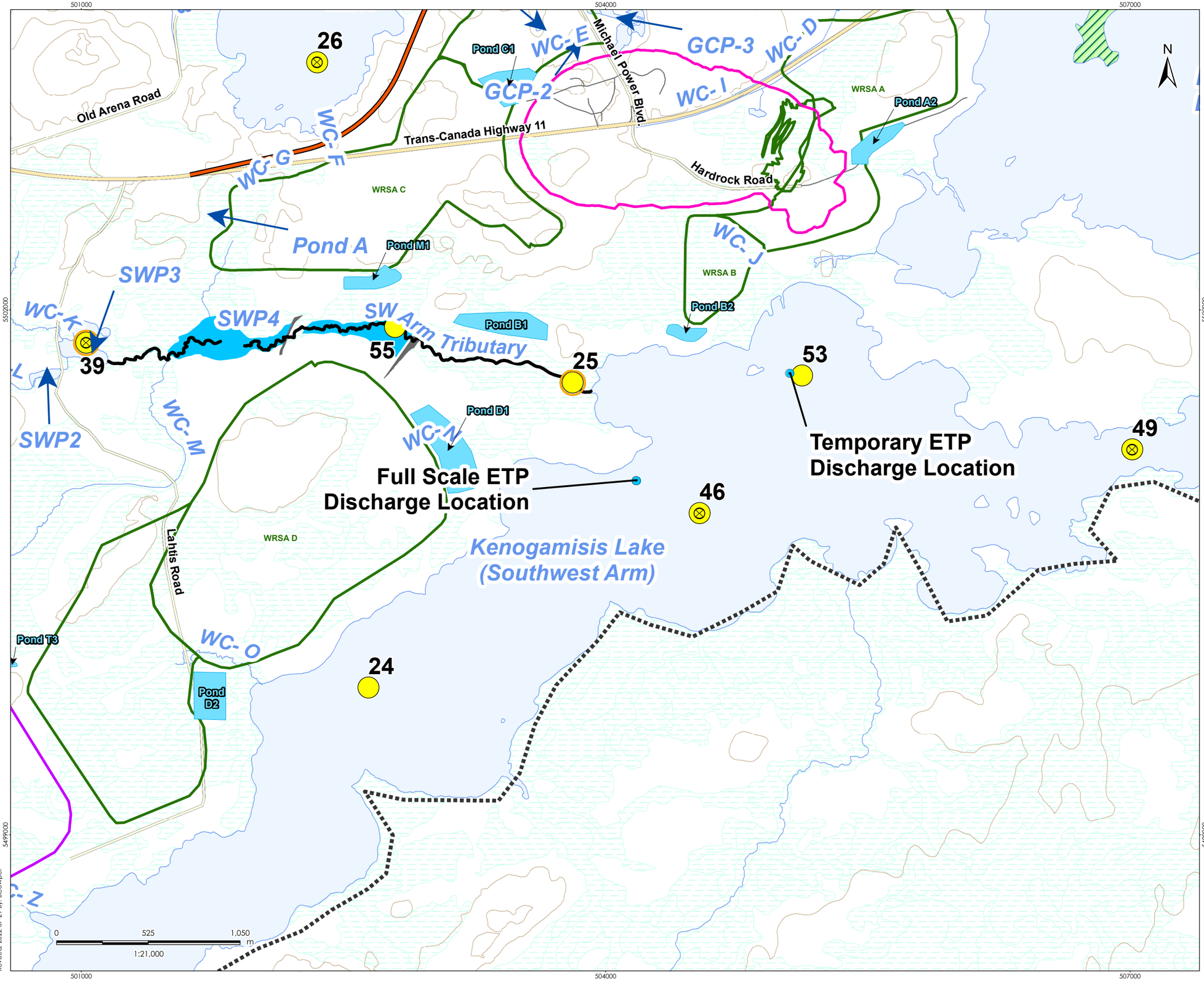
Station 25 is located in the mouth of SWAT (**Figure 1**). Construction work is ongoing where Lathis road crosses WC-L and SWAT headwaters, upgradient of Station 25. A new culvert was installed and a new channel between SWP2 and SWP3 was constructed. Some blasting activities were happening in the SWAT catchment upstream of Station 25. Also, stripping topsoil in the GFC diversion and GFC diversion dam areas are ongoing as well as construction of the GFC diversion and diversion dams.

Total phosphorus concentrations at Station 25 for the last five months when the baseline 95th percentile of total phosphorus concentration was exceeded are presented in **Table 1**.

Table 1: Total Phosphorus Concentrations (mg/L) at Station 25

Parameter	Winter		Spring		
	8-Feb-22	3-Mar-22	11-Apr-22	17-May-22	27-Jun-22
Total phosphorus Concentration	0.041	0.057	0.039	0.018	0.076
95th Percentile Seasonal	0.0211	0.0211	0.0138	0.0138	0.0138

Figure 2 shows the concentration of total phosphorus over time at Station 25 with a trendline. Monthly sampling of Station 25 commenced in October of 2013.



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Revised: 2022-07-29 By: BCowper

Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

July 2022
160961293

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water Quality Monitoring Locations

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022**

Despite some construction work on Lathis road, construction of diversion channel, soil disturbance, and blasting activities the changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were not observed at Station 25 in 2022. **Table 2** presents water quality at Station 25. In particular, TSS values in SWAT are low (less than 8 NTU) and indicate that erosion control measures during construction activities in and around the SWAT are effective.

No obvious link was established between elevated phosphorous concentrations and mining activities. No sources of sanitary sewage exist in the SWAT catchment. It is possible that during spring freshet some phosphorus was washed away from disturbed areas and from phosphorus containing rocks and caused elevated concentrations however, there is no indication of erosional process such as elevated TSS, hardness, turbidity, or electrical conductivity.

Table 2: General Water Quality (mg/L) at Station 25

	8-Feb-22	3-Mar-22	11-Apr-22	17-May-22	27-Jun-22
Total Phosphorus, mg/L	0.041	0.057	0.039	0.018	0.076
95th Percentile	0.0211	0.0211	0.0138	0.0138	0.0138
Sulphate, mg/L	1.2	0.3	0.8	2.5	0.9
True Color, TCU	91.7	112	106	106	186
pH, field	6.44	6.51	6.72	6.85	6.87
Conductivity, uS/cm	435	438	392	208	235
DOC, mg/L	20.9	33.0	22.3	19.0	4.8
Hardness, mg/L	181	219	186	79.9	115
Turbidity, NTU	1.1	1.3	2.7	0.7	0.8
TDS, mg/L	340	265	277	195	225
TSS, mg/L	8	<0.67	4	1	2

The following observations were made:

- Total phosphorus concentration is changing in a wide range between 0.018 mg/L (in May) and 0.079 mg/L (in June) in post baseline conditions. The magnitude of the exceedance above the seasonal 95th percentile is up to 5 times and represents a measurable deviation from the seasonal 95th percentile which is used in Trigger Threshold 1.
- Figure 2 shows natural seasonal cyclical trends of total phosphorus at Station 25 with high concentrations in spring and summer. The concentration of total phosphorous in spring and summer 2022 seasonal cycle is two times that measured historically. It is reasonable to expect that the concentration of total phosphorus will reduce in late summer and fall.
- Spatial extent of total phosphorus exceedance was assessed, and it was concluded that the phosphorous exceedance event at Station 25 is generally isolated to this monitoring station. No phosphorous trigger

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022**

thresholds were exceeded in upstream station 39 and downstream station 49. However, the total phosphorous exceedance was observed in June in Station 53 (**Figure 1**).

- Potential sources of contamination were investigated, and no obvious sources of total phosphorus were found upstream of Station 25. Channel diversion work is ongoing but general water chemistry (**Table 2**), particularly, turbidity, TSS, color, do not show changes in water chemistry indicating erosion and sedimentation control mitigation measures are effective.
- Potential changing trends associated with other parameters at Station 25 were not observed, no other parameters were triggered for Threshold 1 or 2 at this station.
- The concentration of total phosphorus at Station 25 was above PWQO (0.030 mg/L for stream) in February, March, April, and June 2022.

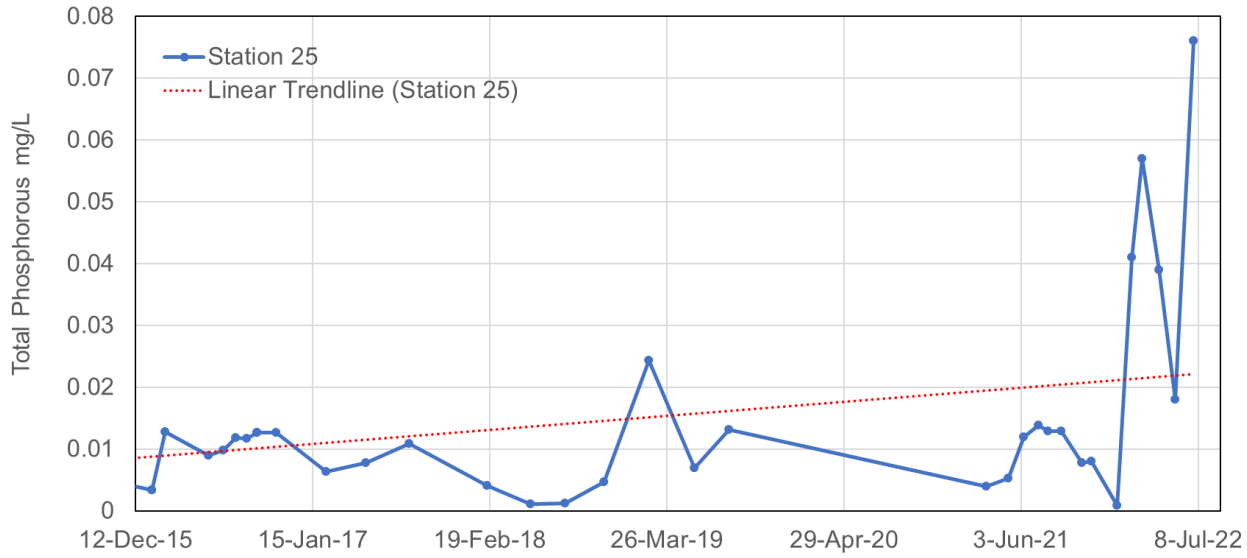


Figure 2: Phosphorus Concentration at Station 25

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. Permitted load of total phosphorus as per the Full Scale ETP (ECA # 0735-C9PMD6 issued April 25, 2022) at the final discharge point is 3.95 kg/ day (Section 7.2 of the ECA). Permitted load of total phosphorus as per the Early Works Amended ECA (ECA # 9561-CBFLCC issued February 17, 2022) at the final discharge point is 0.72 kg/ day (41.7 L/s at TP concentration 0.2 mg/L). The Full Scale ETP is not in service yet. If we assume the temporary ETP is discharging at the maximum mass load of total phosphorous (which it is not) then the remaining permitted mass load of total phosphorus to the Southwest Arm of Kenogamisis Lake is 3.23 kg/day (full scale ETP permitted mass load minus temporary ETP permitted mass load of total phosphorous).

Total mass load of phosphorus from the Southwest Arm Tributary during baseline conditions is 0.064 kg/day (Table 10-34 of Chapter 10 Final EIS/EA). This mass load was calculated based on baseline concentration of 0.0107 mg/L.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Total Phosphorus Exceedance of Trigger Threshold at Station 25 for Reporting Period February through June 2022**

During the SWAT peak concentration of total phosphorus in June (0.076 mg/L), the additional mass load of total phosphorous in SWAT above baseline was 0.39 kg/day, which is substantially below the remaining permitted mass load of 3.23 kg/day noted above. Therefore, despite the elevated mass load of total phosphorous in the SWAT, the overall mass load of total phosphorous to Kenogamisis Lake is less than the permitted mass load and is therefore unlikely to result in effects beyond that predicted in the EIS/EA.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. Based on the above evaluation, the concentration of total phosphorus at Station 25 is beyond the natural variation historically measured at this station and therefore the source of the exceedance may be related to runoff from exposed rocks and disturbed soils, although a direct link to mine activities cannot be validated as other measured parameters suggest erosion and sediment control measures are effective. Peak of phosphorus concentration was observed in June during spring freshet. It is expected that phosphorus concentrations will decrease in late summer through fall.

The following mitigation actions are proposed. GGM will do an inspection of construction activities near the site to confirm that erosion and sediment control measures are in place and in working conditions. Also, GGM will check if there is any new exposed rock that might be resulting in runoff to the SWAT. Results of this inspection will be presented in next monthly report.

SUMMARY AND CLOSING

In summary, during the June 2022 reporting period Trigger Threshold 2 was exceeded for total phosphorus at Station 25. The Trigger Threshold 2 action plan was completed and concluded that no direct link of total phosphorus exceedances at Station 25 and mine related activities can be established. However, the concentration of total phosphorous is beyond that observed historically and therefore GGM is going to complete additional investigation that will include a site walk within the construction area to observe erosion and mitigation measures and potential for fresh exposure of rock within the vicinity that may be affecting mass load of total phosphorous to the SWAT. The results of which will be presented in the next monthly report. Despite the increase concentration in the SWAT, the overall mass load of total phosphorous to Kenogamisis Lake is within the permitted mass load associated with the full scale ETP and the temporary ETP as the temporary ETP is not discharging at the maximum limits and the full scale ETP is yet to be commissioned. Based on historical data it is expected that phosphorus concentrations will reduce in late summer and fall. The monitoring plan will continue with no modifications to the monitoring plan recommended at this time.

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

Igor Iskra
Water Resources Engineer

Phone: 905 415 6371
Fax: 905 474 9889
Igor.Iskra@stantec.com

Stantec

Memo

To:	Shane Hayes	From:	Igor Iskra
	Greenstone Gold Mines		Stantec Consulting Ltd.
File:	160900981	Date:	November 30, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processing plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- Conditions 8.17 through 8.18 of the full scale effluent treatment plant (ETP) Environmental Compliance Approval (ECA) number 0735-C9PMD6
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are determined to be mine related. Trigger Threshold 1 and 2 were exceeded for arsenic at Station 25 and therefore the respective action plans were initiated. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

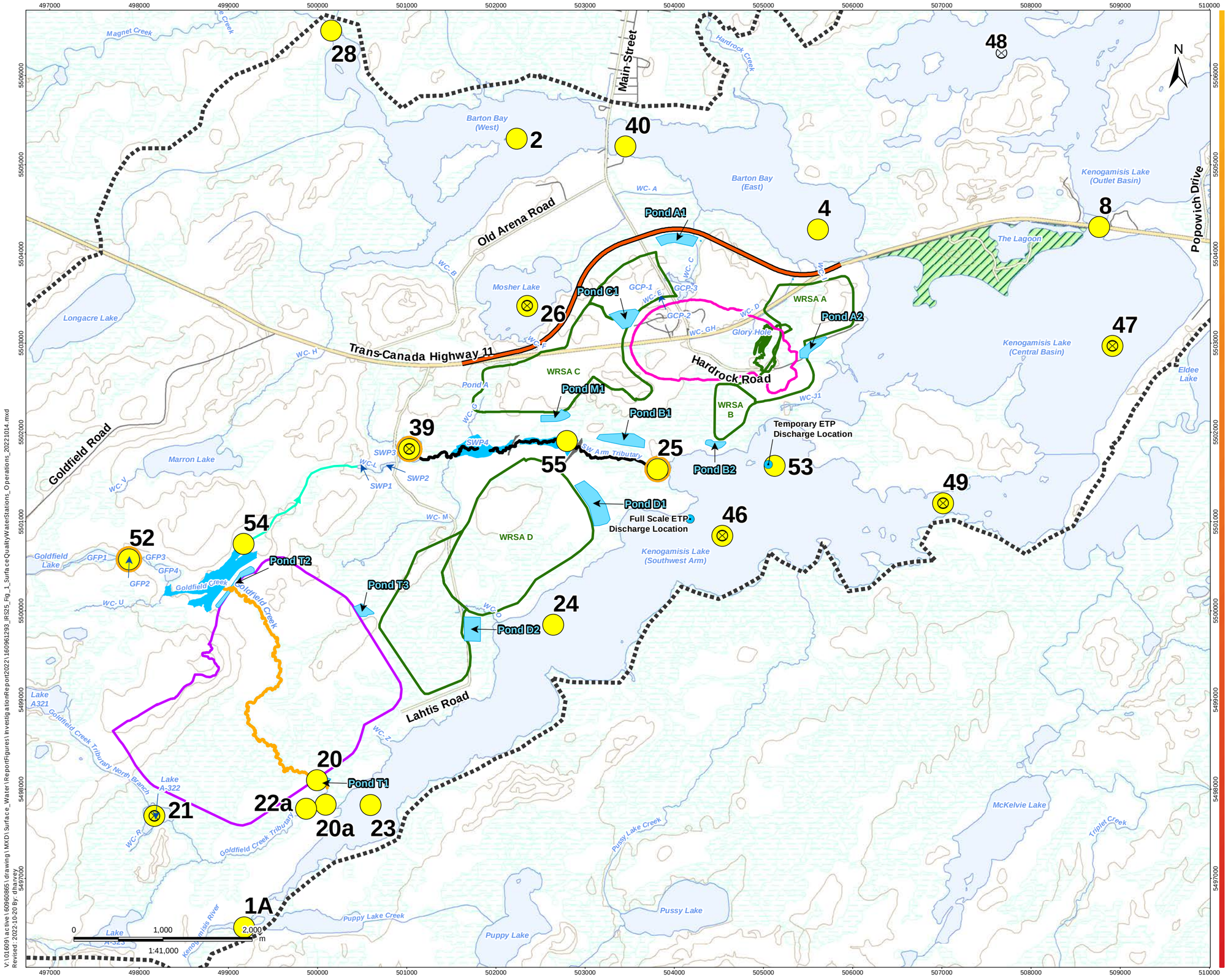
[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for arsenic at Station 25.

Station 25 is located in the Southwest Arm Tributary (SWAT) downstream of channel realignment activities. (**Figure 1**).



Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Existing Portion of Goldfield Creek (to be overprinted)
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

October 2022
160961293

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water
Quality Monitoring Locations

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Revised: 2022-10-20 By: dhavey

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for each season for a given parameter is calculated based on data collected prior to September 15th 2021.

The concentration of arsenic at Station 25 exceeded the spring seasonal 95th percentile baseline concentration in June of 2022 and the summer seasonal 95th percentile baseline concentration in July, August and September of 2022. Therefore, the surface water quality Trigger Threshold 1 was exceeded for arsenic at Station 25 in August. The exceedance of the summer seasonal 95th percentile was confirmed in September.

The Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the action plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 25. No anomalies in the sampling methods and sample handling were noted. Resampling of Station 25 was completed in September and October 2022, which also accounted for the scheduled September and October monthly surface water sampling event. A laboratory discrepancy for arsenic was observed in the September sample when dissolved arsenic concentration (64.6 µg/L) was reported above the total concentration (52.3 µg/L), a 20% error.

The results of the September sampling event showed that arsenic at Station 25 continued to exceed the associated summer seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for arsenic at Station 25 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2 is completed.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

The trend analysis for arsenic at Station 25 was completed using the Mann-Kendall test. The Mann-Kendall test is a non-parametric test used to determine whether a time series has a monotonic upward or downward trend, the trend may or may not be linear. The test does not require that the data be normally distributed or linear. However, the test does require that there is no autocorrelation. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2021 was considered baseline data. An upward trend was observed in the baseline concentration of arsenic at Station 25.

The trend analysis was then completed on the entire available data set for arsenic at Station 25, up to and including October 2022 data. A statistically significant increasing trend in the concentration of arsenic at Station 25 and an increase in the magnitude of the trend compared to baseline was identified. Therefore, Trigger Threshold 2 is exceeded for arsenic at Station 25 and the Trigger Threshold 2 action plan was undertaken for this parameter and station.

Figure 2 shows the concentration of arsenic over time at Station 25 with a linear trendline. Monthly sampling of Station 25 commenced in October 2013.

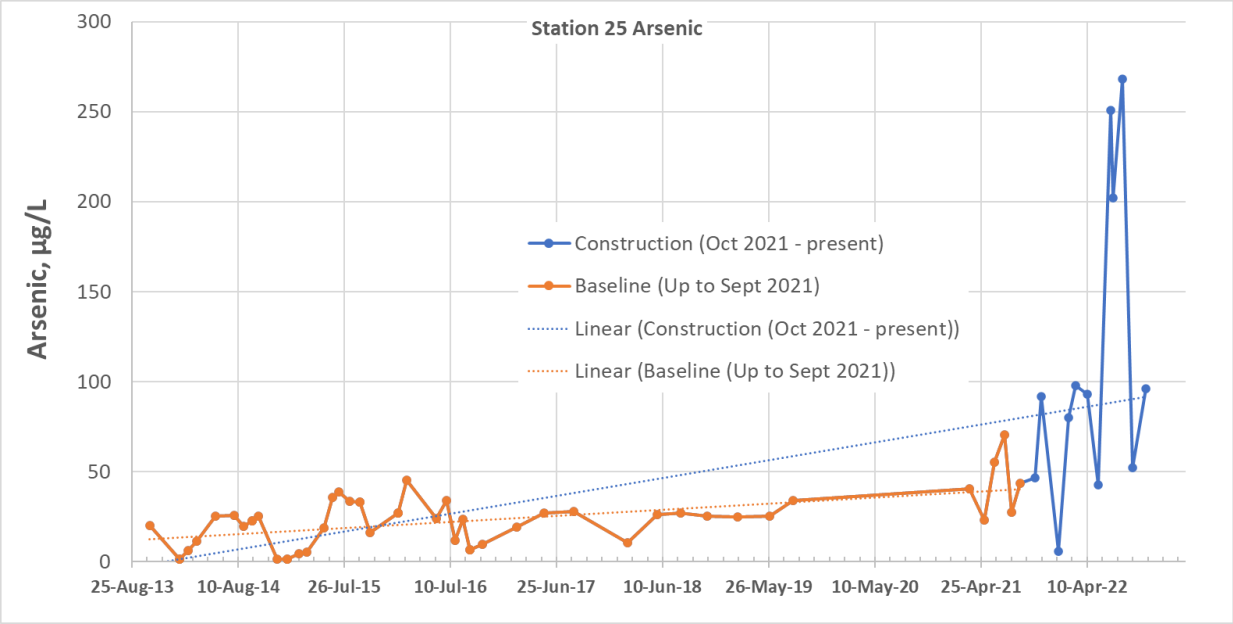

Figure 2: Arsenic Concentration at Station 25

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of continued natural trends or extended seasonal conditions such as a very dry or wet spring or summer period.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has four steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation, and identification of exceedance sources for the Trigger Threshold 2 exceedance of arsenic at Station 25.

Arsenic concentrations at Station 25 for the last four months, when the seasonal baseline 95th percentile of arsenic concentration was exceeded, are presented in **Table 1**.

Table 1: Arsenic Concentrations at Station 25

Parameter	Spring	Summer			Fall
	27-Jun-22	4-Jul-22	04-Aug-22	07-Sep-22	19-Oct-22
Total Arsenic, µg/L	251	202	268	52.3	96
Baseline 95th Percentile Seasonal, µg/L	46.4	46.4	51.4	51.4	25.16
99th Percentile Baseline Annual, µg/L	62.9	62.9	62.9	62.9	62.9
Dissolved Arsenic, µg/L	237	197	260	64.6*	107*
Ratio of Dissolved Form, %	94	98	97	n/a	n/a

* Lab error, dissolved arsenic concentration reported higher than total

Table 2 presents general water quality at Station 25. No obvious changes in TSS, turbidity, conductivity, pH, sulphate, DOC, TDS were observed at Station 25 in 2022. In particular, TSS and turbidity at Station 25 are low (less than 8 NTU), indicating that erosion control measures implemented along SWAT for channel diversion are effective. The highest concentrations of arsenic were observed in June, July and August.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

Table 2: General Water Quality at Station 25

Parameter	11-Apr-22	17-May-22	27-Jun-22	4-Jul-22	4-Aug-22	07-Sep-22	19-Oct-22
Total Arsenic, µg/L	93.1	42.6	251	202	268	52.3	96
95th Percentile, µg/L	46.4	46.4	46.4	51.4	51.4	51.4	25.16
Sulphate, mg/L	0.8	2.5	0.9	0.6	<0.3	1.5	1.2
True Color, TCU	106	106	186	161	98.5	49.3	87.5
pH, field	6.72	6.85	6.87	6.79	7.44	7.68	7.35
Conductivity, uS/cm	392	208	235	273	350	102	384
DOC, mg/L	22.3	19.0	4.8	22.5	24.1	14	19.2
Hardness, mg/L	186	79.9	115	121	155	91.2	164
Turbidity, NTU	2.7	0.7	0.8	0.7	0.7	0.6	1.1
TDS, mg/L	277	195	225	260	255	130	300
TSS, mg/L	4	1	2	<1	<0.67	2.7	2.70

The SWAT realignment work is ongoing, the GFC diversion channel was not operational in October and remained offline. However, the grade control structures crossing the lower reach of SWAT were installed during the summer of 2022. Concentrations of arsenic were elevated above the baseline seasonal 95th percentiles at Stations 25 for the last four months, which may suggest Mine influence on the concentration of arsenic. Review was completed of ESC measures for construction and confirmed that GGM is following the ESC plan for construction. Visual observation of the construction areas show ESC measures in place and operable. The ESC review aligns with the fact that more than 94% of arsenic at Station 25 present in dissolved form. A potential source of dissolved arsenic during the SWAT realignment in spring-summer of 2022 is dewatering from a work area containing historically contaminated sediments. Filter bags and sedimentation basins are not effective in removing dissolved arsenic. As expected, after completing in-water construction arsenic concentrations substantially reduced in September and October. It is anticipated that arsenic concentration at Station 25 will further decrease after the SWAT diversion channel becomes operational.

Groundwater quality along SWAT was investigated and no elevated arsenic concentrations were found in monitoring wells. The arsenic concentrations in 2022 (three sampling events) ranged from 0.2 to 16 µg/L with an average of 7 µg/L for the July event which is substantially lower in magnitude than what was observed in surface water.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

Background water quality was reviewed to understand the potential influence of background water quality on Station 25 water quality. **Table 3** shows the arsenic concentrations at background Station 52 (GFP2 on Goldfield Lake), Station 39 (SWP3) and Station 25 (mouth of SWAT). Arsenic concentrations notably increase between Stations 52, 39 and 25.

Table 3: Arsenic Concentrations, µg/L

Station	Winter			Spring			Summer			Fall
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22
Station 52	3.0	3.2	2.9	2.7	2.1	2.3	3.3	4.2	4.0	3.8
Station 39	4.1	3.6	3.8	3.2	4.7	8.7	8.5	11.6	8.8	7.5
Station 25	5.5	79.9	97.9	93.1	42.6	251	202	268	52.3	96

Background Station 52 (GFP2 on Goldfield Lake) and upstream Station 39 (SWP3) were investigated for trends and it was found that both stations show no upward trend under baseline conditions for arsenic. The trend analysis was then completed on the entire available data set for arsenic at Stations 39 and 52, and no statistically significant increasing trend was found.

Figures 3 and **4** show the concentration of arsenic over time at upstream SWAT Station 39 (SWP3) and background Station 52 (GFP2 on Goldfield Lake) with a linear trendline. Monthly sampling at Station 39 commenced in January 2016 and in Station 52 commenced in May 2018.

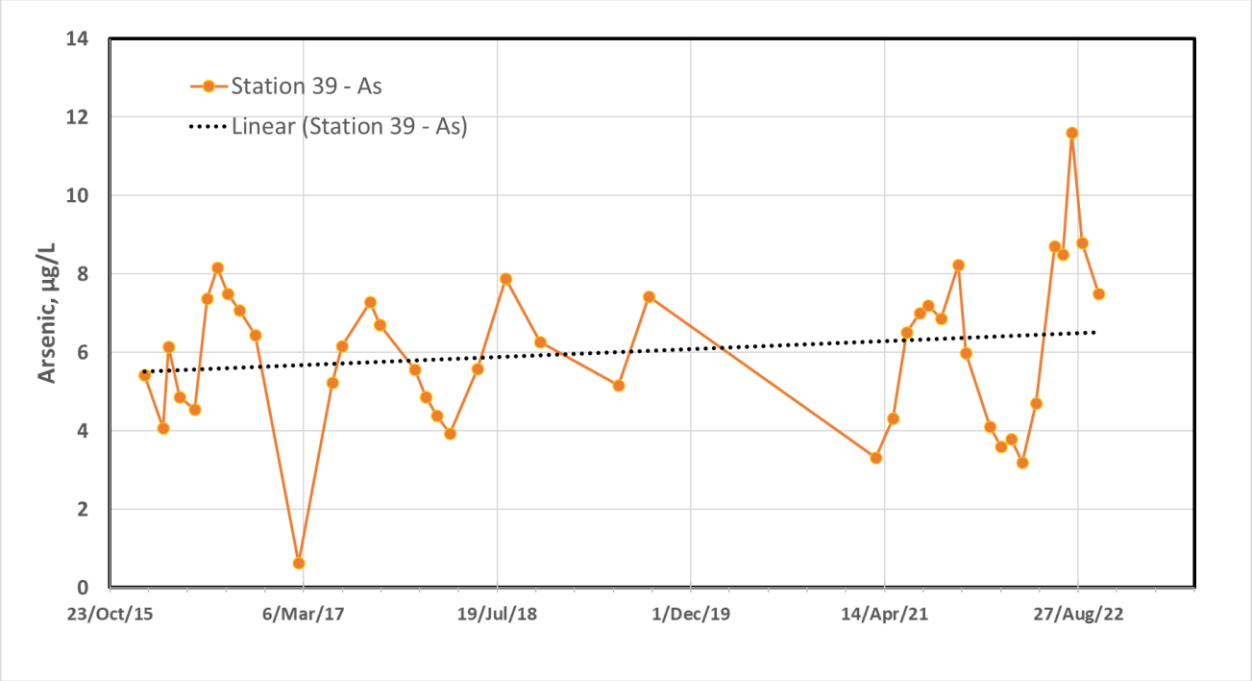

Figure 3: Arsenic Concentration at Station 39

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

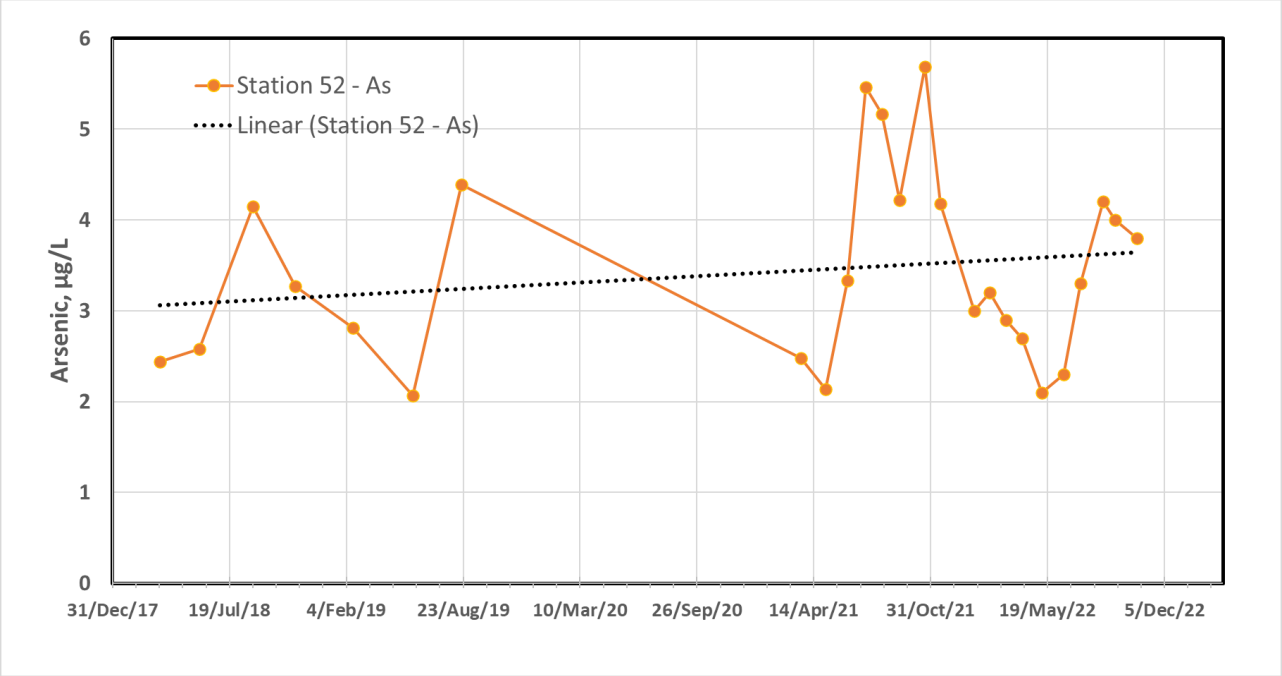

Figure 4: Arsenic Concentration at Station 52

As part of Trigger Threshold 1 action plan the laboratory certificates of analyses, which includes the laboratory's QA/QC results, were reviewed. The August 2022 water samples from Station 25 were sent to two different laboratories to analyze duplicate samples. Total arsenic analyzed by Testmark Laboratories was 311 µg/L and sample analyzed by ALS was 268 µg/L, indicating a 15% difference which generally acceptable for these concentrations. Dissolved arsenic in August 2022 analyzed by Testmark Laboratories was 304 ug/L and analyzed by ALS was 260 µg/L. In both total and dissolved cases the result from both labs exceed the seasonal 95th percentile concentration.

The October 2022 samples were sent to 3 different laboratories to analyze triplicate samples. Total arsenic between the 3 labs vary by a maximum of 4%, which is within the acceptable range of error for these concentrations.

Based on the investigation the following observations were made for arsenic at Station 25:

- The Station 25 June-August data presented in **Table 1** exceed the 99th annual percentile of baseline arsenic (62.6 µg/L) by more than 3 times. Arsenic concentration decreased substantially in September 2022 but still remained slightly above the summer trigger concentration. Arsenic concentration in October was higher than in September 2022.
- A ratio of dissolved form of arsenic to suspended form varies from 94 to 98% (**Table 1**). It indicates that dissolved forms of arsenic are the main contributor to the trigger exceedance.
- The Mann-Kendall trend analyses demonstrated that concentrations of arsenic in the upstream Station 39 and baseline Station 52 show no upward trend in arsenic concentrations. Station 25 shows a statistically significant upward trend for baseline data and total dataset.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022**

- Concentrations of arsenic at Station 39 and 52 are almost two orders of magnitude lower than concentrations at Station 25.
- General water chemistry (**Table 2**) shows TSS and turbidity values are low along SWAT indicating that erosion and sediment disturbance is not a factor in trigger exceedances.
- Spatial extent of arsenic exceedance was assessed (**Table 3**). The arsenic concentrations in background station 52 and upstream Station 39 are substantially lower than in Station 25 which may be indicative of impact of mine activities.
- A potential source of elevated arsenic at Station 25

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. The June -September arsenic concentrations are above the predicted concentrations for construction and operation in the EIS/EA (Section 10). However, the EIS/EA does not specifically differentiate construction and operation.

Arsenic concentrations at Station 25 are below the lowest estimates of toxicity for freshwater life. The CCME (2001) indicates that the lowest estimates of toxicity for fish ranges from a 7-day lowest observed effects concentration (LOEC) of 500 µg/L for perch to 0.97 µg/L for catfish. The lowest estimates of toxicity for invertebrates ranges from a 14-d EC20 (sublethal concentration causing 20% reduction in growth) of 320 µg/L for the copepod to a 7-d LOEC (immobilization) of 1,000 µg/L for *Ceriodaphnia dubia*. The lowest estimates of arsenic toxicity for aquatic plants ranges from a 14 day EC50 (growth) of 50 µg/L for *Scenedesmus obliquus* to a 20 day VSUE (very severe unfavourable effect) of 960 µg/L for *S. quadricus*. The water quality guideline for arsenic for the protection of freshwater life is 5 µg/L. It was derived by multiplying the 14-d EC50 (growth) of 50 µg/L for the most sensitive organism to arsenic, the alga *Scenedesmus obliquus*, by a safety factor of 0.1.

Based on conducted toxicity assessment it was concluded that the observed elevated arsenic concentrations at Station 25 present a low risk to fish, invertebrates and aquatic plants in SWAT.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. As the result of this action plan it was suggested that the source of the increased arsenic concentrations may be related to temporary mine construction activities around SWAT in spring-summer of 2022. Elevated total arsenic is likely related to dewatering from a work area containing historically contaminated sediments. Data shows that ESC effective for particulate arsenic but that would not mitigate dissolved arsenic. The majority of arsenic is observed in dissolved form. m. It was confirmed that groundwater is not a source of arsenic as its concentration in the SWAT monitoring wells is substantively lower than what was observed in surface water.

Sediment data from the 2016-2017 Pre-construction Aquatic Monitoring Report (2018) was reviewed and it was found that sediments in SWAT (sampling site DIVR-02) have elevated concentrations of arsenic, which are above the Lowest Effect Level (LEL = 6 mg/kg) and the Sever Effect Level (SEL = 33 mg/kg). However, TSS and turbidity observed in SWAT in 2022 remain very low (**Table 2**), which suggests that sediments were not disturbed.

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Arsenic Exceedance of Trigger Threshold at Station 25 for Reporting Period May through October 2022

The SWAT realignment work was completed using cofferdams in the in-water zone. Filter bags and sedimentation basins were used to remove suspended particles. The ESC measures are effective to remove suspended particles but have no impact of dissolved arsenic. Therefore, dissolved arsenic can be originated from dewatering. However, in-water works are temporary, and it is expected that concentrations of dissolved arsenic will decrease after in-water construction completed. Significant decline in arsenic concentration was already observed in September.

SUMMARY AND CLOSING

In summary, during the September 2022 reporting period Trigger Threshold 2 was exceeded for arsenic at Station 25. The Trigger Threshold 2 action plan was completed, and it was suggested that the source of the increased arsenic concentrations may be related to temporary mine construction activities around SWAT. Elevated total arsenic is likely related to SWAT in-water works that may have resulted in increased dissolved arsenic as particulate arsenic and sediments were mitigated with the ESC measures (e.g. filter bags and sedimentation basins) that were implemented.

No modifications to the monitoring plan recommended at this time. It is anticipated that arsenic concentrations will decrease after in-water construction on the SWAT is completed. A significant decline in arsenic concentration was already observed in September and October in comparison with summer months when the in-water construction was occurring.

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

Igor Iskra Ph.D., P. Eng.
Senior Water Resources Engineer

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Reference:

Canadian Council of Ministers of the Environment (CCME). 2001. Canadian water quality guidelines for the protection of aquatic life: Arsenic. Updated. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Stantec

Memo

To:	Shane Hayes	From:	Igor Iskra
	Greenstone Gold Mines		Stantec Consulting Ltd.
File:	160900981	Date:	October 31, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

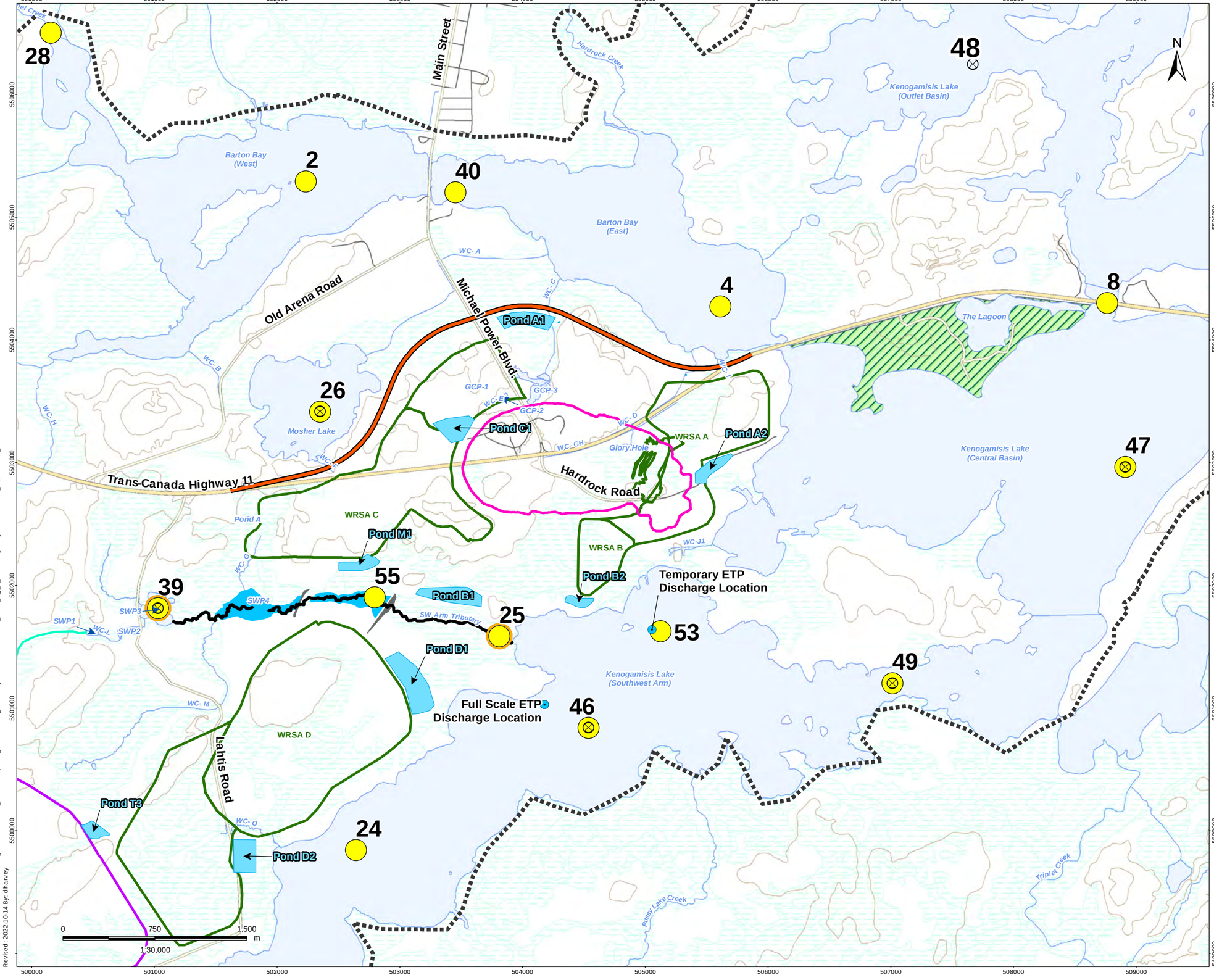
- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are deemed mine related. Trigger Threshold 1 and 2 were exceeded for iron at Station 26 and therefore the respective action plans were initiated. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for iron at Station 26 in Mosher Lake. Station 26 is located in Mosher Lake, west and north of realigned HWY 11 (**Figure 1**). Mosher Lake outflows to Barton Bay via watercourse A. No project activities are occurring around Mosher Lake. The highway realignment adjacent to Mosher Lake was completed in spring of 2022.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.



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Revised: 2022-10-14 By: dharvey

Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final

- New Highway 11 Alignment
- Diversion Channel
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

October 2022
160961293

Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water Quality Monitoring Locations

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for each season for a given parameter is calculated based on data collected prior to September 15th 2021.

The concentration of iron at Station 26 exceeded the spring seasonal 95th percentile baseline concentration in May and June of 2022 and the summer seasonal 95th percentile baseline concentration in July. Therefore, the surface water quality Trigger Threshold 1 was exceeded for iron at Station 26 in July. The exceedance of the summer seasonal 95th percentile was confirmed in August and September.

The Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the action plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 26. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted. Therefore, resampling of Station 26 was completed in August 2022, which also accounted for the scheduled August monthly surface water sampling event.

The results of the August and September sampling event showed that iron at Station 26 continued to exceed the associated seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for iron at Station 26 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2 is completed.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

The trend analysis for iron at Station 26 was completed using the Mann-Kendall test. The Mann-Kendall test is a non-parametric test used to determine whether a time series has a monotonic upward or downward trend, the trend may or may not be linear. The test does not require that the data be normally distributed or linear. However, the test does require that there is no autocorrelation. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. An upward trend through the Mann-Kendall analysis was observed in the baseline concentration of iron at Station 26.

The trend analysis was then completed on the entire available data set for iron at Station 26. A statistically significant increasing trend in the concentration of iron at Station 26 and an increase in the magnitude of the trend compared to baseline was identified. Therefore, Trigger Threshold 2 is exceeded for iron at Station 26 and Trigger Threshold 2 action plan was undertaken for this parameter and station.

Figure 2 shows the concentration of iron over time at Station 26 with a linear trendline. Monthly sampling of Station 26 commenced in October 2013.

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of continued natural trends, or extended seasonal conditions such as a very dry or wet spring or summer period.

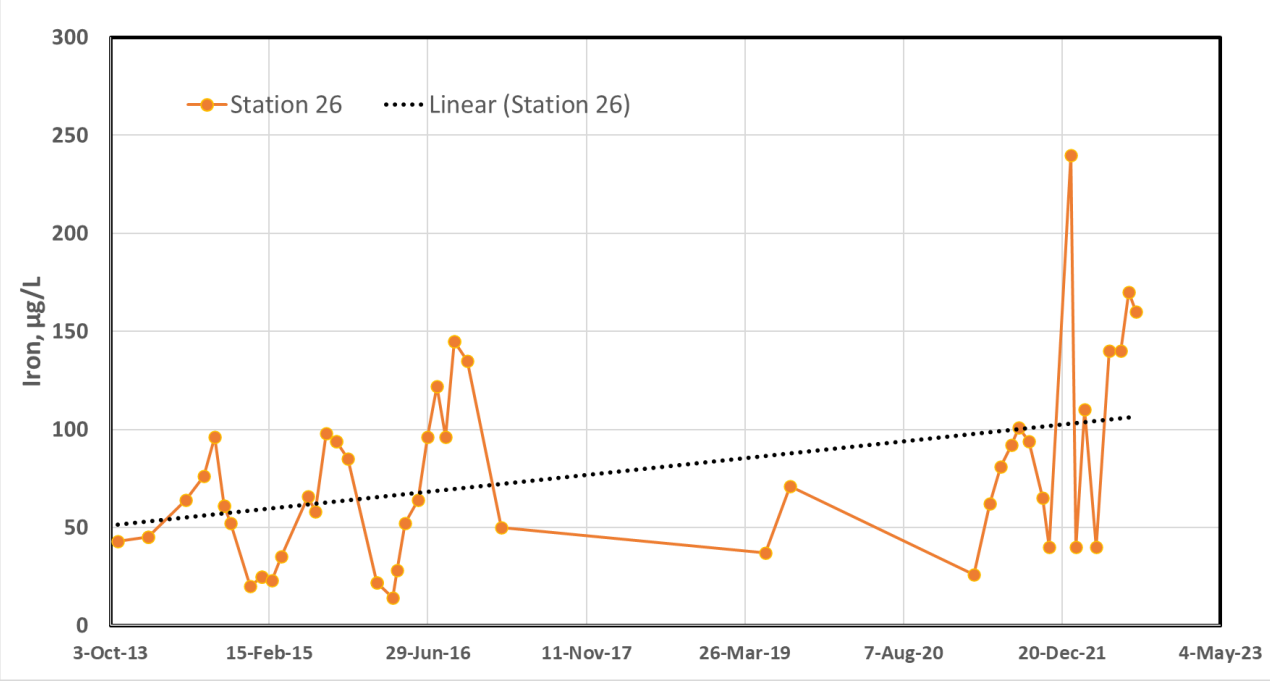

Figure 2: Iron Concentration at Station 26

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has 4 steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation and identification of exceedance sources for the Trigger Threshold 2 exceedance of iron at Station 26

Iron concentrations at Station 26 for the last four months, when the baseline 95th percentile of iron concentration was exceeded, are presented in **Table 1**.

Table 1: Iron Concentrations (µg/L) at Station 26

Parameter	Spring		Summer		
	18-May-22	23-Jun-22	18-Jul-22	11-Aug-22	07-Sep-22
Total Iron Concentration, µg/L	140	140	170	160	180
95th Percentile Seasonal, µg/L	91	91	131	131	131
99th Percentile Baseline Annual, µg/L	145	145	145	145	145
Dissolved Iron, µg/L	50	120	50	90	50
Ratio of Dissolved Forms, %	36	86	29	56	28

No obvious changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were observed at Station 26 in 2022. **Table 2** presents water quality at Station 26. In particular, TSS and turbidity values in Mosher Lake in spring and summer time are low (less than 8 NTU) and indicate that erosion control measures during construction activities of the highway realignment were effective.

No obvious link was established between elevated iron concentrations and mining activities.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

Table 2: General Water Quality at Station 26

Parameter	9-Apr-22	18-May-22	23-Jun-22	18-Jul-22	11-Aug-22	07-Sep-22
Total Iron, µg/L	40	140	140	170	160	180
95th Percentile	91	91	91	131	131	131
Sulphate, mg/L	3.6	3.0	2.9	<0.3	2.9	3.4
True Color, TCU	8.0	5.8	12.0	29.3	11.0	5.5
pH, field	7.03	7.6	8.01	8.23	8.53	8.34
Conductivity, uS/cm	434	285	305	301	309	258
DOC, mg/L	6.2	4.7	5.3	4	4.9	6.8
Hardness, mg/L	129	96.7	98.9	98.0	95.1	91.7
Turbidity, NTU	0.8	0.9	2.2	1.5	1.4	1.7
TDS, mg/L	245	185	195	195	185	225
TSS, mg/L	3.0	2.3	4	2.7	5	6.3

Table 3 shows the iron concentrations at stations located upstream (2, 28) and downstream (4) of WC-A which connects Mosher Lake with Barton Bay. Station 26 has the lowest concentration of iron including background station. It suggests that source of iron at Station 26 is not mine related but a result of natural occurrences in surrounding catchments.

Table 3: Iron Concentrations, µg/L

Station	Winter			Spring			Summer		
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
Station 2	380	230	250	140	160	330	290	340	290
Station 4	260	120	170	130	240	730	150	280	280
Station 26	240	40	110	40	140	140	170	160	180
Station 28	550	430	670	N/A	170	340	420	500	430

Background Station 28 (mouth of Magnet Creek into Barton bay West) was investigated for trends and it was found that it shows no upward trend under baseline conditions for iron. The trend analysis was then completed on the entire available data set for iron at Station 28. A statistically significant increasing trend in the concentration of iron at Station 28 was identified through the Mann-Kendall analysis. Therefore, natural variability is a factor in increasing iron concentrations.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

Figures 3 shows the concentration of iron over time at background Station 28 with a trendline. Monthly sampling at both stations commenced in October 2013.

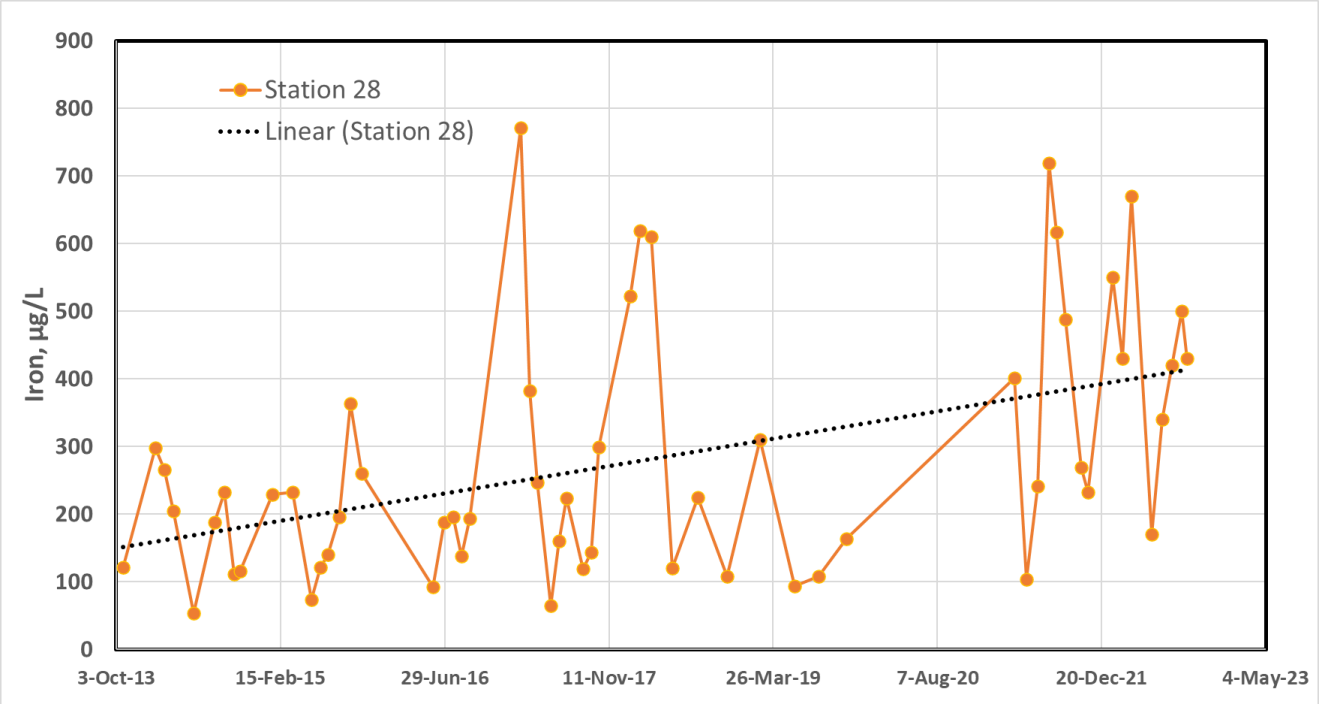

Figure 3: Iron Concentration at Station 28

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

Figures 4 show the concentration of iron over time at background Stations 1A with a linear trendline. Station 1A is located in the mouth of Kenogamisis River and beyond the extent of potential mine influence also demonstrated an increasing iron trend at the same time that station 26 shows an increasing trend, therefore, natural variability is considered a potential source of increasing iron concentrations at Station 26.

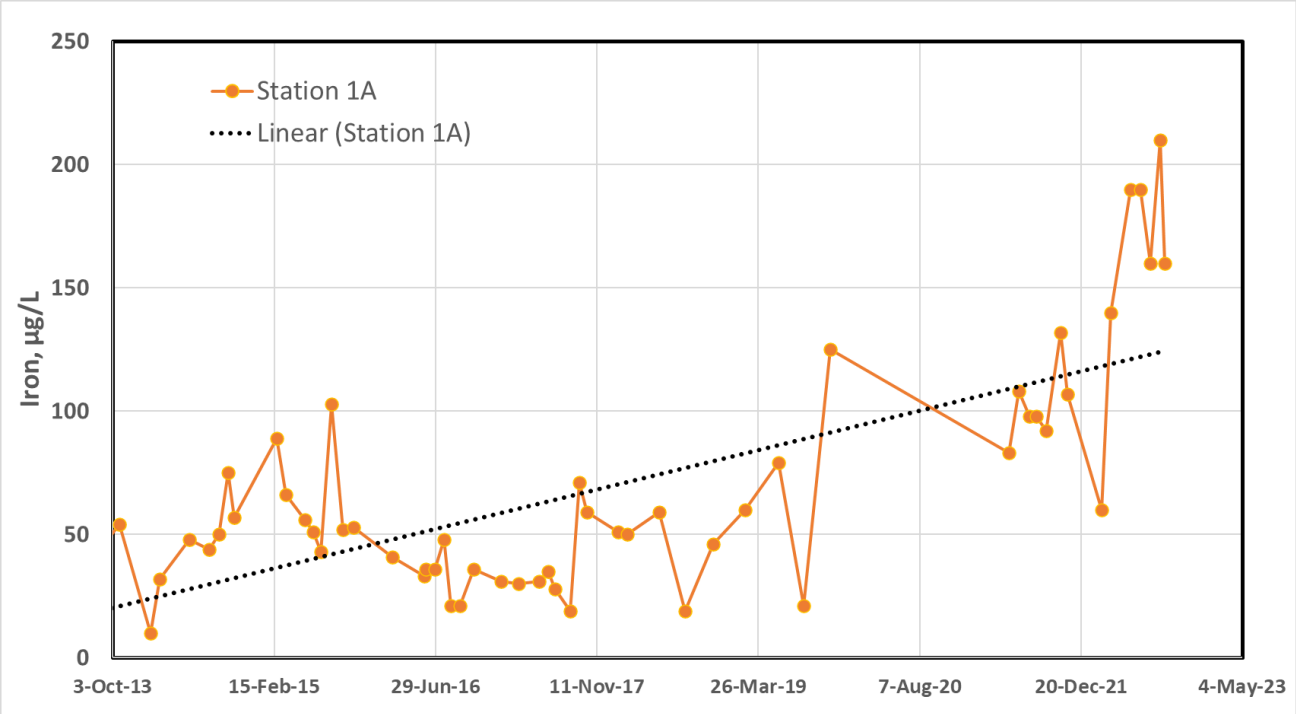

Figure 4: Iron Concentration at Station 1A

The following observations were made:

- For the last five months, the iron concentration ranged in a reasonably narrow interval between 140 µg/L (in May and June) and 180 µg/L (in September). The magnitude of the exceedance above the seasonal 95th percentile is up to 1.5 times and represents a modest deviation from the seasonal 95th percentile which is used in Trigger Threshold 1.
- Figure 2 shows natural cyclical variability of iron from 30 to 150 µg/L. The exceedances in the last five months are only marginally above the natural variability range. It is reasonable to expect that the concentration of iron will reduce in fall and winter.
- Spatial extent of iron exceedance was assessed, and it was concluded that iron exceedances were not observed in downstream station in Barton Bay (Station 4) during the same time period.
- Potential sources of iron were investigated, and no obvious sources of iron were found around Mosher Lake. General water chemistry (**Table 2**), particularly, turbidity, TSS, color, do not show changes in water chemistry.

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022

- The extremely wet spring was experienced in Northwestern Ontario in 2022 that resulted in excessive surface flooding and high water for periods extending into July. There is an established link between flooding and increase in various forms of iron. The process is widespread in boreal forests with high concentration of humic and fulvic acids which act as a chelation agent for iron. Therefore, excessive flooding in 2022 could contribute to elevated concentrations of iron in the catchments surrounding the site including Mosher Lake.
- The highway realignment was occurring immediately along the eastern side of Mosher Lake. TSS was low during construction (Table 2) and suspended forms of iron contribute consistently around 50% of total iron. Therefore, a conclusion can be made that highway realignment is not a factor in elevated iron concentrations.
- Spatial extent of iron exceedance was assessed (Table 3), and it was concluded that the iron concentrations in background station (i.e. upstream of the mine footprint) are higher than in Station 26. It suggests that the source of elevated iron in the neighboring catchments is natural variability.
- As part of Trigger Threshold 1 action plan the laboratory certificates of analyses, which includes the laboratory's QA/QC results, were reviewed with no exceptions to the analyses noted. Prior to January 2021, the baseline surface water quality samples were analyzed by ALS. In January 2021, GGM contracted Testmark Laboratories to complete the water analyses for the Mine. Given the number of elevated concentrations of parameters observed since January 2022 compared to baseline concentrations, GGM has commenced an investigation into the results of the laboratory analyses. The investigation involves collecting duplicate samples for analyses by ALS. Preliminary analytical results show a difference in concentrations between laboratories, particularly iron which is consistently elevated in the results from Testmark Laboratories versus ALS. The investigation is ongoing and is widening to include a third laboratory to understand the potential bias in the laboratory results.

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. The May-September iron concentrations are above the predicted levels for construction and operation in the EIS/EA (Section 10). However, the concentration of iron at Station 26 was notably below PWQO (300 µg/L) and does not represent potential concern to the environment.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. Based on the above evaluation, the source of exceedance or iron at Station 26 is natural variability. No direct link to mine activities can be validated.

SUMMARY AND CLOSING

In summary, during the September 2022 reporting period Trigger Threshold 2 was exceeded for iron at Station 26. The Trigger Threshold 2 action plan was completed and concluded that no direct link of iron exceedances at Station 26 and mine related activities can be established but can be attributed to natural variability.

As the Trigger Threshold 2 exceedance of iron at Station 26 is not mine related, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 26 for Reporting Period May through September 2022**

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

<original signed by>

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Senior Water Resources Engineer

Phone: 289-923-7237
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Stantec

Memo

To:	Shane Hayes Greenstone Gold Mines	From:	Igor Iskra Stantec Consulting Ltd.
File:	160900981	Date:	May 30, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in conditions of approval for the federal Environmental Impact Statement (EIS) and provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are deemed mine related. Trigger Threshold 1 and 2 were exceeded for uranium at Station 39 and therefore the respective action plans were initiated. Station 39 is located in the deepest spot of Southwest Pond 3 (SWP3) on the Southwest Arm Tributary (SWAT). The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022**

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for uranium at Station 39.

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for a given parameter is calculated based on data collected prior to September 15th 2021. The concentration of uranium at Station 39 exceeded the seasonal 95th percentile baseline concentration and was five times the detection limit in November 2021 and January through April 2022. There was no sampling completed at Station 39 in December 2021 due to unsafe ice conditions. Therefore, in February 2022, uranium at Station 39 exceeded surface water quality Trigger Threshold 1.

Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the response plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 39. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted. Therefore, resampling of Station 39 was completed in March 2022, which also accounted for the scheduled March monthly surface water sampling event.

The results of the March sampling event showed that uranium at Station 39 continued to exceed the associated seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for uranium at Station 39 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022**

The trend analysis for uranium at Station 39 was completed using the Mann-Kendall test. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. There were no upward trends observed in the baseline concentration of uranium at Station 39.

The trend analysis was then completed on the entire available data set for uranium at Station 39. A statistically significant increasing trend in the concentration of uranium at station 39 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for uranium at Station 39. Therefore, Trigger Threshold 2 action plan was undertaken for this parameter and station.

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of sample variation, a single anomalous event, such as a meteorological event, or seasonal variation.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

As per step 1 of the Trigger Threshold 2 action plan, the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) were notified of the Trigger Threshold 2 exceedance.

Step 2 of the Trigger Threshold 2 action plan requires an investigation to assess whether the exceedance is mine related while step 3 requires a quantitative risk evaluation. The following summarizes the results of the investigation and quantitative risk evaluation for the Trigger Threshold 2 exceedance of uranium at Station 39.

Station 39 is located at SWP3 on the SWAT diversion channel. Construction work in ongoing where Lathis road crosses WC-L and SWAT headwaters, upgradient of Station 39. A new culvert was installed and a new channel between SWP2 and SWP3 was constructed.

Uranium concentrations at Station 39 post baseline conditions (i.e. after September 15) are presented in **Table 1**. The baseline 95th percentile uranium concentration was exceeded in November of 2021 and January, February, March, and April of 2022. No sampling was taken in December due to safety concerns.

Table 1: Uranium Concentrations (µg/L) at Station 39

	Fall		Winter			Spring
	21-Oct-21	10-Nov-21	11-Jan-22	9-Feb-22	8-Mar-22	4-Apr-22
Uranium Concentration	0.095	0.102	0.11	0.10	0.13	0.13
95th Percentile Seasonal	0.096	0.096	0.099	0.099	0.099	0.057

Figure 1 shows the concentration of uranium over time at Station 39 with a trendline. Monthly sampling of Station 39 commenced in 2016.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022**

Despite some construction work on Lathis road, SWAT headwaters and new culvert installation the changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were not observed at Station 39 in 2022. **Table 2** presents water quality at Station 39.

Table 2: General Water Quality (mg/L) at Station 39

	11-Jan-22	9-Feb-22	8-Mar-22	4-Apr-22	10-May-22
Uranium, µg/L	0.11	0.10	0.13	0.13	0.06
95th Percent	0.099	0.099	0.099	0.057	0.057
Sulphate	2	1.7	2.4	2.4	2.4
True Color	18.4	17.8	15	16.4	58.8
pH, field	7.25	7.33	7.46	7.25	7.17
Conductivity	489	456	477	494	325
DOC	9.4	7.9	7.3	7.3	11.6
Hardness	193	183	224	226	122
Turbidity	0.5	0.5	0.9	0.8	1.7
TDS	3540	150	235	235	280
TSS	2.9	3	1	1	0.67

Based on conducted analysis it was concluded that the seasonal 95th percentile exceedances of uranium are not project related based on following observations:

- Uranium concentration is changing in a very narrow range between 0.095 µg/L and 0.13 µg/L in post baseline conditions. The magnitude of the exceedance above the seasonal 95th percentile is small, the uranium exceedance represents a minor deviation from the seasonal 95th percentile which is used in Trigger Threshold 1.
- Figure 1 shows natural seasonal cyclical trends of uranium at Station 39 with high concentrations in winter and early spring. It was reasonable to expect that the concentration of uranium in winter of 2022 would also high. It is expected that the concentration of uranium will become lower in summer.
- Spatial extent of uranium exceedance was assessed, and it was concluded that the exceedance event at Station 39 is isolated to this monitoring station. No trigger thresholds were exceeded in downstream stations 25 and 53.
- Potential sources of contamination were investigated, and no obvious sources of uranium were found at Station 39. Construction work is ongoing on Lathis road but general water chemistry (**Table 2**), particularly, turbidity, TSS, color, do not show changes in water chemistry.
- Potential changing trends associated with other parameters at Station 39 were not observed, no other parameters were triggered at this station.
- The concentration of uranium is more than 30 times below PWQO and does not represent potential concern to the environment.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022**

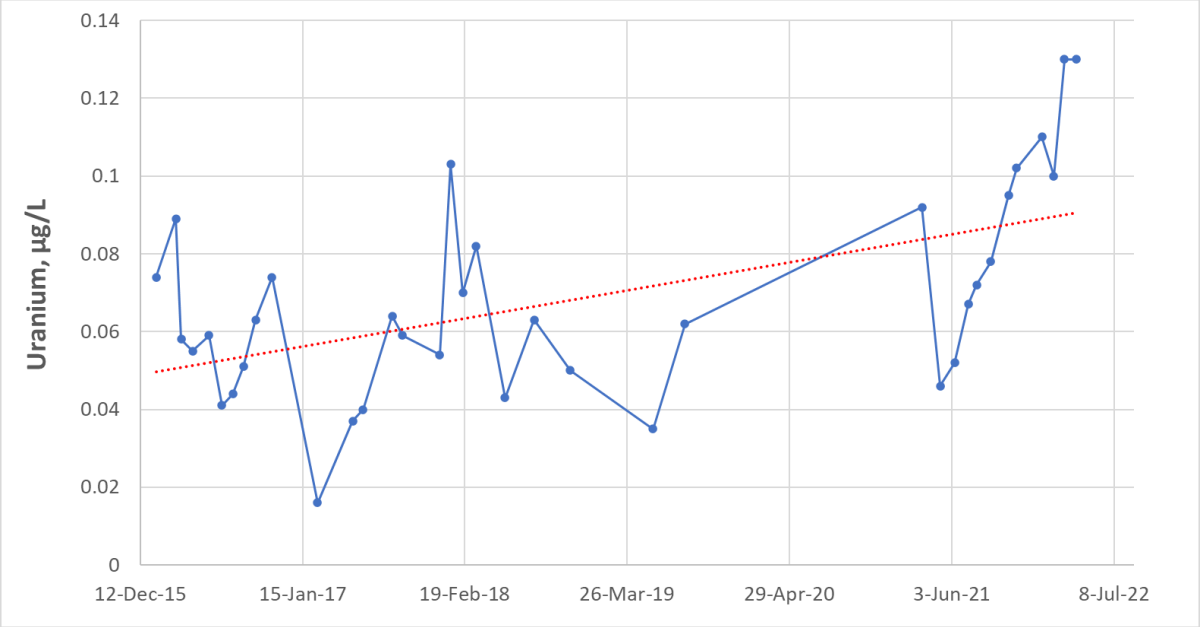

Figure 1: Uranium Concentration at Station 39

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. Based on the above evaluation, the source of exceedance of uranium at Station 39 is natural variability.

SUMMARY AND CLOSING

In summary, during the April 2022 reporting period Trigger Threshold 2 was exceeded for uranium at Station 39. The Trigger Threshold 2 action plan was completed and concluded that uranium exceedances at Station 39 are not mine related but can be attributed to natural variability.

As the Trigger Threshold 2 exceedance of uranium at Station 39 is not mine related, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Uranium Exceedance of Trigger Threshold at Station 39 for Reporting Period October 2021 through March 2022**

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

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Igor Iskra
Water Resources Engineer

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Stantec

Memo

To:	Shane Hayes Greenstone Gold Mines	From:	Igor Iskra Stantec Consulting Ltd.
File:	160900981	Date:	August 31, 2022

Reference: Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022

Greenstone Gold Mines (GGM) is constructing a new open pit gold mine that includes a processes plant and ancillary facilities, collectively known as the Greenstone Mine (the Mine). Construction and operation of the gold mine are governed by a series of permits issued by the Ministry of Environment, Conservation and Parks (MECP) each with various monitoring requirements. Monitoring requirements for the Mine are also detailed in the decision statement issued for the federal Environmental Impact Statement (EIS) and notice of approval for the provincial Environmental Assessment (EA).

A surface water quality adaptive management plan was implemented in October 2021 for the Mine. The adaptive management plan for the surface water quality monitoring program is a requirement of the following permits and/or monitoring plans for the Mine.

- Conditions 7.16 through 7.17 of the temporary effluent treatment plant (TETP) Environmental Compliance Approval (ECA) number 9561-CBFLCC.
- The Multi-Media Monitoring and Management Plan (GGM 2021)[1], developed in accordance with condition 13 of the provincial EA Notice of Approval.
- The Fish and Fish Habitat Follow-Up Monitoring Plan (GGM 2021)[2], developed in accordance with conditions 3.14, 3.15, 3.16, 3.17, 3.2, 5.4, and 5.5.1. of the federal EIS Decision Statement.

The adaptive management plan for surface water quality is consistent among the TETP ECA, Multi-Media Monitoring and Management Plan, and Fish and Fish Habitat Follow-Up Monitoring Plan. The adaptive management plan defines triggers for additional assessment of cause and associated action plans that will be carried out should exceedances to the triggers occur. There are two trigger thresholds for surface water quality indicator parameters with a corresponding action plan, should the threshold be exceeded. The action plan identifies notification, investigation, and mitigation measures and strategies that may be carried out when exceedances of the triggers occur and those exceedances are deemed mine related. Trigger Threshold 1 and 2 were exceeded for iron at Station 39 and therefore the respective action plans were initiated. Station 39 is located in the upstream section the Southwest Arm Tributary (SWAT) in SWP3. The objective of the action plan is to assess whether the exceedance is mine related and, if it is mine related, to undertake a quantitative risk evaluation, identify exceedance source, and mitigate effects of the mine, as required.

Please accept this letter as the investigation report for the Trigger Threshold 2 exceedance for iron at Station 39.

[1] Greenstone Gold Mines (GGM). 2021. Hardrock Project – Multi-Media Monitoring Plan – Order in Council 404/2019 Condition 13. Document control number: HP-MG003-EV-130-0004_3. March 25, 2021.

[2] Greenstone Gold Mines (GGM). 2021. Hardrock Project Fish and Fish Habitat Federal EIS Follow-Up Monitoring Plan. Document control number HP-MG003-EV-130-0008_0. February 16, 2021.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022**

SURFACE WATER QUALITY TRIGGER THRESHOLD 1 EVALUATION

The trigger thresholds and associated action plans are described in conditions 7.16 through 7.17 of the TETP ECA, Section 4.2.4 of the Multi-Media Monitoring Plan, and Section 2.2.2.2 of the Fish and Fish Habitat Follow-Up Monitoring Plan.

Surface water quality Trigger Threshold 1 is defined as three consecutive monthly parameter concentration exceedances above the seasonal 95th percentile baseline concentration AND five times the detection limit. For those stations where the 95th percentile is less than the predicted surface water quality concentrations from the EIS/EA, Trigger Threshold 1 is defined as 10% above the predicted surface water quality concentration from the EIS/EA for the surface water feature at a given monitoring station, AND five times the detection limit.

The 95th percentile for a given parameter is calculated based on data collected prior to September 15th 2021. The concentration of iron at Station 39 exceeded the seasonal 95th percentile baseline concentration and was more than five times the detection limit in April through July 2022. Therefore, in June 2022, iron at Station 39 exceeded the surface water quality Trigger Threshold 1.

Trigger Threshold 1 action plan was undertaken. Trigger Threshold 1 action plan is to confirm the result (QA/QC review and resampling) and, if the result is confirmed, to complete a trend analysis of the concentration over time.

As per the response plan, a QA/QC review of the sampling methods, laboratory report, and chain of custody was completed for the surface water quality samples collected at Station 39. No anomalies in the sampling methods, sample handling, or laboratory reporting were noted. Therefore, resampling of Station 39 was completed in July 2022, which also accounted for the scheduled July monthly surface water sampling event.

The results of the July sampling event showed that iron at Station 39 continued to exceed the associated seasonal 95th percentile. As such, the Trigger Threshold 1 exceedance for iron at Station 39 was confirmed. Where a Trigger Threshold 1 exceedance is confirmed, the previous concentration data is reviewed for trends and an assessment of Trigger Threshold 2 is completed.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 EVALUATION

Surface water quality Trigger Threshold 2 is defined as an exceedance of Trigger Threshold 1 and a statistically significant upward trend for a given indicator parameter, or for stations that have a statistically significant upward trend compared to baseline data, an increase in the magnitude of the trend compared to baseline.

The trend analysis for iron at Station 39 was completed using the Mann-Kendall test. The trend analysis was initially completed on baseline data to confirm if an upward trend in concentration of the indicator parameter is observed under baseline conditions. Surface water quality data collected prior to September 15, 2022 was considered baseline data. No upward trend was observed in the baseline concentration of iron at Station 39.

The trend analysis was then completed on the entire available data set for iron at Station 39. A statistically significant increasing trend in the concentration of iron at station 39 was identified through the Mann-Kendall analysis. Therefore, Trigger Threshold 2 is exceeded for iron at Station 39 and Trigger Threshold 2 action plan was undertaken for this parameter and station.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022**

The objective of the Trigger Threshold 2 action plan is to determine if the exceedance is related to mine activities or a result of sample variation, a single anomalous event, such as a meteorological event, or seasonal variation.

SURFACE WATER QUALITY TRIGGER THRESHOLD 2 ACTION PLAN RESULTS

The Trigger Threshold 2 Action Plan has 4 steps:

- Step 1 is to notify the Impact Assessment Agency of Canada (IAAC), MECP, and the Environmental Advisory Committees (EACs) of the Trigger Threshold 2 exceedance.
- Step 2 requires an investigation to assess whether the exceedance is mine related.
- Step 3 requires a quantitative risk evaluation.
- Step 4 is to identify exceedance source.

The following summarizes the results of the investigation, quantitative risk evaluation and identification of exceedance sources for the Trigger Threshold 2 exceedance of iron at Station 39.

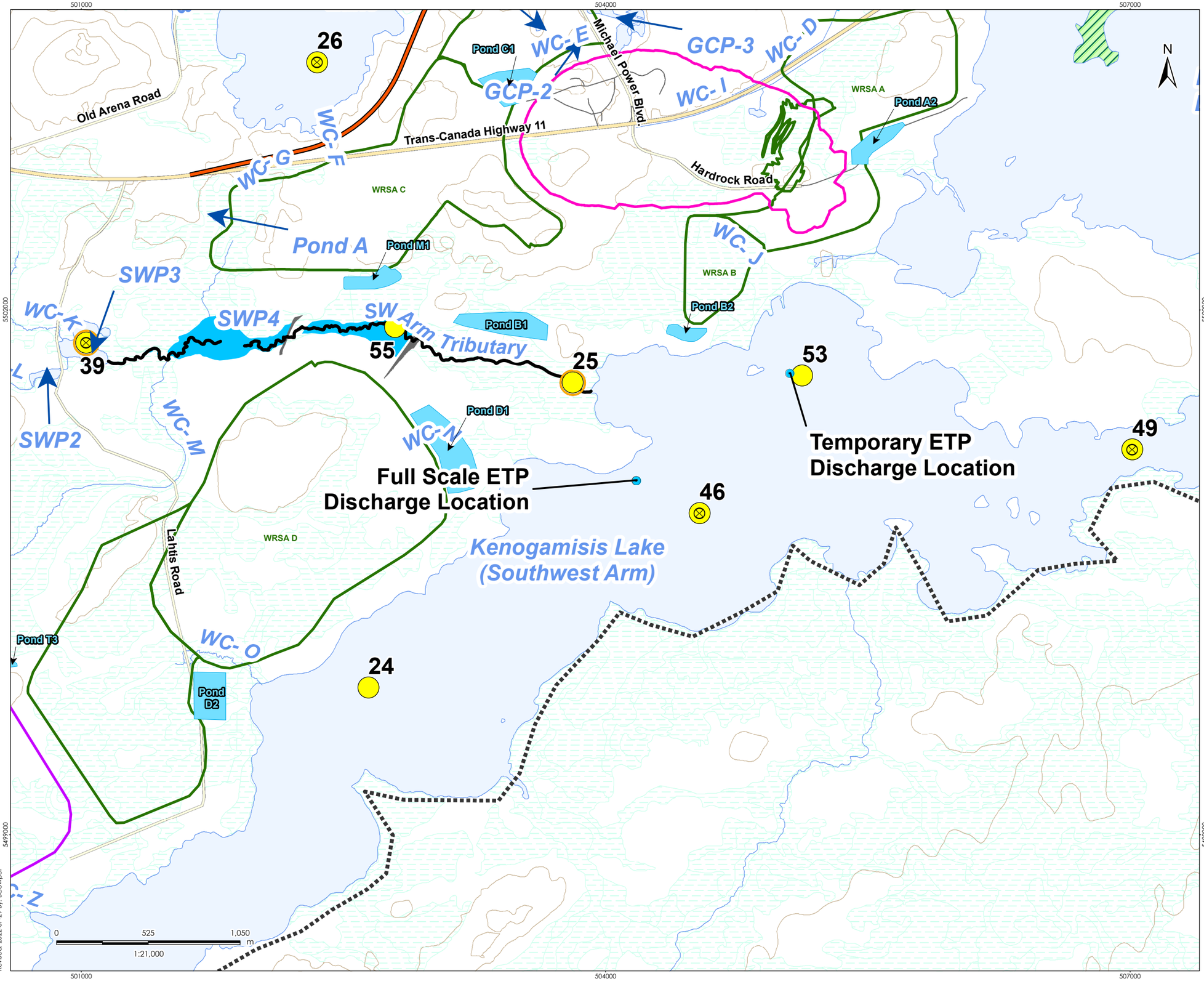
Station 39 is located in the headwater of SWAT (**Figure 1**) at SWP3. Stripping topsoil in the GFC diversion and GFC diversion dam areas are ongoing as well as construction of the GFC diversion and diversion dams. There has been no blasting near Station 39 except about 1 km upstream inside the new GFC Diversion Channel.

Iron concentrations at Station 39 for the last four months, when the baseline 95th percentile of iron concentration was exceeded, are presented in **Table 1**.

Table 1: Iron Concentrations (µg/L) at Station 39

Parameter	Spring			Summer
	4-Apr-22	10-May-22	28-Jun-22	18-Jul-22
Iron Concentration	180	230	150	180
95th Percentile Seasonal	98.2	98.2	98.2	64

Figure 2 shows the concentration of iron over time at Station 39 with a trendline. Monthly sampling of Station 39 commenced in January 2016.



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Revised: 2022-07-29 By: BCowper

Stantec

Legend

- Local Assessment Area
- Regional Assessment Area
- Discharge Location
- Routine Water Quality Monitoring
- Temperature/ DO Profile
- Mercury and Methylmercury Monitoring

Site Plan Revised Post Final EA/EIS

- New Highway 11 Alignment
- Collection Ponds
- Open Pit- Full Extent
- Tailings Management Facility
- Grade Control Structure
- Inundated Area ; Backwater effect
- Waste Rock Storage Area

Existing Features

- Highway
- Major Road
- Local Road
- Existing SW Arm Tributary Channel
- Watercourse
- Provincial Park
- Wetland (Eco-Site Based)
- Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

July 2022
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Client/Project

Greenstone Gold Mines GP Inc. (GGM)
Hardrock Project

Figure No.

1

Title

Surface Water Quality Monitoring Locations

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022**

Despite some construction of diversion channel upstream of Station 39, changes in general water chemistry (turbidity, TSS, conductivity, hardness, etc.) were not observed at Station 39 in 2022. **Table 2** presents water quality at Station 39. In particular, TSS values in SWAT are low (less than 8 NTU) and indicate that erosion control measures during construction activities in and around the SWAT are effective.

No obvious link was established between elevated iron concentrations and mining activities. It is possible that during spring freshet some iron was washed away from disturbed areas and caused elevated concentrations however, there is no indication of erosional process such as elevated TSS, hardness, turbidity, or electrical conductivity.

Table 2: General Water Quality at Station 39

Parameter	8-Mar-22	4-Apr-22	10-May-22	28-Jun-22	18-Jul-22
Iron, µg/L	160	180	230	150	180
95th Percentile	244.4	98.2	98.2	98.2	64
Sulphate, mg/L	2.4	2.4	2.4	2.0	2.4
True Color, TCU	15.0	16.4	58.8	64.6	63.9
pH, field	7.46	7.25	7.17	7.31	7.21
Conductivity, uS/cm	477	494	325	351	393
DOC, mg/L	7.3	7.3	11.6	12.2	6.0
Hardness, mg/L	224	226	122	137	166
Turbidity, NTU	0.9	0.8	1.7	1.8	0.8
TDS, mg/L	235	235	280	280	240
TSS, mg/L	1	1	<0.67	1	<0.67

The following observations were made:

- For the last six months, the iron concentration ranged in a narrow interval between 150 µg/L (in June) and 230 µg/L (in May). The magnitude of the exceedance above the seasonal 95th percentile is up to 2.8 times and represents a measurable deviation from the seasonal 95th percentile which is used in Trigger Threshold 1.
- Figure 2 shows natural seasonal cyclical trends of iron at Station 39 with generally high concentrations in spring and summer. Except for the January 11, 2022 sample, the concentration of iron in spring and summer 2022 seasonal cycle is similar to historical peaks. It is reasonable to expect that the concentration of iron will reduce in late summer and fall.
- Spatial extent of iron exceedance was assessed, and it was concluded that the iron exceedances were also observed in neighboring stations 25 and 52 during the same time period.
- Potential sources of iron were investigated, and no obvious sources of iron were found upstream of Station 39. Channel diversion work is ongoing but general water chemistry (**Table 2**), particularly, turbidity, TSS, color, do not show changes in water chemistry indicating erosion and sedimentation control mitigation measures are effective.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022**

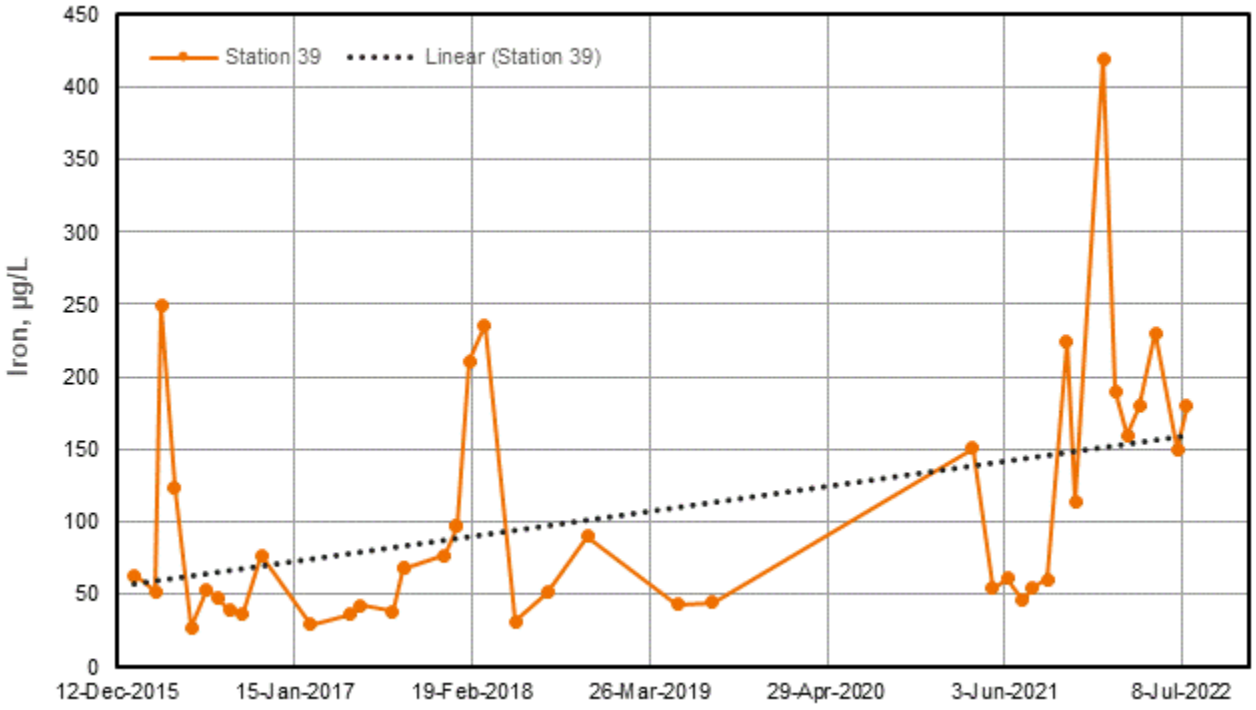

Figure 2: Iron Concentration at Station 39

Step 3 requires a quantitative risk evaluation which is a conceptual evaluation and comparison of concentrations or loads and conclusions drawn from such analysis. The concentration of iron at Station 39 was below PWQO (300 µg/L) and does not represent potential concern to the environment.

Step 4 of the Trigger Threshold 2 action plan is to identify exceedance source. Based on the above evaluation, the source of exceedance or iron at Station 39 is natural variability. No direct link to mine activities can be validated.

SUMMARY AND CLOSING

In summary, during the July 2022 reporting period Trigger Threshold 2 was exceeded for iron at Station 39. The Trigger Threshold 2 action plan was completed and concluded that no direct link of iron exceedances at Station 39 and mine related activities can be established but can be attributed to natural variability.

As the Trigger Threshold 2 exceedance of iron at Station 39 is not mine related, the monitoring plan will continue with no modifications to the monitoring plan recommended at this time.

Reference: **Greenstone Mine Adaptive Management Plan, Investigation of Iron Exceedance of Trigger Threshold at Station 39 for Reporting Period April through July 2022**

Should you have any questions or comments, please contact the undersigned.

Stantec Consulting Ltd.

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Appendix B
Groundwater Data

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

B-1
Groundwater Monitoring Summary

Table B-1-1
Groundwater Monitoring Summary
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Monitoring Location	Spring/Summer					Summer					Fall					Trigger Threshold Monitoring Location	Location
	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)		
	Manual	Data Logger				Manual	Data Logger				Manual	Data Logger					
Monitoring Wells																	
BH14-01	X	X				X	X				X	X		X		WL	Adjacent to Borrow Area S1 and TMF West Dam
BH14-01A	X					X					X						Within Footprint of TMF West Dam
BH14-02	X	X				X	X				X	X		X			Adjacent to TMF Northeast Dam
BH14-02A	X	X				X	X				X	X		X			Adjacent to TMF Northeast Dam
BH14-03	X*					X*					X*						Within Footprint of TMF Northwest Dam
BH14-04	X*					X*					X*						Within Footprint of TMF Southwest Dam
BH14-05	X*					X*					X*						Within Footprint of TMF Southwest Dam
BH14-08	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
BH14-09	X*					X*					X*						Within Footprint of Open Pit and Historical MacLeod Tailings
BH14-10	X					X*					X*			X*			Between Overburden Storage Area 1 and Open Pit and within Footprint of Historical MacLeod Tailings
BH14-11	X*					X*					X*						Within Footprint of Open Pit and Historical MacLeod Tailings
BH14-12	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
BH14-15	X			X		X			X		X			X		WQ	Between WRSA D and SW Arm Tributary
BH14-18	X*					X*					X*						Within Footprint of WRSA C
BH14-23	X					X					X						Within Footprint of WRSA A/C (Contingency)
G1-OB-13	X*					X*					X*						Within Footprint of WRSA B
G2-OB-13	X*					X*					X*						Within Footprint of WRSA C
G4-OB1-13	X					X					X			X			Within Footprint of Contingency WRSA D and Pond D2
G4-OB2-13	X					X					X			X			Within Footprint of Contingency WRSA D and Pond D2
G5-OB1-14	X*					X*					X*			X*			Within Footprint of TMF
G5-OB2-14	X*					X*					X*			X*			Within Footprint of TMF
G6-BR-14	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and Adjacent to Southwest Arm
G6-OB-14	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and Adjacent to Southwest Arm
G7-OB1-14	X	X		X		X	X		X		X	X		X		WL/WQ	Adjacent TMF Southwest Dam and Lake A-322
G7-OB2-14	X	X		X		X	X		X		X	X		X		WL/WQ	Adjacent TMF Southwest Dam and Lake A-322
MAC-1	X					X					X						West of Open Pit
MAC-2	X*					X*					X*						Within Footprint of Open Pit
MAC-3	X*					X*					X*						Within Footprint of Open Pit
MAC-4	X*					X*					X*			X*			South of Open Pit
MAC-5	X*					X*					X*						Within Footprint of Open Pit
MAC-6	X*					X*					X*			X*			Between Open Pit and Ore Stockpile
MAC-7	X*					X*					X*						Within Footprint of WRSA B
MAC-8	X*					X*					X*						Within Footprint of Open Pit
MAC-9	X*					X*					X*						Within Footprint of Open Pit
MW1-BR-14	X	X				X	X				X	X					Downgradient of Overburden Storage Area 1
MW1-OB-14	X	X				X	X				X	X					Downgradient of Overburden Storage Area 1
MW2-OB-13	X	X				X	X				X	X				WL	Downgradient of WRSA A/C (Contingency) and Adjacent to Mosher Lake
MW3-BR-13	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA A and Adjacent to Central Basin
MW3-OB-13	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA A and Adjacent to Central Basin
MW4-OB-13	X	X				X	X				X	X		X			Downgradient of WRSA B and Adjacent to Southwest Arm
MW5-OB1-13	X	X				X	X				X	X		X			Downgradient of WRSA C and Process Plan
MW5-OB2-13	X	X				X	X				X	X		X			Downgradient of WRSA C and Process Plan
MW6-OB-13	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA C and Adjacent to HWY 11
MW7-BR-13	X	X				X	X				X	X		X			Downgradient of WRSA D (northwest)
MW8-OB-14	X	X				X	X				X	X		X		WL	Downgradient of WRSA D and Adjacent to SW Arm Tributary
MW9-OB1-13	X	X				X	X				X	X		X			Downgradient of Contingency WRSA D (Contingency) and Overburden Storage Area 2
MW9-OB2-13	X	X				X	X				X	X		X			Downgradient of Contingency WRSA D (southeast)
MW10-OB-14	X*					X*					X*						Within Footprint of WRSA D
MW11-BR-14	X*					X*					X*			X*			Within Footprint of TMF
MW11-OB-14	X*					X*					X*			X*			Within Footprint of TMF
MW12-OB-14	X					X					X			X*			Background - South of TMF and Goldfield Creek Tributary
MW13-OB-14	X	X				X	X				X	X		X			Background - South of TMF and Adjacent to Lake A-323
MW14-BR-14	X	X				X	X				X	X		X		WL	Background - Southwest of TMF and Within Footprint of Aggregate Source T2
MW14-OB-14	X	X				X	X				X	X		X		WL	Background - Southwest of TMF and Within Footprint of Aggregate Source T2
MW15-BR-14	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF and north of Goldfield Creek Tributary
MW15-OB-14	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF and north of Goldfield Creek Tributary
MW16-BR-14	X*					X*					X*						Within Footprint of TMF
MW16-OB-14	X*					X*					X*						Within Footprint of TMF
MW17-OB-14	X	X				X	X				X	X		X		WL	Southeast Corner of HWY 11 and Lahitis Road
MW18-BR-21 (MW-A)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA C, Adjacent to Mosher Lake
MW19-BR-21 (MW-B)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA A, Adjacent to Barton Bay,
MW19-OB-21 (MW-B)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA A, Adjacent to Barton Bay, overburden
MW20-BR-21 (MW-D)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF, adjacent to Southwest Arm, bedrock
MW20-OB-21 (MW-D)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF, adjacent to Southwest Arm, overburden
MW21-BR-21 (MW-F)	X	X		X	NI	X	X		X	X[VOC]	X	X		X	X[VOC]	HG/WQ	Downgradient of Process Plant, overburden
MW22-OB-21 (MW-M)	X			X		X			X		X			X		WQ	Between the Ore Stockpile and Kenogamisis Lake, to the West of MWS-14-04 and East of Proposed Monitoring Well MW-G
MW23-OB-21 (MW-G)	X	X		X	NI	X	X		X	X[VOC]	X	X		X	X[VOC]	HG/WQ	Downgradient of Process Plant and Pond B1, overburden
MW24-BR-21 (MW-N)	X			X		X			X		X			X		WQ	Between the TMF and Goldfield Creek Tributary, Northwest of Proposed Monitoring Well MW-E and Southeast of G7-14
MW24-OB-21 (MW-N)	X			X		X			X		X			X		WQ	Between the TMF and Goldfield Creek Tributary, Northwest of Proposed Monitoring Well MW-E and Southeast of G7-14
MW25-BR-21 (MW-E)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF, adjacent to Goldfield Creek Tributary, bedrock
MW25-OB-21 (MW-E)	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF, adjacent to Goldfield Creek Tributary, overburden
MW16-04	X	X				X	X				X	X					Within Footprint of Aggregate Source S4
MW16-05	X	X				X	X				X	X					Adjacent to Aggregate Source T2
MW03-BR-18	X	X		X		X	X		X		X	X		X		WQ	East of WRSA A, Adjacent to Central Basin
MW03-OB-18	X	X		X		X	X		X		X	X		X		WQ	East of WRSA A, Adjacent to Central Basin
MW10-18	X*					X*					X*			X*			Within Footprint of Open Pit, South of Historical MacLeod Tailings

Table B-1-1
Groundwater Monitoring Summary
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Greenstone Project

Monitoring Location	Spring/Summer					Summer					Fall					Trigger Threshold Monitoring Location	Location
	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)		
	Manual	Data Logger				Manual	Data Logger				Manual	Data Logger					
Monitoring Wells (continued)																	
MWS-14-01	X	X				X	X				X	X		X		WL	Downgradient of WRSA D (Northwest)
MWS-14-02 BR	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and Adjacent to Southwest Arm
MWS-14-02 OB	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and Adjacent to Southwest Arm
MWS-14-03 OB1	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and South of SW Arm Tributary
MWS-14-03 OB2	X	X		X		X	X		X		X	X		X		WQ	Downgradient of WRSA D and South of SW Arm Tributary
MWS-14-04	X			X		X			X		X			X		WQ	Downgradient of WRSA B and Adjacent to Southwest Arm
MWS-14-05 BR	X*					X*					X*						Within Footprint of WRSA C
MWS-14-05 OB	X*					X*					X*						Within Footprint of WRSA C
MWS-14-06	X					X					X			X			Adjacent to Process Plant
MWS-14-07 BR	X	X		X		X	X		X		X	X		X		WQ	Downgradient of TMF and Adjacent to Soutwest Arm
MWS-14-07 OB	X	X		X		X	X		X		X	X		X		WL/WQ	Downgradient of TMF and Adjacent to Soutwest Arm
Historical MacLeod Tailings Monitoring Wells																	
96-01	X*					X*					X*			X			Between Overburden Storage Area 1 and Open Pit, Within Footprint of Historical MacLeod Tailings
96-02	X*					X*					X*			X			Between Overburden Storage Area 1 and Open Pit, Within Footprint of Historical MacLeod Tailings
96-03	X					X					X			X			Downgradient of Overburden Storage Area 1 and Within Footprint of Historical MacLeod Tailings
96-04	X					X					X			X			Downgradient of Overburden Storage Area 1 and Within Footprint of Historical MacLeod Tailings
96-05	X*					X*					X*						Within Footprint of Open Pit
96-06	X*					X*					X*						Within Footprint of Open Pit
96-07A1	X*					X*					X*			X*			Between Overburden Storage Area 1 and Open Pit, Within Footprint of Historical MacLeod Tailings
96-07A2	X*					X*					X*			X*			Between Overburden Storage Area 1 and Open Pit, Within Footprint of Historical MacLeod Tailings
96-08A	X*					X*					X*						Within Footprint of Open Pit
96-08B	X*					X*					X*						Within Footprint of Open Pit
96-08C	X*					X*					X*						Within Footprint of Open Pit
96-09A1	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-09A2	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-09A3	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-09A4	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-10A1	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
Historical MacLeod Tailings Monitoring Wells (Continued)																	
96-10A2	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-10A3	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-10B	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-10C	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-11A1	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-11A2	X*					X*					X*						Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-12A	X					X					X			X			Downgradient of WRSA A and Within Footprint of Historical MacLeod Tailings
96-12B	X	X				X	X				X	X		X			Downgradient of WRSA A and Within Footprint of Historical MacLeod Tailings
96-13	X*					X*					X*						Between Overburden Storage Area 1 and Open Pit, Within Footprint of Historical MacLeod Tailings
96-14b	X					X					X			X			Within Footprint of Overburden Storage Area 1 and Historical MacLeod Tailings
96-15A1	X*					X*					X*						Within Footprint of Open Pit
96-15A3	X*					X*					X*						Within Footprint of Open Pit
96-15B	X*					X*					X*						Within Footprint of Open Pit
MW07-18	X	X				X	X				X	X		X			Within Footprint of Historical MacLeod Low Tailings, Adjacent to Barton Bay
MW08-18	X	X				X	X				X	X		X		WL	Within Footprint of Historical MacLeod Low Tailings, Adjacent to Barton Bay
MW09-18	X	X				X	X				X	X		X			Within Footprint of Historical MacLeod Low Tailings, Adjacent to Barton Bay
Historical Hardrock Tailings Monitoring Wells																	
H96-01	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-02A	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-02B	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-02C	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-03	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-04A1	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-04B	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-05A1	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-05A2	X*					X*					X*						Within Footprint of WRSA A and Historical Hardrock Tailings
H96-06A1	X*					X*					X*			X			Within Footprint of WRSA A and Historical Hardrock Tailings
H96-06A2	X*					X*					X*			X			Within Footprint of WRSA A and Historical Hardrock Tailings
H96-06A3	X*					X*					X*			X			Within Footprint of WRSA A and Historical Hardrock Tailings
H96-06B	X*					X*					X*			X			Within Footprint of WRSA A and Historical Hardrock Tailings
MW01-OB1-18	X	X				X	X				X	X		X			Within Footprint of Historical Hardrock Tailings, Adjacent to Central Basin
MW01-OB2-18	X	X				X	X				X	X		X		WL	Within Footprint of Historical Hardrock Tailings, Adjacent to Central Basin
MW02-OB-18	X					X					X			X			Within Footprint of Historical Hardrock Tailings, Adjacent to Central Basin
Drive-Point Piezometers																	
DP2-14D	X					X					X						Downgradient of WRSA D and South of SW Arm Tributary
DP2-14S	X					X					X						SW Arm Tributary
DP3-14D	X					X					X						SW Arm Tributary
DP3-14S	X					X					X						SW Arm Tributary
DP4-14	X					X					X						SW Arm Tributary
DP5-14	X					X					X						WC-M
DP6-14D	X*	X*				X*	X*				X*	X*					Goldfield Creek
DP6-14S	X*					X*					X*						Goldfield Creek
DP-A	X					X					X					WL	Within the footprint of the sparse treed fend located east of the TMF
DP-B	X					X					X					WL	Within wetland located at the headwaters of SWAT and confluence with Goldfield Creek Diversion
DP-C	X			NI		X			X		X			X		WQ	Within Goldfield Cree, downgradient of TMF and Pond T1
Seeps																	
Seep 1														X			Downgradient of WRSA A and Historical MacLeod Tailings
Seep 3														X			Downgradient of WRSA B and Adjacent to Southwest Arm
Seep 5														X			Within Footprint of WRSA A/C (Contingency)

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Groundwater Monitoring Summary
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Monitoring Location	Spring/Summer					Summer					Fall					Trigger Threshold Monitoring Location	Location
	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)	Level		Total Daily Volume	Sample (General Chemistry, Dissolved Metals)	Sample (VOCs, BTEX, and PHCs)		
	Manual	Data Logger				Manual	Data Logger				Manual	Data Logger					
Seeps (continued)																	
Seep 6														X			Downgradient of Overburden Storage Area 1, within Footprint of Historical MacLeod Tailings
Seep 7														X			Downgradient of Overburden Storage Area 1, within Footprint of Historical MacLeod Tailings
Seep 8														X			Downgradient of Overburden Storage Area 1, within Footprint of Historical MacLeod Tailings
Seep 9														X			Within Footprint of Open Pit and Historical MacLeod Tailings
Seep 10														X			Within Footprint of WRSA A and Adjacent to HWY 11
Seep 11														X			Within Footprint of Open Pit and Historical MacLeod Tailings
Exploration Boreholes, Historical Shafts and Mine Infrastructure																	
Hardrock Shaft 1				NP					NP					NP			Downgradient of WRSA A and Adjacent to Central Basin
Hardrock Shaft 2	NP**		NP	NP		NP**		NP	NP		NP**		NP	NP		PV	Within Footprint of WRSA A and Adjacent to Historical Hardrock Tailings
Hardrock Glory Hole				NP					NP					NP			Within Footprint of Open Pit and Adjacent to Historical MacLeod Tailings
Mosher Shaft 1	X	X	NP			X	X	NP			X	X	NP	X		PV	Adjacent to WRSA C and Mosher Lake
Construction Dewatering (Process Plant - Temp ETP PTTW)			X					X					X				Associated with Construction of the Process Plant, TMF, Goldfield Creek Diversion, Culvert Crossings, Water Management Ponds
EP137	X*					X*					X*						Within Footprint of WRSA A
MM006	X*					X*					X*						Within Footprint of Open Pit
MM140	X*					X*					X*						Within Footprint of Open Pit
MHT SCS East Chamber			X					X					X			HG	MHT Seepage Collection System, located between MHT and Kenogamisis Lake
Open Pit and Underground Workings			NP					NP					X			PV	Northern Portion of Project Development Area
Vibrating Wire Piezometers																	
HR041		X					X				X	X					Between the Open Pit and Barton Bay
TN014		X					X				X	X					Between the Open Pit and Central Basin
Total Existing Monitoring Locations:	**151**	**56**	**5**	**35**	**2**	**151**	**56**	**5**	**35**	**2**	**153**	**56**	**5**	**91**	**2**		
Proposed Monitoring Locations																	
Aggregate Pit S1			NP					NP					NP			PV	Northeast of the TMF, Headwaters of the Goldfield Creek Diversion
Aggregate Pit T2			NP					NP					NP			PV	Southwest of the TMF
Aggregate Pit S4			NP					NP					NP			PV	Northeast of the TMF
TMF Quarry			NP					NP					NP				
Construction Dewatering (TMF - South Side PTTW)			NP					NP					NP				
Construction Dewatering (Goldfield Creek Diversion - South Side PTTW)			NP					NP					NP				
Construction Dewatering (Culvert Crossings - South Side PTTW)			NP					NP					NP				
Construction Dewatering (Water Management Ponds - Full Scale ETP PTTW)			NP					NP					NP				
Proposed Monitoring Well MW-C (Ob)	NI	NI		NI		NI	NI		NI		NI	NI		NI		WQ	Downgradient of TMF and Goldfield Creek Tributary, adjacent to Southwest Arm, overburden
Proposed Monitoring Well MW-C (Bdrk)	NI	NI		NI		NI	NI		NI		NI	NI		NI		WQ	Downgradient of TMF and Goldfield Creek Tributary, adjacent to Southwest Arm, bedrock
Proposed Monitoring Well MW-H	NI					NI					NI					HG	Downgradient of MHT Seepage Collection System
Proposed Monitoring Well MW-I	NI	NI				NI	NI				NI	NI				HG	Downgradient of MHT Seepage Collection System
Proposed Monitoring Well MW-J	NI					NI					NI					HG	Downgradient of MHT Seepage Collection System
Proposed Monitoring Well MW-K	NI					NI					NI					HG	Downgradient of MHT Seepage Collection System
Proposed Monitoring Well MW-L (Ob)	NI			NI		NI			NI		NI			NI		WQ	Between WRSA D and Kenogamisis Lake to the northeast of MWS-14-02 and southwest of G6-14
Proposed Monitoring Well MW-L (Bdrk)	NI			NI		NI			NI		NI			NI		WQ	Between WRSA D and Kenogamisis Lake to the northeast of MWS-14-02 and southwest of G6-14
Proposed Monitoring Well MW-O (Ob)	NI			NI		NI			NI		NI			NI		WQ	Monitoring well northwest of WRSA D contingency to be installed once access roads have been constructed
Proposed Monitoring Well MW-O (Bdrk)	NI			NI		NI			NI		NI			NI		WQ	Monitoring well northwest of WRSA D contingency to be installed once access roads have been constructed
Proposed Monitoring Well MW-P	NI			NI		NI			NI		NI			NI			Monitoring well downgradient of WRSA B and the construction and demolition landfill
Proposed Monitoring Well MW-S	NI			NI		NI			NI		NI			NI			Monitoring well downgradient of WRSA B and the construction and demolition landfill
Vibrating Wire Piezometer VWP-A-A	NI	NI				NI	NI				NI	NI					Between the Open Pit and Southwest Arm, shallow bedrock
Vibrating Wire Piezometer VWP-A-B	NI	NI				NI	NI				NI	NI					Between the Open Pit and Southwest Arm, intermediate bedrock
Vibrating Wire Piezometer VWP-A-C	NI	NI				NI	NI				NI	NI					Between the Open Pit and Southwest Arm, intermediate bedrock
Vibrating Wire Piezometer VWP-A-D	NI	NI				NI	NI				NI	NI					Between the Open Pit and Southwest Arm, deep bedrock
Vibrating Wire Piezometer VWP-D-A	NI	NI				NI	NI				NI	NI					West of Open Pit, shallow bedrock
Vibrating Wire Piezometer VWP-D-B	NI	NI				NI	NI				NI	NI					West of Open Pit, intermediate bedrock
Vibrating Wire Piezometer VWP-D-C	NI	NI				NI	NI				NI	NI					West of Open Pit, intermediate bedrock
Vibrating Wire Piezometer VWP-D-D	NI	NI				NI	NI				NI	NI					West of Open Pit, deep bedrock
Total Proposed Monitoring Locations:	**22**	**11**	**0**	**10**	**0**	**22**	**11**	**0**	**10**	**0**	**22**	**11**	**0**	**10**	**0**		
Total Proposed and Existing Monitoring Locations:	**173**	**67**	**5**	**45**	**2**	**173**	**67**	**5**	**45**	**2**	**175**	**67**	**5**	**101**	**2**		

Notes:

* Monitoring requirements to be re-evaluated once construction starts. Majority of locations will be removed from program but select locations will require replacement wells to be constructed outside of infrastructure footprint.
** Monthly manual water level monitoring to commence once pumping from shaft has started.
*** Mosher Shaft 1 is sampled at 5 different depth intervals (21 m, 122 m, 244, 396 m and 512 m)
MHT MacLeod High Tailings
Ob/BR Nested monitoring well with one screen in overburden and one screen in shallow bedrock.
TC Location inaccessible due to tree clearing activities
F Frozen. Pressure transducer could not be downloaded
NP No pumping occurred during monitoring period
PV Pumped Volume
WL Water Level
HG Horizontal Gradient
WQ Water Quality
NI Not Yet Installed
FOS Sampling begins once fuel is stored on site

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

B-2
Well Completion Details

Table B-2-1
Well Completion Details
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Name	Coordinates UTM NAD 83 Zone 16 Easting	Coordinates UTM NAD 83 Zone 16 Northing	Top of Casing Elevation	Stick-up	Ground Elevation	Total Depth Drilled	Azimuth	Dip	Top of Sand	Bottom of Sand	Top of Screen	Bottom of Screen	Screen Material Description	Hydrostratigraphic Unit
	m	m	m AMSL	m	m AMSL	m	degrees	degrees	m BGS	m BGS	m BGS	m BGS		
Monitoring Wells														
BH14-01	498663	5500278	339.61	0.81	338.80	25.10	-	-	4.57	19.50	16.45	19.50	SAND and GRAVEL	GLACIOFLUVIAL SEDIMENT
BH14-01A	499026	5500466	338.74	0.34	338.40	19.80	-	-	1.82	3.66	2.14	3.66	SAND and GRAVEL TILL	TILL
BH14-02	500179	5500320	337.66	0.96	336.70	17.00	-	-	0.61	1.98	0.61	1.22	SILTY SAND	GLACIOFLUVIAL SEDIMENT
BH14-02A	500131	5500322	337.96	1.26	336.70	4.66	-	-	2.80	4.60	3.10	4.60	BEDROCK	SHALLOW BEDROCK
BH14-03	500966	5499090	334.10	0.80	333.30	37.80	-	-	6.10	10.97	7.62	10.67	SILTY SAND TILL	TILL
BH14-04	499984	5498174	336.22	0.92	335.30	39.80	-	-	18.90	24.19	19.58	22.63	SILTY SAND TILL	TILL
BH14-05	499167	5497601	333.18	0.98	332.20	22.80	-	-	1.83	4.70	2.21	3.37	SILT	GLACIOFLUVIAL SEDIMENT
BH14-06	498112	5498123	338.19	0.69	337.50	30.80	-	-	4.27	7.92	4.57	7.62	SAND	GLACIOFLUVIAL SEDIMENT
BH14-07	504511	5503474	337.42	1.12	336.30	12.00	-	-	6.30	11.30	8.20	11.20	TAILINGS	TAILINGS
BH14-08	504714	5503856	339.69	0.89	338.80	26.20	-	-	5.90	10.10	6.80	9.80	TAILINGS	TAILINGS
BH14-09	504470	5503256	346.03	0.93	345.10	20.70	-	-	13.40	17.70	13.70	16.70	SILTY SAND TO SANDY SILT TILL	TILL
BH14-10	504741	5503408	342.37	0.97	341.40	36.30	-	-	6.90	10.80	7.40	10.50	TAILINGS	TAILINGS
BH14-11	504370	5503406	343.86	0.96	342.90	19.20	-	-	7.90	12.20	8.90	11.90	TAILINGS	TAILINGS
BH14-12	504470	5503644	341.55	0.95	340.60	30.20	-	-	6.40	10.70	7.40	10.40	TAILINGS	TAILINGS
BH14-15	502851	5501580	331.37	0.77	330.60	14.30	-	-	4.90	9.10	6.10	9.10	SILTY SAND TILL	TILL
BH14-18	502429	5502380	338.30	0.90	337.40	4.30	-	-	0.50	1.70	0.80	1.40	SAND and GRAVEL	GLACIOFLUVIAL SEDIMENT
BH14-23	503782	5503775	342.14	0.94	341.20	8.90	-	-	2.40	6.40	3.30	6.30	SILTY SAND TO GRAVELLY SAND	GLACIOFLUVIAL SEDIMENT
G1-OB-13	504776	5502334	332.04	0.91	331.13	6.96	-	-	2.84	4.65	3.33	4.85	SAND to SILTY SAND	GLACIOFLUVIAL SEDIMENT
G2-OB-13	502992	5502748	344.16	0.87	343.29	4.24	-	-	1.17	3.51	1.54	3.07	CLAY	CLAY
G4-OB1-13	501679	5499784	333.69	0.91	332.78	12.19	-	-	9.91	12.19	10.67	12.19	SANDY SILT TILL	TILL
G4-OB2-13	501677	5499784	333.68	0.91	332.77	5.49	-	-	4.11	5.49	4.57	5.18	SANDY SILT	GLACIOFLUVIAL SEDIMENT
G5-OB1-14	499499	5498253	333.32	1.07	332.25	12.80	-	-	10.36	12.19	10.67	12.19	SILT TILL	TILL
G5-OB2-14	499499	5498254	333.38	1.05	332.33	5.18	-	-	3.05	5.19	3.67	5.19	SILT to SAND	GLACIOFLUVIAL SEDIMENT
G6-BR-14	503229	5500999	331.89	0.87	331.02	15.65	-	-	10.67	12.75	10.92	12.44	BEDROCK	SHALLOW BEDROCK
G6-OB-14	503227	5500998	331.68	0.64	331.04	3.05	-	-	1.22	3.05	1.52	3.05	SILT to CLAYEY SILT	GLACIOFLUVIAL SEDIMENT
G7-OB1-14	498165	5497879	334.39	0.88	333.51	15.24	-	-	13.41	15.24	13.72	15.24	SILT to SAND and GRAVEL	GLACIOFLUVIAL SEDIMENT
G7-OB2-14	498166	5497878	334.24	0.74	333.50	5.85	-	-	3.35	5.85	3.56	5.18	SAND	GLACIOFLUVIAL SEDIMENT
MAC-1	503580	5502775	344.14	0.39	343.75	2.00	-	-	-	-	2.54	4.98	BEDROCK	SHALLOW BEDROCK
MAC-2	503597	5502873	342.27	0.57	341.70	2.00	-	-	-	-	2.46	3.99	BEDROCK	SHALLOW BEDROCK
MAC-3	504094	5502597	339.35	0.91	338.44	2.00	-	-	-	-	1.68	4.72	BEDROCK	SHALLOW BEDROCK
MAC-4	504184	5502573	338.02	0.48	337.54	2.00	-	-	-	-	1.78	4.83	BEDROCK	SHALLOW BEDROCK
MAC-5	504210	5502643	337.81	0.70	337.11	2.00	-	-	-	-	1.70	4.75	BEDROCK	SHALLOW BEDROCK
MAC-6	504354	5502544	336.96	0.73	336.23	2.00	-	-	4.00	6.78	2.80	6.20	BEDROCK	SHALLOW BEDROCK
MAC-7	504595	5502427	335.03	0.94	334.09	2.00	-	-	3.43	6.40	6.40	2.80	BEDROCK	SHALLOW BEDROCK
MAC-8	503905	5502744	342.83	0.81	342.02	-	-	-	0.90	4.85	1.50	4.85	BEDROCK	SHALLOW BEDROCK
MAC-9	504010	5502736	342.15	0.83	341.32	-	-	-	0.70	4.88	1.50	4.50	BEDROCK	SHALLOW BEDROCK
MW1-BR-14	503837	5504139	332.68	0.72	331.96	14.15	-	-	9.60	11.43	9.91	11.43	BEDROCK	SHALLOW BEDROCK
MW1-OB-14	503835	5504139	332.70	0.71	331.99	3.05	-	-	1.22	3.05	1.52	3.05	SAND to SILT to SILTY-CLAY	GLACIOFLUVIAL SEDIMENT
MW2-OB-13	502866	5503690	334.31	0.77	333.54	4.11	-	-	3.05	4.11	3.20	4.11	SILTY SAND	GLACIOFLUVIAL SEDIMENT
MW3-BR-13	505814	5502934	331.19	0.80	330.39	14.91	-	-	13.03	14.91	13.39	14.91	BEDROCK	SHALLOW BEDROCK
MW3-OB-13	505812	5502935	331.23	0.91	330.32	10.52	-	-	8.63	10.52	8.99	10.52	SILTY SAND	GLACIOFLUVIAL SEDIMENT
MW4-OB-13	504915	5502024	330.77	0.78	329.99	7.26	-	-	2.63	4.46	2.94	4.46	SILT to SILTY CLAY	CLAY
MW5-OB1-13	502691	5502101	333.11	1.04	332.07	13.01	-	-	9.32	12.11	10.59	12.11	HARD TILL	TILL
MW5-OB2-13	502690	5502106	333.09	0.96	332.13	6.35	-	-	4.57	6.35	4.88	5.79	HARD TILL	TILL
MW6-OB-13	502067	5502769	337.01	0.90	336.11	3.25	-	-	1.68	3.25	2.34	3.25	SAND	GLACIOFLUVIAL SEDIMENT
MW7-BR-13	501560	5500971	335.49	0.80	334.69	12.18	-	-	9.45	12.18	9.85	12.18	BEDROCK	SHALLOW BEDROCK
MW8-OB-14	503637	5501573	330.69	0.64	330.05	9.75	-	-	3.66	6.40	4.57	6.10	SANDY SILT	GLACIOFLUVIAL SEDIMENT
MW9-OB1-13	501735	5499186	333.06	0.78	332.28	12.29	-	-	10.06	12.29	10.77	12.29	SANDY SILT to SILTY SAND TILL	TILL
MW9-OB2-13	501731	5499185	333.32	0.72	332.60	4.57	-	-	2.87	4.57	3.35	4.27	SANDY SILT to SILTY SAND TILL	TILL
MW10-OB-14	502563	5500943	333.64	0.81	332.83	5.18	-	-	3.35	5.18	3.66	5.18	SILTY SAND	GLACIOFLUVIAL SEDIMENT
MW11-BR-14	499902	5499832	337.70	0.66	337.04	7.92	-	-	4.57	6.40	4.88	6.40	BEDROCK	SHALLOW BEDROCK
MW11-OB-14	499901	5499831	337.69	0.66	337.03	2.13	-	-	0.61	2.13	0.91	2.13	SANDY SILT	GLACIOFLUVIAL SEDIMENT
MW12-OB-14	498460	5496708	336.22	0.78	335.45	4.57	-	-	2.74	4.57	3.05	4.57	SAND and SILT	GLACIOFLUVIAL SEDIMENT
MW13-OB-14	497596	5496576	343.67	0.85	342.82	7.62	-	-	5.79	7.62	6.10	7.62	SILT to SILTY CLAY	CLAY
MW14-BR-14	496777	5497590	358.91	0.70	358.21	25.68	-	-	22.56	24.69	22.86	24.38	BEDROCK	SHALLOW BEDROCK
MW14-OB-14	496777	5497587	359.04	0.87	358.17	6.10	-	-	2.74	6.10	3.05	6.10	SILTY SAND to SANDY SILT TILL	TILL
MW15-BR-14	499671	5497708	330.52	0.57	329.95	13.72	-	-	11.28	13.72	12.19	13.72	BEDROCK	SHALLOW BEDROCK
MW15-OB-14	499670	5497709	330.53	0.55	329.98	6.10	-	-	4.11	6.10	4.57	6.10	SAND	GLACIOFLUVIAL SEDIMENT
MW16-BR-14	499012	5498878	338.18	0.76	337.42	19.71	-	-	15.24	17.37	15.54	17.07	BEDROCK	SHALLOW BEDROCK
MW16-OB-14	499009	5498884	337.91	1.05	336.86	13.41	-	-	2.74	4.88	3.05	4.88	SILT	GLACIOFLUVIAL SEDIMENT
MW17-OB-14	501274	5502714	339.81	0.72	339.09	3.81	-	-	1.83	3.81	2.13	3.65	SAND	GLACIOFLUVIAL SEDIMENT
MW18-BR-21 (MW-A)	502821	5503253	351.30	1.09	350.22	21.61	-	-	19.50	21.60	19.80	21.30	BEDROCK	SHALLOW BEDROCK
MW19-BR-21 (MW-B)	505743	5503790	336.28	0.95	335.33	14.17	-	-	12.00	14.20	12.30	13.90	BEDROCK	SHALLOW BEDROCK
MW19-OB-21 (MW-B)	505745	5503790	336.32	0.82	335.50	8.80	-	-	7.00	8.80	7.30	8.80	SAND and GRAVEL	GLACIOFLUVIAL SEDIMENT
MW20-BR-21 (MW-D)	500357	5498108	334.77	0.93	333.84	23.60	-	-	21.50	23.60	21.80	23.30	BEDROCK	SHALLOW BEDROCK
MW20-OB-21 (MW-D)	500357	5498110	334.64	0.81	333.83	4.27	-	-	2.40	4.30	2.40	3.90	SILT	TILL
MW21-BR-21 (MW-F)	503116	5501954	334.17	0.93	333.24	4.78	-	-	2.10	4.80	2.10	3.60	BEDROCK	SHALLOW BEDROCK
MW22-OB-21 (MW-M)	504142	5501895	335.43	0.90	334.53	8.18	-	-	6.40	8.20	6.70	8.20	SILTY SAND	GLACIOFLUVIAL SEDIMENT
MW23-OB-21 (MW-G)	503568	5501816	330.92	0.88	330.04	8.08	-	-	2.90	8.10	3.20	4.70	SILTY SAND AND BEDROCK	SHALLOW BEDROCK
MW24-BR-21 (MW-N)	498743	5497479	334.10	0.93	333.17	11.15	-	-	9.10	11.20	9.50	11.00	BEDROCK	SHALLOW BEDROCK
MW24-OB-21 (MW-N)	498742	5497477	334.06	0.77	333.29	4.57	-	-	2.40	4.60	2.70	4.20	SILTY SAND	GLACIOFLUVIAL SEDIMENT
MW25-BR-21 (MW-E)	499145	5497367	332.90	0.82	332.08	9.68	-	-	7.50	9.70	7.90	9.40	BEDROCK	SHALLOW BEDROCK
MW25-OB-21 (MW-E)	499148	5497368	332.93	0.93	332.01	4.27	-	-	2.20	4.20	2.50	4.00	SAND	GLACIOFLUVIAL SEDIMENT
MW16-04	499800	5500949	349.16	0.76	348.40	13.70	-	-	5.48	7.62	6.10	7.62	SILT	GLACIOFLUVIAL SEDIMENT
MW16-05	497400	5497375	-	0.76	341.10	7.30	-	-	4.87	7.01	5.48	7.01	SILT and SAND	GLACIOFLUVIAL SEDIMENT
MW03-BR-18	506073	5503364	332.40	1.20	331.20	25.80	-	-	22.00	24.30	22.70	24.30	BEDROCK	SHALLOW BEDROCK
MW03-OB-18	506070	5503370	332.38	1.18	331.20	6.00	-	-	-	6.00	4.50	6.00	SILT	GLACIOLACUSTRINE SEDIMENT
MW10-18	504815	5502746	337.93	1.03	336.90	3.30	-	-	1.80	3.30	1.80	3.30	SAND AND SILT	GLACIOFLUVIAL SEDIMENT
MWS-14-01	501564	5500893	336.70	0.90	335.80	12.20	-	-	4.30	6.50	4.60	6.10	SILTY SAND TILL	TILL
MWS-14-02 BR	502592	5500266	331.94	0.64	331.30	13.40	-	-	7.60	9.50	7.90	9.40	BEDROCK	SHALLOW BEDROCK
MWS-14-02 OB	502592	5500266	331.83	0.53	331.30	5.80	-	-	4.00	5.30	4.30	5.80	SILTY SAND TILL	TILL
MWS-14-03 OB1	501856	5501600	332.76	0.86	331.90	45.00	-	-	41.60	43.74	42.22	43.74	SILTY SAND TILL	TILL
MWS-14-03 OB2	501856	5501600	332.83	0.93	331.90	5.33	-	-	3.51	5.33	3.81	5.33	SILT TO SILTY SAND TILL	TILL
MWS-14-04	504451	5501792	331.90	0.90	331.00	7.50	-	-	5.00	7.50	5.90	7.50	BEDROCK	SHALLOW BEDROCK
MWS-14-05 BR	502689	5502346	340.50	0.90	339.60	7.30	-	-	3.70	6.30	4.60	6.10	BEDROCK	SHALLOW BEDROCK
MWS-14-05 OB	502689	5502346	340.45	0.85	339.60	1.50	-	-	0.50	1.50	0.80	1.40	SAND and GRAVEL	GLACIOFLUVIAL SEDIMENT
MWS-14-06	503349	5502096	334.37	0.87	333.50	6.60	-	-	4.20	6.60	5.10	6.60	BEDROCK	SHALLOW BEDROCK
MWS-14-07 BR	500938	5498669	332.05	0.85	331.20	12.10	-	-	7.60	11.00	9.10	10.70	BEDROCK	SHALLOW BEDROCK
MWS-14-07 OB	500938	5498669	332.01	0.81	331.20	6.10	-	-	4.40	6.10	4.60	6.10	SAND and GRAVEL TILL	GLACIOFLUVIAL SEDIMENT
Historical MacLeod Tailings Monitoring Wells														
96-01	504888	5503361	334.67	0.22	334.45	2.00	-	-	12.90	15.00	13.40	14.60	Fine SAND	GLACIOFLUVIAL SEDIMENT
96-02	504852	5503422	341.32	0.35	340.97	0.00	-	-	8.30	10.36	8.90	10.00	TAILINGS	TAILINGS
96-03	504751	5503958	333.39	0.65	332.74	0.00	-	-	10.1	12.19	10.80	11.90	Fine SAND / Silty Sand TILL	GLACIOFLUVIAL SEDIMENT / TILL
96-04	504760	5503941	331.54	0.10	331.44	2.00	-	-	7.30	10.36	7.80	9.00	TAILINGS	TAILINGS
96-05	504809	5503267	335.25	1.50	333.75	0.00	-	-	0.70	2.43	1.00	2.24	TAILINGS	TAILINGS
96-06	504691	5503269	342.98	1.56	341.42	2.00	-	-	8.20	14.38	10.60	11.60	TAILINGS / SILT	TAILINGS / TILL
96-07A1	504509	5503476	343.45	1.03	342.42	2.00	-	-	6.30	11.25	8.20	11.25	TAILINGS	TAILINGS
96-07A2	504510	5503475	343.73	1.33	342.40	2.00	-	-	6.38	7.80	7.05	7.80	TAILINGS	TAILINGS
96-08A	504157	5503443	342.33	1.13	341.20	-	-	-	2.95	7.00	3.95	7.00	TAILINGS	TAILINGS
96-08B	504157	5503443	342.51	1.55	340.96	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
96-08C	504157	5503443	342.59	1.60	340.99	1.50	-	-	-	-	-	-	TAILINGS	TAILINGS
96-09A1	504522	5503964	339.36	1.09	338.27	2.00	-	-	2.98	9.40	6.30	9.40	TAILINGS	TAILINGS

Table B-2-1
Well Completion Details
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Name	Coordinates UTM NAD 83 Zone 16 Easting m	Coordinates UTM NAD 83 Zone 16 Northing m	Top of Casing Elevation m AMSL	Stick-up m	Ground Elevation m AMSL	Total Depth Drilled m	Azimuth degrees	Dip degrees	Top of Sand m BGS	Bottom of Sand m BGS	Top of Screen m BGS	Bottom of Screen m BGS	Screen Material Description	Hydrostratigraphic Unit
96-09A2	504522	5503966	339.63	1.32	338.31	1.50	-	-	8.70	9.66	9.10	9.66	TAILINGS	TAILINGS
96-09A3	504522	5503964	339.67	1.35	338.32	1.50	-	-	1.97	5.49	2.40	5.40	TAILINGS	TAILINGS
96-09A4	504521	5503965	339.60	1.33	338.27	1.50	-	-	1.00	4.57	1.50	4.57	TAILINGS	TAILINGS
96-10A1	504747	5503574	341.86	1.45	340.41	2.00	-	-	9.60	10.86	7.70	10.50	TAILINGS	TAILINGS
96-10A2	504749	5503574	341.79	1.40	340.39	1.50	-	-	9.40	10.90	9.98	10.90	TAILINGS	TAILINGS
96-10A3	504748	5503576	341.75	1.36	340.39	1.50	-	-	1.92	5.49	2.40	5.40	TAILINGS	TAILINGS
96-10B	504746	5503577	341.63	1.17	340.46	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
96-10C	504749	5503576	341.48	1.23	340.25	1.50	-	-	-	-	-	-	TAILINGS	TAILINGS
96-11A1	505058	5503628	339.26	1.13	338.13	-	-	-	2.60	7.1	4.05	7.1	TAILINGS	TAILINGS
96-11A2	505062	5503630	339.18	1.33	337.85	0.00	-	-	-	-	3.00	4.57	TAILINGS	TAILINGS
96-12A	505318	5503864	332.57	1.65	330.92	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
96-12B	505320	5503862	332.42	1.70	330.72	1.50	-	-	-	-	-	-	TAILINGS	TAILINGS
96-13	504154	5503485	335.65	1.16	334.49	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
96-14b	504399	5504251	333.02	1.78	331.24	1.50	-	-	-	-	-	-	TAILINGS	TAILINGS
96-15A1	504655	5503033	336.10	1.05	335.05	0.00	-	-	1.26	3.80	2.1	3.80	TAILINGS	TAILINGS
96-15B	504653	5503033	336.86	1.80	335.06	0.00	-	-	-	-	-	-	TAILINGS	TAILINGS
96-15A3	504653	5503036	336.09	1.17	334.92	-	-	-	-	-	0.4	1.98	TAILINGS	TAILINGS
MW07-18	505057	5504076	331.28	1.18	330.10	7.60	-	-	1.20	2.90	1.4	2.90	SAND AND SILT	GLACIOLACUSTRINE SEDIMENT
MW08-18	504845	5504337	331.41	1.21	330.20	17.10	-	-	1.50	3.30	1.80	3.30	TAILINGS	TAILINGS
MW09-18	504537	5504460	331.52	1.32	330.20	8.40	-	-	1.00	2.70	1.20	2.70	TAILINGS	TAILINGS
Historical Hardrock Tailings Monitoring Wells														
H96-01	505121	5502580	334.67	0.22	334.45	2.00	-	-	0.60	1.80	1.10	1.70	TAILINGS	TAILINGS
H96-02A	505124	5502443	332.85	0.80	332.05	2.00	-	-	0.20	1.20	0.60	1.10	TAILINGS	TAILINGS
H96-02B	505123	5502445	332.62	0.40	332.22	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
H96-02C	505126	5502445	333.63	1.44	332.19	1.50	-	-	-	-	-	-	TAILINGS	TAILINGS
H96-03	505070	5502525	334.32	1.42	332.90	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
H96-04A1	505363	5502429	333.15	1.86	331.29	2.00	-	-	1.20	3.10	1.50	2.70	TAILINGS	TAILINGS
H96-04B	505362	5502431	332.68	1.42	331.26	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
H96-05A1	505324	5502625	335.67	1.17	334.50	2.00	-	-	1.90	4.80	3.30	4.50	TAILINGS	TAILINGS
H96-05A2	505323	5502622	335.76	1.34	334.42	-	-	-	test pit	test pit	0.80	2.40	TAILINGS	TAILINGS
H96-06A1	505560	5502644	332.65	1.40	331.25	2.00	-	-	1.20	3.40	1.80	3.00	TAILINGS	TAILINGS
H96-06A2	505559	5502645	332.78	1.54	331.24	1.50	-	-	2.60	3.20	2.90	3.20	TAILINGS	TAILINGS
H96-06A3	505558	5502641	332.39	1.16	331.23	1.50	-	-	test pit	test pit	0.40	1.80	TAILINGS	TAILINGS
H96-06B	505557	5502643	332.67	1.41	331.26	2.00	-	-	-	-	-	-	TAILINGS	TAILINGS
MW01-OB1-18	505710	5502654	332.08	1.38	330.70	26.70	-	-	18.40	18.20	16.70	18.20	SAND AND SILT	GLACIOFLUVIAL SEDIMENT
MW01-OB2-18	505706	5502658	332.13	1.23	330.90	4.20	-	-	2.40	4.20	2.70	4.20	TAILINGS AND SAND	TAILINGS
MW02-OB-18	505528	5502418	331.60	1.30	330.30	12.80	-	-	1.20	3.00	1.50	3.00	TAILINGS	TAILINGS
Drive Point Piezometers														
DP2-14D	501541	5501743	331.58	0.86	330.72	2.19	-	-	-	-	-	-	-	-
DP2-14S	501541	5501743	331.42	0.59	330.83	1.54	-	-	-	-	-	-	-	-
DP3-14D	502943	5501816	330.50	1.22	329.28	1.83	-	-	-	-	-	-	-	-
DP3-14S	502943	5501816	330.64	1.35	329.29	0.78	-	-	-	-	-	-	-	-
DP4-14	503689	5501608	330.10	0.96	329.14	1.17	-	-	-	-	-	-	-	-
DP5-14	501523	5501019	333.18	0.53	332.65	1.60	-	-	-	-	-	-	-	-
DP6-14D	499468	5499799	334.64	1.54	333.10	-	-	-	-	-	-	-	-	-
DP6-14S	499468	5499798	334.67	1.57	333.10	0.56	-	-	-	-	-	-	-	-
DP-A	500498	5500553	336.48	0.90	335.52	1.38	-	-	-	-	-	-	-	-
DP-B	500456	5501639	334.08	1.22	332.86	1.36	-	-	-	-	-	-	-	-
DP-C	500057	5498096	330.47	1.15	329.32	1.70	-	-	-	-	-	-	-	-
Seeps														
Seep 1	505396	5503722	-	-	-	-	-	-	-	-	-	-	-	-
Seep 2	505195	5502277	-	-	-	-	-	-	-	-	-	-	-	-
Seep 3	504937	5502054	-	-	-	-	-	-	-	-	-	-	-	-
Seep 5	503648	5503387	-	-	-	-	-	-	-	-	-	-	-	-
Seep 6	504667	5504167	-	-	-	-	-	-	-	-	-	-	-	-
Seep 7	504705	5504064	-	-	-	-	-	-	-	-	-	-	-	-
Seep 8	504740	5504012	-	-	-	-	-	-	-	-	-	-	-	-
Seep 9	504807	5503263	-	-	-	-	-	-	-	-	-	-	-	-
Seep 10	505290	5503541	-	-	-	-	-	-	-	-	-	-	-	-
Seep 11	504561	5503159	-	-	-	-	-	-	-	-	-	-	-	-
Exploration Boreholes, Historical Shafts and Mine Infrastructure														
Hardrock Shaft 1	505162	5502761	-	-	331.73	174.27	-	-	-	-	-	-	-	DEEP BEDROCK
Hardrock Shaft 2	505927	5502717	-	-	341.86	446.01	-	-	-	-	-	-	-	DEEP BEDROCK
Hardrock Glory Hole	504877	5503143	-	-	225.64	127.62	-	-	-	-	-	-	-	DEEP BEDROCK
MacLeod Shaft 1	504206	5503001	-	-	340.45	776.91	-	-	-	-	-	-	-	DEEP BEDROCK
Mosher Shaft 1	502678	5503070	-	-	348.92	756.88	-	-	-	-	-	-	-	DEEP BEDROCK
EP137	505550	5503049	-	-	338.85	300.00	1.07	-54.77	-	-	-	-	-	DEEP BEDROCK
MM006	504199	5502695	-	-	339.85	201.00	354.56	-42.03	-	-	-	-	-	DEEP BEDROCK
MM140	503700	5502851	-	-	343.16	450.00	356.00	-49.31	-	-	-	-	-	DEEP BEDROCK
Vibrating Wire Piezometers														
HR041 (VWP-C)-1	503805	5503862	-	-	337.4	537	183.4	-39.5	Sensor installation depth 198.65 m BGS		-		-	DEEP BEDROCK
HR041 (VWP-C)-2	503805	5503862	-	-	337.4	537	183.4	-39.5	Sensor installation depth 317.65 m BGS		-		-	DEEP BEDROCK
TN014 (VWP-B)-1	505474	5502349	-	-	330.4	552	355.9	-55.5	Sensor installation depth 53.60 m BGS		-		-	DEEP BEDROCK
TN014 (VWP-B)-2	505474	5502349	-	-	330.4	552	355.9	-55.5	Sensor installation depth 230.60 m BGS		-		-	DEEP BEDROCK
TN014 (VWP-B)-3	505474	5502349	-	-	330.4	552	355.9	-55.5	Sensor installation depth 465.60 m BGS		-		-	DEEP BEDROCK

Notes:
- Monitoring location overprinted by mine infrastructure
m AMSL - Metres above mean sea level
m BGS - Metres below ground surface
TOC - Top of Casing
UTM - Universal Transverse Mercator
NAD - North American Datum
1. Exploration hole data provided by Premier
2. Ground and depth elevations for shafts estimated using Premier Wireframe - Hardrock Glory Hole elevation appears erroneous
3. Screen information from historical wells estimated using available borehole logs

EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

B-3
Groundwater Quantity Monitory Data

Table B-3-1
Manual Groundwater Elevations
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)	Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)
96-01	13-Oct-21	11:17	8.83	325.84	96-12A	13-Oct-21	14:56	1.48	331.09
96-01	31-May-22	10:37	8.74	325.93	96-12A	1-Jun-22	13:25	1.18	331.39
96-01	5-Jul-22	10:15	7.71	326.96	96-12A	5-Jul-22	14:56	1.22	331.35
96-01	29-Sep-22	11:36	8.82	325.85	96-12A	28-Sep-22	15:17	1.45	331.12
96-02	13-Oct-21	11:58	6.18	335.14	96-12B	13-Oct-21	15:00	1.44	330.98
96-02	31-May-22	10:40	5.81	335.51	96-12B	1-Jun-22	13:25	*	*
96-02	5-Jul-22	10:38	5.79	335.52	96-13	2-Nov-21	15:21	2.19	333.46
96-02	29-Sep-22	12:16	6.05	335.27	96-13	31-May-22	13:40	2.07	333.58
96-03	14-Oct-21	11:38	1.64	331.75	96-13	5-Jul-22	14:10	2.11	333.54
96-03	31-May-22	14:36	1.57	331.82	96-13	22-Sep-22	16:18	2.20	333.45
96-03	5-Jul-22	15:19	1.13	332.26	96-14B	15-Oct-21	13:53	0.79	332.23
96-03	28-Sep-22	14:41	1.49	331.90	96-14B	8-Jun-22	15:46	*	*
96-04	14-Oct-21	11:14	6.80	324.74	96-15A1	2-Nov-21	14:58	2.43	333.67
96-04	31-May-22	14:32	5.78	325.76	96-15A1	8-Jun-22	15:11	*	*
96-04	5-Jul-22	15:15	5.70	325.85	96-15A3	2-Nov-21	15:03	1.68	334.41
96-04	28-Sep-22	14:12	6.05	325.49	96-15A3	2-Jun-22	11:30	1.42	334.67
96-05	2-Nov-21	15:37	1.83	333.42	96-15A3	6-Jul-22	12:01	1.46	334.64
96-05	31-May-22	10:25	1.62	333.63	96-15A3	29-Sep-22	15:00	2.20	333.89
96-05	6-Jul-22	12:25	1.67	333.59	96-15B	2-Nov-21	15:06	2.82	334.05
96-05	21-Sep-22	16:16	1.80	333.45	96-15B	8-Jun-22	15:11	2.14	334.72
96-06	13-Oct-21	11:05	7.63	335.35	96-15B	6-Jul-22	12:08	*	*
96-06	31-May-22	10:10	7.26	335.72	BH14-01	29-Sep-21	11:45	2.42	337.19
96-06	5-Jul-22	10:08	1.39	341.59	BH14-01	2-Jun-22	13:19	0.80	338.81
96-06	21-Sep-22	16:14	7.59	335.39	BH14-01	2-Jun-22	13:19	0.80	338.81
96-07A1	15-Oct-21	14:32	7.40	336.05	BH14-01	19-Jul-22	14:39	1.01	338.60
96-07A1	31-May-22	15:05	5.78	337.67	BH14-01	21-Sep-22	14:56	1.35	338.26
96-07A1	5-Jul-22	13:11	7.13	336.32	BH14-01A	29-Sep-21	12:33	1.47	337.28
96-07A1	28-Sep-22	9:49	7.27	336.18	BH14-01A	2-Jun-22	13:45	1.12	337.62
96-07A2	15-Oct-21	14:57	7.68	336.06	BH14-01A	2-Jun-22	13:45	1.12	337.62
96-07A2	31-May-22	13:00	7.96	335.77	BH14-01A	19-Jul-22	14:14	1.27	337.47
96-07A2	5-Jul-22	13:13	7.40	336.34	BH14-01A	21-Sep-22	15:15	2.82	335.92
96-07A2	28-Sep-22	10:16	7.54	336.19	BH14-02	29-Sep-21	13:12	1.28	336.38
96-08A	14-Oct-21	10:54	7.80	334.53	BH14-02	3-Jun-22	14:12	1.17	336.50
96-08A	31-May-22	13:22	7.82	334.51	BH14-02	3-Jun-22	14:12	1.17	336.49
96-08A	5-Jul-22	13:44	Dry	-	BH14-02	16-Jul-22	13:51	1.22	336.44
96-08A	21-Sep-22	16:17	7.79	334.54	BH14-02	6-Oct-22	10:25	1.24	336.43
96-08B	14-Oct-21	10:56	8.35	334.16	BH14-02A	29-Sep-21	13:46	1.37	336.30
96-08B	31-May-22	13:25	8.20	334.31	BH14-02A	3-Jun-22	14:15	1.23	336.43
96-08B	5-Jul-22	13:55	8.25	334.26	BH14-02A	3-Jun-22	14:15	1.23	336.43
96-08B	21-Sep-22	16:17	8.44	334.07	BH14-02A	16-Jul-22	13:58	1.50	336.16
96-08C	14-Oct-21	10:58	8.50	334.09	BH14-02A	6-Oct-22	10:37	1.28	336.38
96-08C	31-May-22	13:27	8.48	334.11	BH14-03	29-Sep-21	14:23	1.22	332.89
96-08C	5-Jul-22	13:47	8.64	333.95	BH14-03	8-Jun-22	13:50	*	*
96-08C	21-Sep-22	16:18	8.64	333.95	BH14-04	21-Sep-21	12:16	5.33	330.89
96-09A1	26-Oct-21	15:16	4.27	335.10	BH14-04	9-Jun-22	15:47	*	*
96-09A1	31-May-22	14:16	2.70	336.66	BH14-05	8-Nov-21	9:32	1.22	331.96
96-09A1	5-Jul-22	11:31	2.82	336.55	BH14-05	22-Jun-22	11:45	0.96	332.22
96-09A1	22-Sep-22	16:23	4.00	335.36	BH14-05	18-Jul-22	14:38	1.23	331.95
96-09A2	26-Oct-21	15:17	4.60	335.03	BH14-05	23-Sep-22	9:34	1.26	331.92
96-09A2	31-May-22	14:12	2.70	336.93	BH14-08	8-Nov-21	12:22	5.07	334.62
96-09A2	5-Jul-22	11:28	3.20	336.43	BH14-08	31-May-22	14:08	3.90	335.79
96-09A2	22-Sep-22	16:24	4.34	335.29	BH14-08	5-Jul-22	11:14	3.91	335.78
96-09A3	26-Oct-21	15:18	4.41	335.26	BH14-08	22-Sep-22	16:07	4.89	334.80
96-09A3	31-May-22	14:20	2.43	337.24	BH14-09	13-Oct-21	10:58	9.84	336.19
96-09A3	5-Jul-22	11:34	2.99	336.68	BH14-09	31-May-22	10:03	9.57	336.46
96-09A3	22-Sep-22	16:25	4.75	334.92	BH14-09	5-Jul-22	9:50	9.82	336.21
96-09A4	26-Oct-21	15:19	4.44	335.16	BH14-09	21-Sep-22	16:25	9.80	336.23
96-09A4	31-May-22	14:10	2.03	337.57	BH14-10	26-Oct-21	14:00	6.38	335.99
96-09A4	5-Jul-22	11:25	2.88	336.72	BH14-10	2-Jun-22	11:22	5.61	336.76
96-09A4	22-Sep-22	16:26	4.13	335.47	BH14-10	5-Jul-22	13:27	5.56	336.81
96-10A1	13-Oct-21	13:52	5.60	336.26	BH14-10	29-Sep-22	10:38	5.95	336.42
96-10A1	31-May-22	11:13	4.73	337.13	BH14-11	14-Oct-21	10:44	7.83	336.03
96-10A1	5-Jul-22	11:01	4.73	337.13	BH14-11	31-May-22	13:11	8.21	335.65
96-10A1	21-Sep-22	16:19	5.27	336.59	BH14-11	5-Jul-22	13:36	7.88	335.99
96-10A2	13-Oct-21	13:42	5.56	336.23	BH14-11	21-Sep-22	16:26	7.76	336.10
96-10A2	31-May-22	11:07	4.70	337.09	BH14-12	8-Nov-21	12:33	1.69	339.87
96-10A2	5-Jul-22	10:47	4.72	337.08	BH14-12	31-May-22	13:48	5.00	336.55
96-10A2	21-Sep-22	16:19	5.24	336.55	BH14-12	5-Jul-22	14:20	4.64	336.91
96-10A3	13-Oct-21	13:54	5.50	336.25	BH14-12	22-Sep-22	16:16	5.15	336.40
96-10A3	31-May-22	10:58	4.22	337.53	BH14-15	19-Oct-21	12:01	1.14	330.23
96-10A3	5-Jul-22	10:55	4.45	337.30	BH14-15	8-Jun-22	11:50	1.02	330.35
96-10A3	21-Sep-22	16:22	5.17	336.58	BH14-15	7-Jul-22	11:35	2.39	328.99
96-10B	13-Oct-21	13:58	7.87	333.77	BH14-15	6-Oct-22	15:24	1.11	330.26
96-10B	31-May-22	14:22	7.67	333.96	BH14-18	8-Nov-21	13:02	2.03	336.27
96-10B	5-Jul-22	10:58	7.58	334.06	BH14-18	9-Jun-22	10:24	0.75	337.55
96-10B	21-Sep-22	16:23	7.82	333.81	BH14-18	20-Jul-22	11:19	0.77	337.53
96-10C	13-Oct-21	13:50	7.64	333.84	BH14-18	21-Sep-22	12:06	0.78	337.52
96-10C	31-May-22	11:04	7.53	333.95	BH14-23	8-Nov-21	12:08	6.99	335.15
96-10C	5-Jul-22	10:50	7.52	333.97	BH14-23	8-Jun-22	12:31	7.00	335.14
96-10C	21-Sep-22	16:23	8.24	333.24	BH14-23	6-Jul-22	10:03	Dry	-
96-11A1	13-Oct-21	14:32	5.11	334.15	BH14-23	22-Sep-22	16:13	6.98	335.16
96-11A1	31-May-22	11:34	4.12	335.14	DP2-14D	1-Nov-21	14:05	0.86	330.72
96-11A1	5-Jul-22	10:22	4.21	335.05	DP2-14D	9-Jun-22	11:05	0.39	331.19
96-11A2	13-Oct-21	14:34	5.21	333.97	DP2-14D	22-Jul-22	10:05	0.60	330.98
96-11A2	31-May-22	11:39	4.11	335.07	DP2-14D	23-Sep-22	11:22	0.54	331.04
96-11A2	5-Jul-22	10:25	4.16	335.02	DP2-14S	1-Nov-21	14:00	0.08	331.34

Table B-3-1
Manual Groundwater Elevations
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)	Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)
DP2-14S	9-Jun-22	11:05	0.53	330.89	G7-OB1-14	4-Oct-22	13:48	0.58	333.81
DP2-14S	22-Jul-22	10:07	0.39	331.03	G7-OB2-14	29-Sep-21	14:44	1.37	332.86
DP2-14S	23-Sep-22	11:25	0.39	331.03	G7-OB2-14	7-Jun-22	12:54	1.59	332.64
DP3-14D	25-Oct-21	13:56	0.86	329.65	G7-OB2-14	7-Jun-22	12:54	1.59	332.65
DP3-14D	20-Jun-22	15:04	0.93	329.57	G7-OB2-14	6-Jul-22	15:53	1.21	333.03
DP3-14D	20-Jul-22	15:04	0.88	329.62	G7-OB2-14	4-Oct-22	13:17	1.37	332.87
DP3-22D	26-Sep-22	14:20	3.11	326.94	H96-01	18-Oct-21	10:40	2.19	332.48
DP3-14S	25-Oct-21	13:58	0.87	329.77	H96-01	1-Jun-22	14:19	1.65	333.02
DP3-14S	20-Jun-22	14:57	0.94	329.70	H96-01	6-Jul-22	13:58	1.73	332.93
DP3-14S	21-Jul-22	14:18	0.94	329.70	H96-01	19-Sep-22	15:22	2.83	331.84
DP3-22S	26-Sep-22	14:20	2.52	327.84	H96-02A	18-Oct-21	10:43	1.60	331.25
DP4-14	8-Nov-21	15:39	**	**	H96-02A	1-Jun-22	14:47	1.89	330.96
DP4-14	20-Jun-22	15:20	**	**	H96-02A	6-Jul-22	14:13	1.09	331.76
DP4-14	21-Jul-22	15:34	-0.09	330.19	H96-02A	19-Sep-22	15:04	1.87	330.98
DP4-14	19-Oct-22	13:25	**	**	H96-02B	18-Oct-21	10:45	1.64	330.99
DP5-14	8-Nov-21	14:06	**	**	H96-02B	1-Jun-22	14:52	1.20	331.42
DP5-14	9-Jun-22	10:30	**	**	H96-02B	6-Jul-22	14:16	1.28	331.34
DP5-14	21-Jul-22	13:00	**	**	H96-02B	19-Sep-22	15:08	2.08	330.54
DP5-14	22-Sep-22	13:42	**	**	H96-02C	18-Oct-21	10:47	2.41	331.22
DP6-14D	6-Oct-21	13:41	0.93	333.71	H96-02C	1-Jun-22	14:56	2.40	331.23
DP6-14D	15-Jun-22	12:30	***	***	H96-02C	6-Jul-22	14:09	2.37	331.26
DP6-14D	22-Jul-22	13:19	0.55	334.09	H96-02C	19-Sep-22	15:11	2.77	330.86
DP6-14D	19-Oct-22	15:30	0.14	334.51	H96-03	18-Oct-21	10:38	2.37	331.96
DP6-14S	6-Oct-21	13:45	0.83	333.84	H96-03	1-Jun-22	14:23	2.10	332.22
DP6-14S	15-Jun-22	12:30	0.25	334.42	H96-03	6-Jul-22	14:04	2.12	332.20
DP6-14S	15-Jun-22	12:30	0.25	334.42	H96-03	19-Sep-22	15:17	2.74	331.58
DP6-14S	22-Jul-22	13:26	0.32	334.34	H96-04A1	18-Oct-21	10:33	2.05	331.10
DP6-14S	19-Oct-22	15:31	0.19	334.48	H96-04A1	1-Jun-22	14:27	1.94	331.21
DP-A	8-Nov-21	10:46	0.75	335.73	H96-04A1	7-Jul-22	15:26	1.97	331.18
DP-A	15-Jun-22	14:36	0.73	335.75	H96-04A1	19-Sep-22	14:48	2.21	330.94
DP-A	15-Jun-22	14:36	0.73	335.75	H96-04B	18-Oct-21	10:31	1.74	330.94
DP-A	12-Jul-22	12:10	0.94	335.53	H96-04B	1-Jun-22	14:29	1.92	330.76
DP-A	13-Oct-22	15:12	0.68	335.80	H96-04B	7-Jul-22	15:30	2.14	330.55
DP-B	8-Nov-21	11:32	0.90	333.18	H96-04B	19-Sep-22	14:52	2.51	330.17
DP-B	9-Jun-22	14:30	0.70	333.38	H96-05A1	18-Oct-21	11:05	2.74	332.93
DP-B	16-Jul-22	11:29	0.77	333.31	H96-05A1	1-Jun-22	14:03	2.87	332.80
DP-B	12-Oct-22	14:25	0.78	333.30	H96-05A1	6-Jul-22	14:40	2.24	333.43
DP-C	21-Oct-21	14:53	1.24	329.23	H96-05A1	20-Sep-22	14:52	2.89	332.78
DP-C	15-Jun-22	10:43	2.47	328.00	H96-05A2	18-Oct-21	11:07	3.35	332.41
DP-C	15-Jun-22	10:43	2.47	328.00	H96-05A2	1-Jun-22	14:05	2.76	333.00
DP-C	8-Jul-22	14:27	1.20	329.27	H96-05A2	6-Jul-22	14:38	2.83	332.92
DP-C	29-Sep-22	10:00	1.22	329.25	H96-05A2	20-Sep-22	14:44	3.44	332.32
EP137	8-Nov-21	13:29	4.62	334.57	H96-06A1	18-Oct-21	13:42	1.73	330.92
EP137	1-Jun-22	13:45	5.10	334.20	H96-06A1	1-Jun-22	13:25	1.62	331.03
EP137	6-Jul-22	15:17	4.73	334.47	H96-06A1	6-Jul-22	14:56	1.67	330.98
EP137	19-Sep-22	14:35	4.64	334.55	H96-06A1	6-Oct-22	11:32	2.00	330.65
G1-OB-13	1-Nov-21	13:50	1.36	330.67	H96-06A2	18-Oct-21	13:36	2.10	330.68
G1-OB-13	3-Jun-22	11:18	1.10	330.94	H96-06A2	1-Jun-22	13:38	2.06	330.72
G1-OB-13	22-Jul-22	12:02	1.90	330.14	H96-06A2	6-Jul-22	14:51	1.83	330.94
G1-OB-13	19-Sep-22	15:41	1.11	330.93	H96-06A2	6-Oct-22	11:32	2.19	330.59
G2-OB-13	1-Nov-21	13:35	1.30	342.86	H96-06A3	18-Oct-21	14:22	1.36	331.03
G2-OB-13	1-Jun-22	15:30	0.84	343.32	H96-06A3	1-Jun-22	14:12	1.26	331.13
G2-OB-13	5-Jul-22	9:43	1.01	343.15	H96-06A3	6-Jul-22	14:59	1.30	331.09
G2-OB-13	20-Sep-22	15:35	1.17	343.00	H96-06A3	6-Oct-22	12:23	1.57	330.82
G4-OB1-13	21-Sep-21	14:36	2.27	331.42	H96-06B	18-Oct-21	14:35	1.91	330.76
G4-OB1-13	3-Jun-22	14:32	1.12	332.57	H96-06B	1-Jun-22	13:45	1.81	330.86
G4-OB1-13	3-Jun-22	14:32	1.12	332.57	H96-06B	6-Jul-22	15:03	1.86	330.81
G4-OB1-13	8-Jul-22	13:41	1.12	332.57	H96-06B	6-Oct-22	12:10	2.22	330.45
G4-OB1-13	22-Sep-22	10:54	1.54	332.16	Hardrock Shaft 1	4-Nov-21	10:00	Dry	-
G4-OB2-13	21-Sep-21	14:58	2.25	331.43	Hardrock Shaft 1	6-Jun-22	13:55	1.07	330.65
G4-OB2-13	3-Jun-22	14:35	1.12	332.56	Hardrock Shaft 1	29-Sep-22	14:12	Dry	-
G4-OB2-13	3-Jun-22	14:35	1.12	332.56	Hardrock Shaft 1	3-Oct-22	10:20	Dry	
G4-OB2-13	8-Jul-22	13:37	1.11	332.57	Hardrock Shaft 1	25-Oct-22	-	3.94	327.78
G4-OB2-13	22-Sep-22	11:09	1.49	332.19	Hardrock Shaft 1	6-Nov-22	-	19.35	312.36
G5-OB1-14	6-Oct-21	12:00	2.09	331.24	Hardrock Shaft 1	13-Nov-22	-	17.98	313.73
G5-OB1-14	7-Jun-22	11:00	1.48	331.84	Hardrock Shaft 1	20-Nov-22	-	19.41	312.31
G5-OB1-14	7-Jun-22	11:00	1.48	331.84	Hardrock Shaft 2	21-Sep-22	8:00	Capped	
G5-OB1-14	19-Jul-22	13:48	1.49	331.84	Hardrock Shaft 2	25-Oct-22	-	100+	-
G5-OB1-14	12-Oct-22	11:41	1.54	331.78	Hardrock Shaft 2	6-Nov-22	-	Blocked	-
G5-OB2-14	6-Oct-21	11:39	2.15	331.23	Hardrock Shaft 2	13-Nov-22	-	Blocked	-
G5-OB2-14	7-Jun-22	10:54	1.59	331.78	MAC-1	23-Sep-21	10:20	1.11	343.03
G5-OB2-14	7-Jun-22	10:54	1.59	331.79	MAC-1	1-Jun-22	9:25	0.69	343.45
G5-OB2-14	19-Jul-22	13:56	1.58	331.80	MAC-1	5-Jul-22	9:18	0.80	343.34
G5-OB2-14	12-Oct-22	11:45	1.54	331.84	MAC-1	21-Sep-22	12:39	1.59	342.54
G6-BR-14	19-Oct-21	11:02	1.97	329.92	MAC-2	23-Sep-21	11:01	1.60	340.67
G6-BR-14	1-Jun-22	12:48	1.32	330.57	MAC-2	1-Jun-22	9:32	0.75	341.52
G6-BR-14	11-Jul-22	11:15	1.57	330.32	MAC-2	5-Jul-22	9:22	1.03	341.24
G6-BR-14	4-Oct-22	10:37	2.06	329.83	MAC-2	21-Sep-22	12:55	1.66	340.61
G6-OB-14	19-Oct-21	11:28	1.53	330.16	MAC-3	23-Sep-21	11:34	0.57	338.78
G6-OB-14	1-Jun-22	12:00	1.04	330.64	MAC-3	1-Jun-22	9:53	1.75	337.60
G6-OB-14	11-Jul-22	11:45	1.12	330.57	MAC-3	5-Jul-22	9:38	0.42	338.93
G6-OB-14	4-Oct-22	11:02	1.69	329.99	MAC-3	21-Sep-22	14:14	0.98	338.37
G7-OB1-14	29-Sep-21	15:12	0.55	333.84	MAC-4	23-Sep-21	12:01	1.10	336.91
G7-OB1-14	7-Jun-22	12:30	0.39	334.00	MAC-4	1-Jun-22	10:16	0.56	337.46
G7-OB1-14	7-Jun-22	12:30	0.39	334.00	MAC-4	5-Jul-22	9:36	0.52	337.50
G7-OB1-14	6-Jul-22	15:44	0.99	333.40	MAC-4	21-Sep-22	14:55	0.78	337.24

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Manual Groundwater Elevations
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Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)	Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)
MAC-5	23-Sep-21	11:44	2.84	334.97	MW11-BR-14	8-Jun-22	14:58	1.19	336.51
MAC-5	1-Jun-22	11:45	1.63	336.18	MW11-BR-14	14-Jul-22	15:39	1.20	336.50
MAC-5	5-Jul-22	9:34	2.01	335.80	MW11-BR-14	27-Sep-22	15:52	1.55	336.15
MAC-5	21-Sep-22	14:30	*	*	MW11-OB-14	8-Nov-21	14:12	1.70	335.99
MAC-6	23-Sep-21	12:34	1.35	335.61	MW11-OB-14	8-Jun-22	14:58	1.21	336.48
MAC-6	1-Jun-22	10:16	0.98	335.98	MW11-OB-14	8-Jun-22	14:58	1.21	336.48
MAC-6	5-Jul-22	9:37	0.93	336.03	MW11-OB-14	14-Jul-22	15:42	1.22	336.47
MAC-6	21-Sep-22	15:33	1.06	335.90	MW11-OB-14	27-Sep-22	15:53	1.16	336.53
MAC-7	23-Sep-21	13:15	1.27	333.76	MW12-OB-14	4-Oct-21	13:57	2.31	333.92
MAC-7	1-Jun-22	10:59	1.42	333.61	MW12-OB-14	9-Jun-22	10:07	1.66	334.56
MAC-7	7-Jul-22	10:53	0.95	334.08	MW12-OB-14	9-Jun-22	10:07	1.66	334.56
MAC-7	19-Sep-22	15:54	1.02	334.02	MW12-OB-14	19-Jul-22	11:02	1.82	334.40
MAC-8	23-Sep-21	11:10	5.23	337.60	MW12-OB-14	3-Oct-22	14:58	2.24	333.98
MAC-8	1-Jun-22	9:17	2.80	340.03	MW13-OB-14	21-Oct-21	11:43	6.10	337.57
MAC-8	5-Jul-22	9:30	4.01	338.82	MW13-OB-14	20-Jun-22	12:25	5.30	338.37
MAC-8	21-Sep-22	13:10	5.25	337.58	MW13-OB-14	25-Jul-22	14:14	5.29	338.38
MAC-9	23-Sep-21	13:34	4.22	337.93	MW13-OB-14	3-Oct-22	13:49	5.58	338.09
MAC-9	1-Jun-22	9:11	2.55	339.60	MW14-BR-14	23-Sep-21	13:57	3.72	355.20
MAC-9	5-Jul-22	9:32	3.05	339.10	MW14-BR-14	30-May-22	11:22	2.58	356.33
MAC-9	21-Sep-22	13:35	4.71	337.44	MW14-BR-14	30-May-22	11:22	2.58	356.33
McLeod 1	25-Oct-22	-	36.36	305.40	MW14-BR-14	19-Jul-22	11:52	2.69	356.22
McLeod 1	6-Nov-22	-	50.69	291.08	MW14-BR-14	28-Sep-22	13:01	3.47	355.44
McLeod 1	13-Nov-22	-	>30	-	MW14-OB-14	23-Sep-21	13:35	1.78	357.26
McLeod 1	20-Nov-22	-	54.30	287.46	MW14-OB-14	30-May-22	11:08	1.12	357.91
McLeod 2	25-Oct-22	-	33.38	305.68	MW14-OB-14	30-May-22	11:08	1.12	357.91
McLeod 2	6-Nov-22	-	50.57	288.49	MW14-OB-14	19-Jul-22	11:50	1.34	357.70
McLeod 2	20-Nov-22	-	53.54	285.51	MW14-OB-14	28-Sep-22	12:15	1.91	357.13
MM006	8-Nov-21	13:47	6.57	333.58	MW15-BR-14	4-Oct-21	14:37	0.98	329.54
MM006	1-Jun-22	15:15	4.61	335.69	MW15-BR-14	7-Jun-22	14:01	0.00	330.52
MM006	7-Jul-22	10:00	5.32	334.82	MW15-BR-14	7-Jun-22	14:01	0.00	330.52
MM006	21-Sep-22	14:35	*	*	MW15-BR-14	11-Jul-22	10:45	0.14	330.38
MM140	8-Nov-21	14:00	3.45	340.30	MW15-BR-14	4-Oct-22	14:54	0.27	330.25
MM140	1-Jun-22	9:46	1.22	342.39	MW15-OB-14	4-Oct-21	14:59	1.01	329.52
MM140	5-Jul-22	9:25	2.04	341.70	MW15-OB-14	7-Jun-22	14:22	0.00	330.53
MM140	20-Sep-22	15:50	3.62	340.13	MW15-OB-14	7-Jun-22	14:22	0.00	330.53
Mosher Shaft	4-Nov-21	12:01	16.69	333.23	MW15-OB-14	11-Jul-22	10:53	0.43	330.10
Mosher Shaft	6-Jun-22	15:55	16.17	333.12	MW15-OB-14	4-Oct-22	15:13	0.20	330.33
Mosher Shaft	7-Jul-22	11:55	16.26	333.66	MW16-04	29-Sep-21	12:52	7.72	341.44
Mosher Shaft	13-Oct-22	10:45	28.58	321.34	MW16-04	2-Jun-22	12:45	2.72	346.44
Mosher Shaft	25-Oct-22	-	44.81	306.01	MW16-04	2-Jun-22	12:45	2.72	346.44
Mosher Shaft	6-Nov-22	-	59.06	291.76	MW16-04	16-Jul-22	11:52	7.33	341.83
Mosher Shaft	13-Nov-22	-	>30	-	MW16-04	29-Sep-22	11:43	Dry	-
Mosher Shaft	20-Nov-22	-	62.68	288.13	MW16-05	2-Nov-21	12:37	3.43	338.43
MW01-OB1-18	18-Oct-21	12:11	1.68	330.40	MW16-05	2-Jun-22	14:39	2.25	339.61
MW01-OB1-18	1-Jun-22	15:30	1.52	330.56	MW16-05	2-Jun-22	14:39	2.25	339.61
MW01-OB1-18	7-Jul-22	15:02	2.17	329.91	MW16-05	20-Jul-22	14:19	2.97	338.89
MW01-OB1-18	27-Sep-22	15:46	2.43	329.65	MW16-05	23-Sep-22	10:08	3.50	338.36
MW01-OB2-18	20-Oct-21	9:46	2.19	329.94	MW16-BR-14	6-Oct-21	11:25	1.10	337.08
MW01-OB2-18	1-Jun-22	15:38	2.03	330.10	MW16-BR-14	3-Jun-22	13:40	1.85	336.33
MW01-OB2-18	7-Jul-22	15:10	1.64	330.49	MW16-BR-14	3-Jun-22	13:40	1.85	336.33
MW01-OB2-18	27-Sep-22	15:47	1.80	330.33	MW16-BR-14	16-Jul-22	14:50	1.87	336.30
MW02-OB-18	18-Oct-21	12:56	1.68	328.62	MW16-BR-14	19-Sep-22	12:06	1.86	336.32
MW02-OB-18	1-Jun-22	15:20	1.69	328.61	MW16-OB-14	6-Oct-21	11:22	1.92	335.99
MW02-OB-18	7-Jul-22	15:22	1.69	328.61	MW16-OB-14	3-Jun-22	13:35	1.68	336.23
MW02-OB-18	27-Sep-22	15:48	1.86	328.44	MW16-OB-14	3-Jun-22	13:35	1.68	336.23
MW03-BR-18	12-Oct-21	14:30	0.68	331.72	MW16-OB-14	16-Jul-22	14:55	1.64	336.27
MW03-BR-18	2-Jun-22	14:50	0.30	332.10	MW16-OB-14	19-Sep-22	12:10	1.69	336.22
MW03-BR-18	5-Jul-22	13:55	1.94	330.46	MW17-OB-14	23-Sep-21	15:35	2.60	337.21
MW03-BR-18	22-Sep-22	11:57	1.24	331.16	MW17-OB-14	6-Jun-22	14:50	1.53	338.28
MW03-OB-18	12-Oct-21	14:55	1.91	330.45	MW17-OB-14	8-Jul-22	14:55	1.84	337.97
MW03-OB-18	2-Jun-22	15:02	1.96	330.40	MW17-OB-14	22-Sep-22	9:28	2.40	337.41
MW03-OB-18	5-Jul-22	14:49	1.58	330.79	MW18-BR-21	20-Oct-21	12:55	7.27	344.04
MW03-OB-18	22-Sep-22	13:28	2.28	330.08	MW18-BR-21	8-Jun-22	13:13	8.71	342.59
MW07-18	15-Oct-21	12:47	1.28	330.01	MW18-BR-21	8-Jul-22	15:52	9.70	341.60
MW07-18	8-Jun-22	11:18	1.35	329.93	MW18-BR-21	11-Oct-22	10:43	11.14	340.17
MW07-18	6-Jul-22	10:36	1.24	330.05	MW19-BR-21	20-Oct-21	14:50	6.24	330.04
MW07-18	28-Sep-22	13:07	1.24	330.04	MW19-BR-21	2-Jun-22	13:39	5.74	330.54
MW08-18	15-Oct-21	10:40	1.52	329.90	MW19-BR-21	11-Jul-22	12:06	6.02	330.26
MW08-18	8-Jun-22	11:06	1.63	329.78	MW19-BR-21	11-Oct-22	11:23	6.21	330.07
MW08-18	6-Jul-22	10:58	1.56	329.85	MW19-OB-21	20-Oct-21	15:10	6.31	330.02
MW08-18	28-Sep-22	11:53	1.70	329.71	MW19-OB-21	2-Jun-22	11:36	5.95	330.37
MW09-18	14-Oct-21	11:59	1.81	329.71	MW19-OB-21	11-Jul-22	12:20	6.22	330.10
MW09-18	8-Jun-22	10:49	1.84	329.68	MW19-OB-21	11-Oct-22	11:39	6.42	329.91
MW09-18	21-Jul-22	12:52	1.79	329.73	MW1-BR-14	12-Oct-21	13:55	0.89	331.79
MW09-18	28-Sep-22	11:17	2.18	329.34	MW1-BR-14	31-May-22	15:09	0.87	331.81
MW10-18	20-Oct-21	10:31	3.86	334.08	MW1-BR-14	5-Jul-22	15:35	4.92	327.76
MW10-18	3-Jun-22	10:23	3.43	334.50	MW1-BR-14	26-Sep-22	14:27	1.02	331.66
MW10-18	6-Jul-22	12:37	3.87	334.06	MW1-OB-14	12-Oct-21	13:30	1.02	331.68
MW10-18	27-Sep-22	15:50	Dry	-	MW1-OB-14	31-May-22	15:06	1.00	331.70
MW10-18	3-Oct-22	10:22	Dry	-	MW1-OB-14	5-Jul-22	15:41	1.15	331.55
MW10-OB-14	19-Oct-21	10:50	1.34	332.30	MW1-OB-14	26-Sep-22	14:42	1.20	331.50
MW10-OB-14	1-Jun-22	11:16	1.19	332.45	MW20-BR-21	21-Sep-21	12:37	6.40	328.37
MW10-OB-14	11-Jul-22	14:45	1.18	332.46	MW20-BR-21	8-Jun-22	14:45	3.13	331.64
MW10-OB-14	30-Sep-22	14:11	1.55	332.09	MW20-BR-21	8-Jun-22	14:45	3.13	331.64
MW11-BR-14	6-Oct-21	14:04	1.68	336.02	MW20-BR-21	7-Jul-22	12:20	4.36	330.42
MW11-BR-14	8-Jun-22	14:58	1.19	336.50	MW20-BR-21	11-Oct-22	15:08	5.33	329.44

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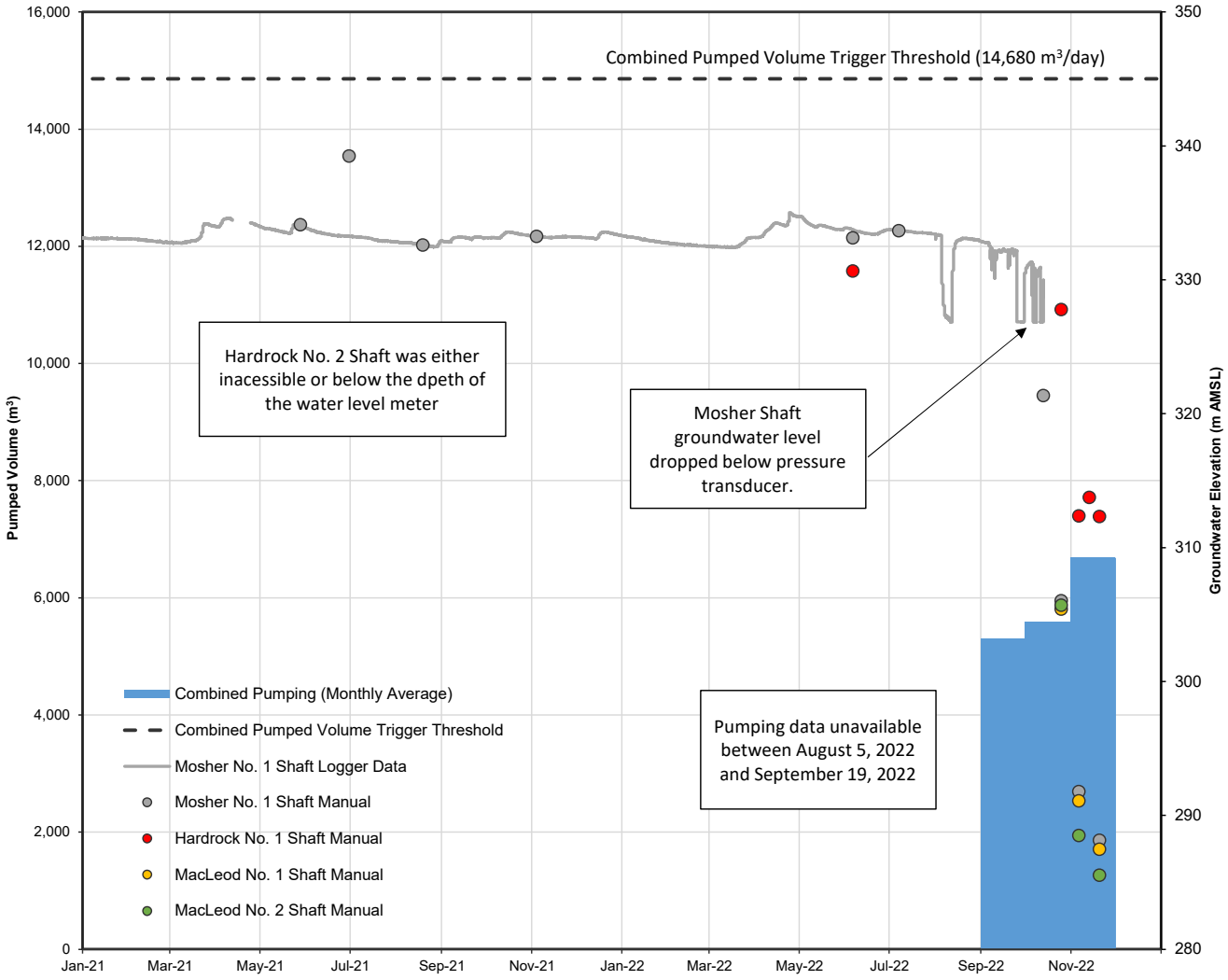
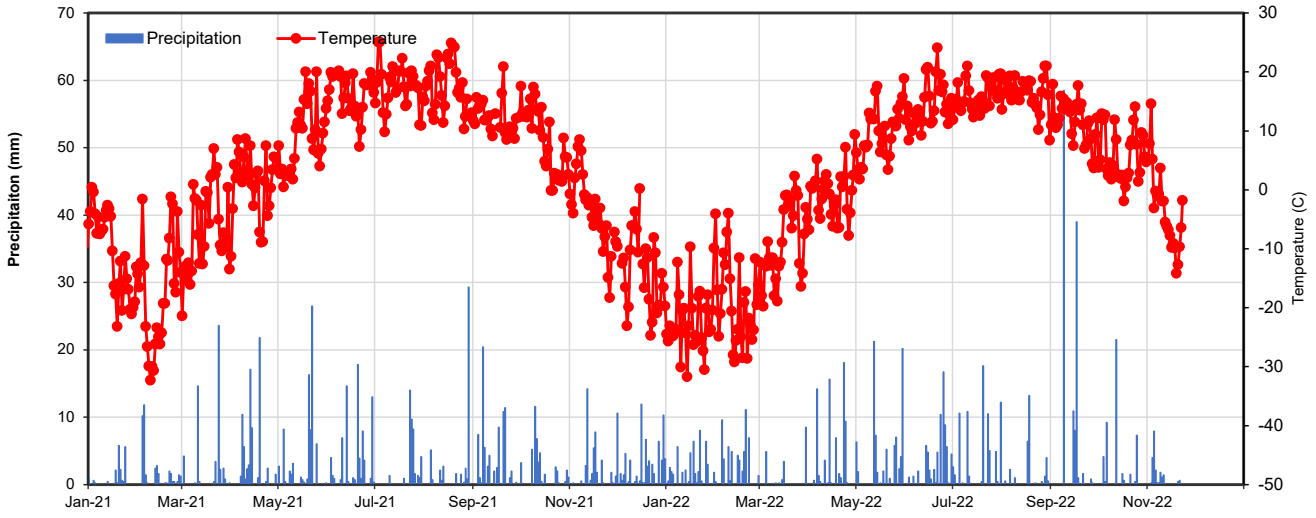
Monitoring Location	Date	Time	Manual Groundwater Level (m BTOC)	Groundwater Elevation (m AMSL)
MW20-OB-21	21-Sep-21	12:20	4.89	329.75
MW20-OB-21	8-Jun-22	15:07	2.70	331.94
MW20-OB-21	8-Jun-22	15:07	2.70	331.94
MW20-OB-21	7-Jul-22	12:39	3.39	331.25
MW20-OB-21	11-Oct-22	14:58	Dry	-
MW21-BR-21	5-Oct-21	10:36	2.34	331.83
MW21-BR-21	26-May-22	10:13	1.94	332.23
MW21-BR-21	15-Jun-22	12:00	2.96	331.21
MW21-BR-21	12-Jul-22	11:04	2.24	331.93
MW21-BR-21	22-Sep-22	13:45	2.93	331.24
MW21-BR-21	22-Sep-22	14:48	2.93	331.24
MW22-OB-21	15-Nov-21	9:40	2.13	331.93
MW22-OB-21	6-Jun-22	14:17	1.65	332.41
MW22-OB-21	7-Jul-22	14:17	1.51	332.55
MW22-OB-21	11-Oct-22	12:12	2.10	331.96
MW23-OB-21	5-Oct-21	10:04	0.84	330.07
MW23-OB-21	26-May-22	10:32	0.87	330.05
MW23-OB-21	15-Jun-22	10:24	0.96	329.96
MW23-OB-21	8-Jul-22	14:50	0.89	330.03
MW23-OB-21	22-Sep-22	14:15	1.10	329.82
MW24-BR-21	21-Sep-21	10:34	10.51	323.59
MW24-BR-21	7-Jun-22	14:42	4.41	329.69
MW24-BR-21	7-Jun-22	14:42	4.41	329.69
MW24-BR-21	7-Jul-22	13:31	5.24	328.86
MW24-BR-21	26-Sep-22	10:10	5.39	328.71
MW24-OB-21	21-Sep-21	10:54	1.49	332.58
MW24-OB-21	7-Jun-22	14:18	0.96	333.10
MW24-OB-21	7-Jun-22	14:18	0.96	333.10
MW24-OB-21	7-Jul-22	13:18	0.89	333.17
MW24-OB-21	26-Sep-22	10:29	1.38	332.68
MW25-BR-21	21-Sep-21	11:16	2.38	330.52
MW25-BR-21	9-Jun-22	11:43	1.41	331.49
MW25-BR-21	9-Jun-22	11:43	1.41	331.49
MW25-BR-21	12-Jul-22	15:09	1.49	331.41
MW25-BR-21	26-Sep-22	11:28	2.16	330.74
MW25-OB-21	21-Sep-21	11:30	2.50	330.44
MW25-OB-21	9-Jun-22	11:27	1.60	331.33
MW25-OB-21	9-Jun-22	11:27	1.60	331.33
MW25-OB-21	12-Jul-22	14:46	1.47	331.46
MW25-OB-21	26-Sep-22	11:09	2.55	330.39
MW2-OB-13	20-Oct-21	13:30	1.44	332.87
MW2-OB-13	8-Jun-22	13:42	1.44	332.87
MW2-OB-13	25-Aug-22	8:38	1.52	332.79
MW2-OB-13	26-Sep-22	15:15	1.62	332.69
MW3-BR-13	18-Oct-21	10:06	1.59	329.60
MW3-BR-13	6-Jun-22	15:01	1.42	329.77
MW3-BR-13	5-Jul-22	14:06	1.53	329.67
MW3-BR-13	26-Sep-22	13:32	1.83	329.36
MW3-OB-13	18-Oct-21	9:55	1.80	329.43
MW3-OB-13	6-Jun-22	14:48	1.50	329.73
MW3-OB-13	5-Jul-22	14:49	1.58	329.65
MW3-OB-13	26-Sep-22	13:13	2.15	329.08
MW4-OB-13	20-Oct-21	11:02	1.22	329.55
MW4-OB-13	6-Jun-22	15:30	1.10	329.67
MW4-OB-13	6-Jul-22	15:44	1.10	329.68
MW4-OB-13	22-Sep-22	15:30	1.20	329.57
MW5-OB1-13	5-Oct-21	15:20	0.91	332.20
MW5-OB1-13	3-Jun-22	15:33	2.72	330.39
MW5-OB1-13	20-Jul-22	11:02	1.56	331.55
MW5-OB1-13	28-Sep-22	14:40	0.77	332.34
MW5-OB2-13	5-Oct-21	15:04	1.04	332.05
MW5-OB2-13	3-Jun-22	15:34	*	*
MW6-OB-13	12-Oct-21	12:55	1.29	335.72
MW6-OB-13	6-Jun-22	15:12	1.82	335.19
MW6-OB-13	5-Jul-22	15:32	1.20	335.81
MW6-OB-13	11-Oct-22	13:53	1.81	335.20
MW7-BR-13	23-Sep-21	15:18	1.59	333.90
MW7-BR-13	30-May-22	15:52	1.10	334.39
MW7-BR-13	8-Jul-22	14:10	1.06	334.43
MW7-BR-13	22-Sep-22	13:35	1.83	333.67
MW8-OB-14	25-Oct-21	12:50	1.25	329.44
MW8-OB-14	20-Jun-22	15:31	1.05	329.64
MW8-OB-14	21-Jul-22	14:49	1.14	329.55
MW8-OB-14	4-Oct-22	12:26	1.39	329.29
MW9-OB1-13	21-Sep-21	13:42	6.73	326.33
MW9-OB1-13	3-Jun-22	14:42	1.08	331.98
MW9-OB1-13	3-Jun-22	14:42	1.08	331.98
MW9-OB1-13	8-Jul-22	13:51	1.62	331.44
MW9-OB1-13	22-Sep-22	14:15	5.38	327.68
MW9-OB2-13	21-Sep-21	14:04	5.46	327.86
MW9-OB2-13	3-Jun-22	14:45	1.20	332.12
MW9-OB2-13	3-Jun-22	14:45	1.20	332.12
MW9-OB2-13	8-Jul-22	13:48	1.71	331.61
MW9-OB2-13	22-Sep-22	14:26	4.60	328.72
MWS-14-01	23-Sep-21	15:05	1.66	335.05
MWS-14-01	30-May-22	16:08	1.33	335.37
MWS-14-01	8-Jul-22	13:25	1.42	335.28
MWS-14-01	22-Sep-22	10:11	1.76	334.94
MWS-14-02 BR	19-Oct-21	9:54	1.95	330.00
MWS-14-02 BR	1-Jun-22	14:03	1.23	330.71
MWS-14-02 BR	11-Jul-22	15:15	1.45	330.49
MWS-14-02 BR	30-Sep-22	13:45	2.34	329.60
MWS-14-02 OB	19-Oct-21	10:20	2.20	329.63
MWS-14-02 OB	1-Jun-22	13:47	1.43	330.41
MWS-14-02 OB	11-Jul-22	15:00	3.50	328.34
MWS-14-02 OB	30-Sep-22	13:23	2.52	329.31
MWS-14-03 OB1	19-Oct-21	13:15	1.44	331.33
MWS-14-03 OB1	7-Jun-22	11:27	1.40	331.36
MWS-14-03 OB1	6-Jul-22	12:26	0.09	332.67
MWS-14-03 OB1	12-Oct-22	9:20	0.97	331.80
MWS-14-03 OB2	19-Oct-21	12:46	1.51	331.32
MWS-14-03 OB2	7-Jun-22	10:55	1.61	331.22
MWS-14-03 OB2	6-Jul-22	12:30	2.06	330.77
MWS-14-03 OB2	12-Oct-22	9:40	1.74	331.10
MWS-14-04	21-Oct-21	9:42	1.31	330.60
MWS-14-04	7-Jun-22	9:55	1.12	330.78
MWS-14-04	6-Jul-22	11:36	1.10	330.81
MWS-14-04	11-Oct-22	13:57	1.70	330.20
MWS-14-05 BR	18-Oct-21	15:11	1.82	338.68
MWS-14-05 BR	9-Jun-22	9:38	*	*
MWS-14-05 OB	18-Oct-21	15:09	1.92	338.53
MWS-14-05 OB	9-Jun-22	19:38	0.98	339.47
MWS-14-05 OB	6-Jul-22	14:56	*	*
MWS-14-06	25-Oct-21	10:42	0.82	333.55
MWS-14-06	9-Jun-22	13:50	1.75	332.62
MWS-14-06	20-Jul-22	10:20	1.80	332.58
MWS-14-06	28-Sep-22	15:33	1.34	333.03
MWS-14-07 BR	12-Oct-21	10:55	2.70	329.35
MWS-14-07 BR	1-Jun-22	15:14	2.05	330.00
MWS-14-07 BR	1-Jun-22	15:14	2.05	330.00
MWS-14-07 BR	6-Jul-22	14:43	2.57	329.48
MWS-14-07 BR	11-Oct-22	15:02	2.74	329.31
MWS-14-07 OB	12-Oct-21	10:44	2.74	329.28
MWS-14-07 OB	1-Jun-22	15:00	2.05	329.96
MWS-14-07 OB	1-Jun-22	15:00	2.05	329.96
MWS-14-07 OB	6-Jul-22	14:56	2.06	329.95
MWS-14-07 OB	11-Oct-22	14:45	2.76	329.25

Notes:
*Well overprinted by mine infrastructure
** Area flooded. Location inaccessible
*** Steel cap siezed. Inaccessible
Capped - location capped for safety and security
Blocked - Unable to get water level meter to water surface





Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A
Combined pumped volume may include volumes from the Open Pit and Historical Underground Workings

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

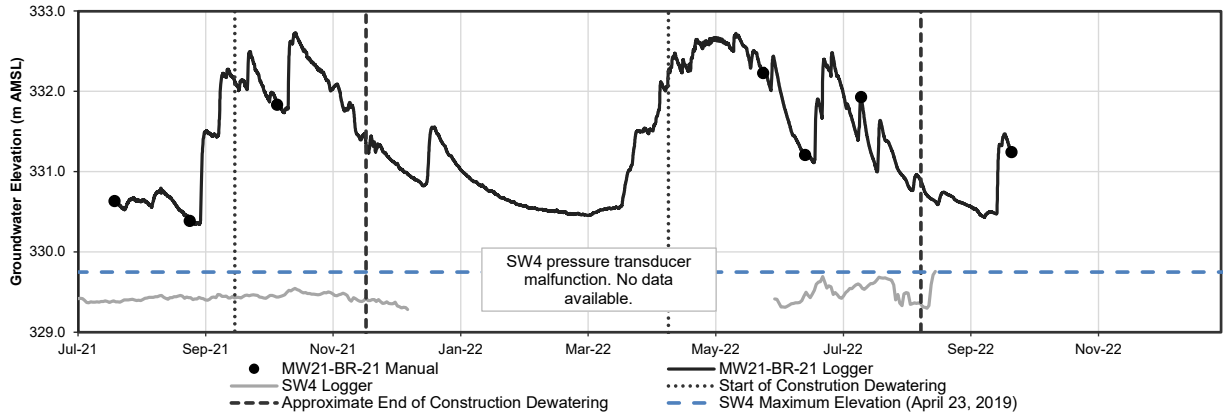
B -3-1

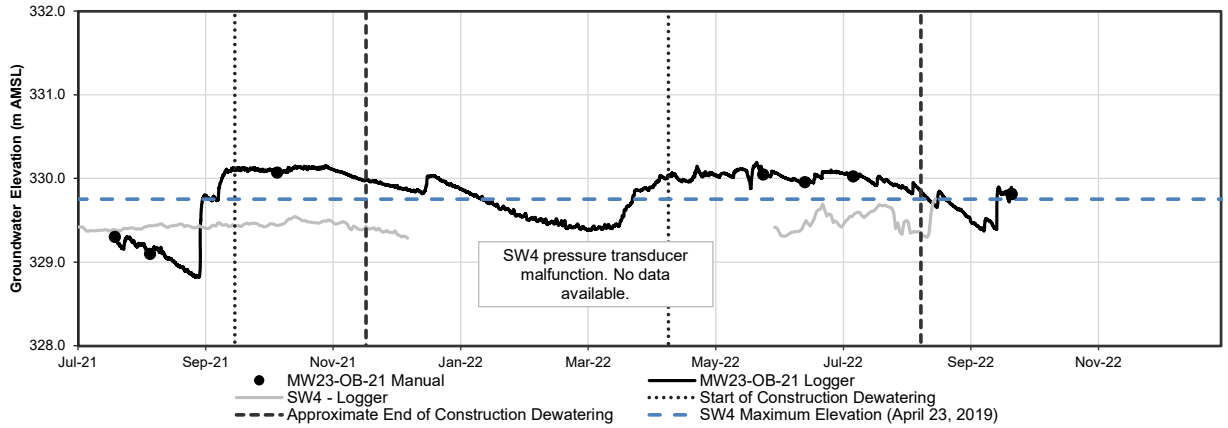
Title

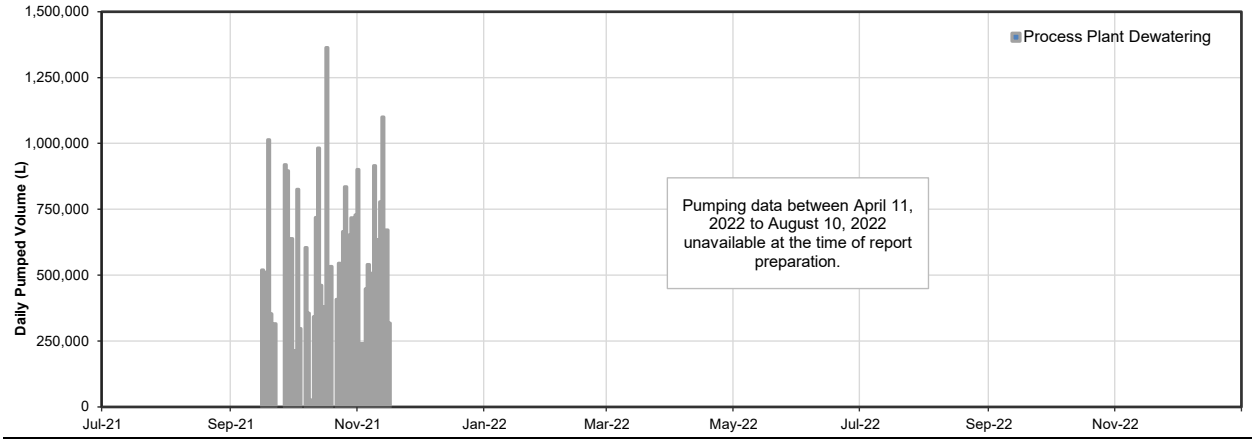
Hydrographs

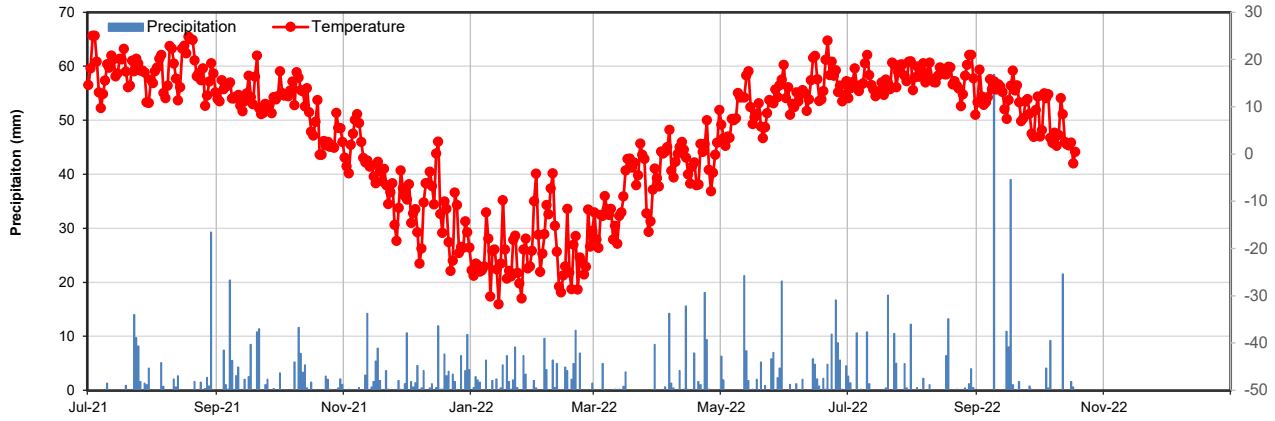
Stantec

\\ca0004-ppfss04\WORK_GROUP\01609\active\160961397\03_data\field\Hydrogeology\loggers\corrected figures\2022 Fish Report Figures\App B3 Fig B-3-1 Dewatering Volume and Level Hydrograph.xlsx









Notes:

Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Mine

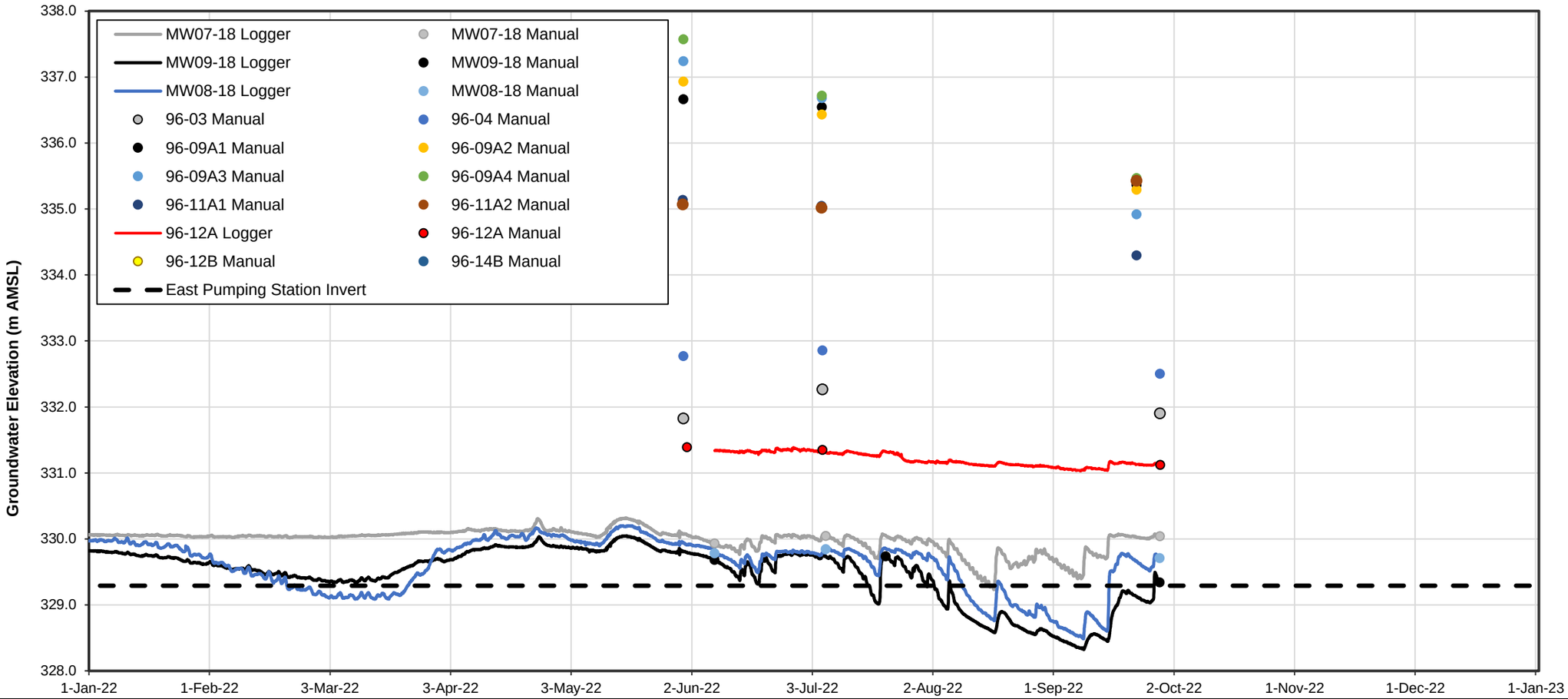
Figure No.

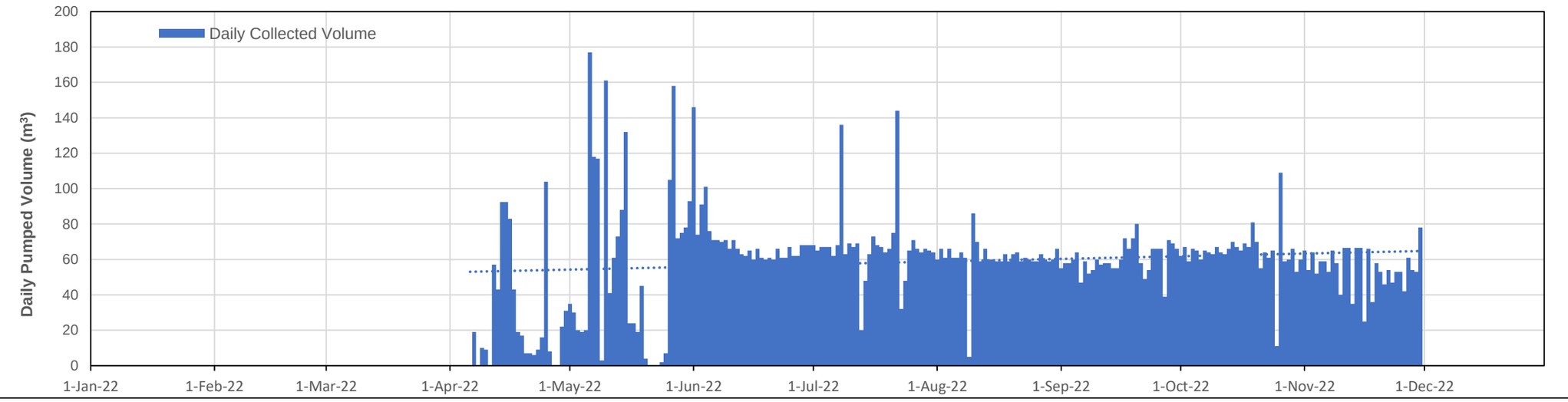
B-3-2

Title

Process Plant Hydrographs

Stantec





Notes:

Climate data obtain from the Environment Canada Website: Station Geraldton A
96-12B overprinted by mine infrastructure. Data logger temporarily placed in 96-12A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-3

Title

MHT Hydrographs

Stantec

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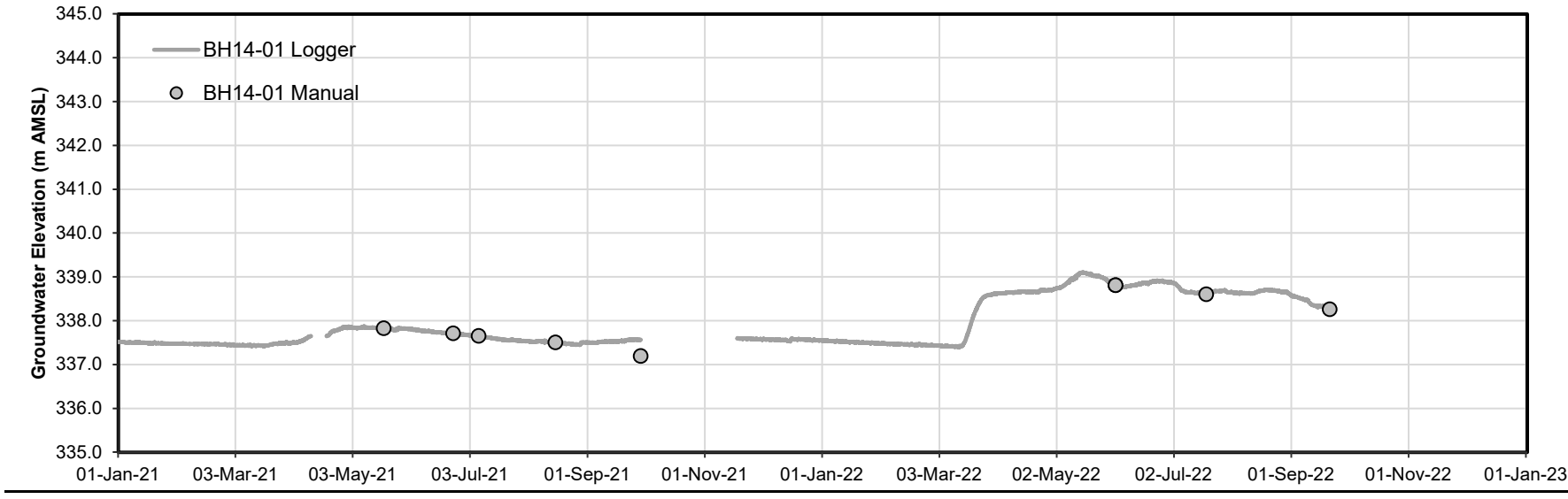
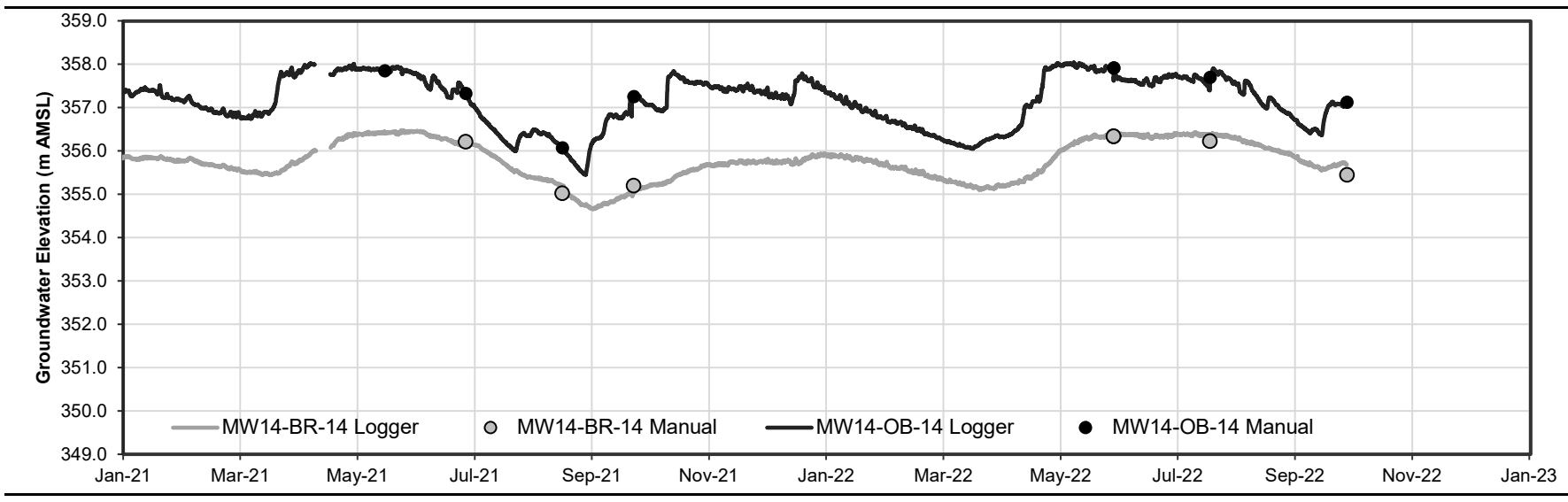
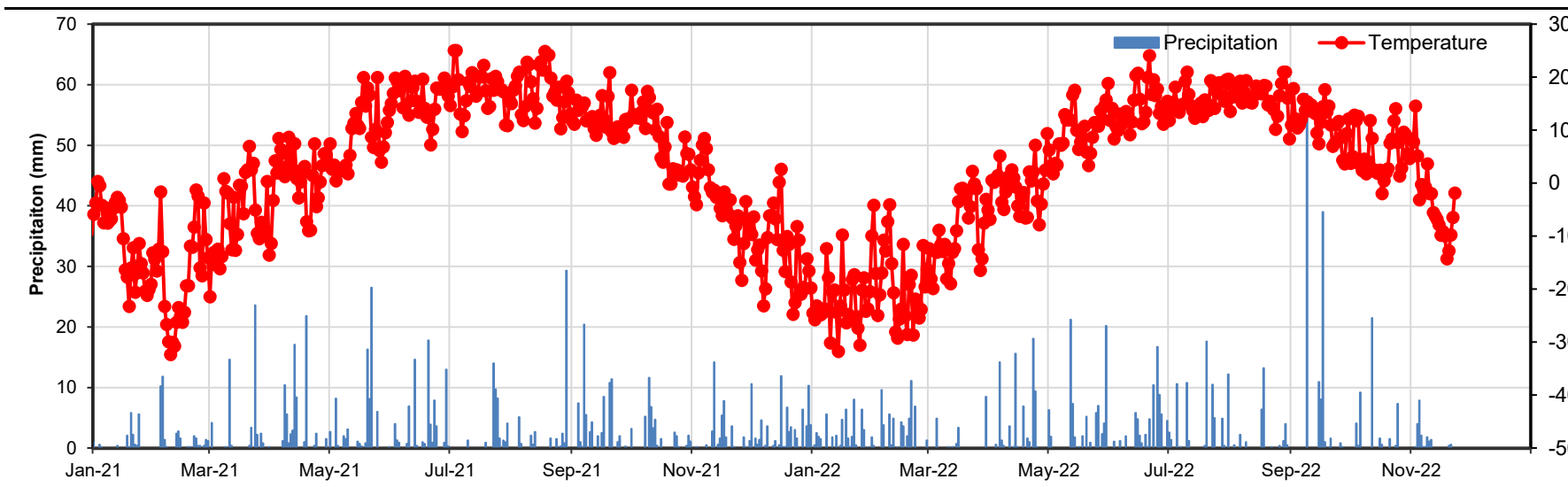






Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

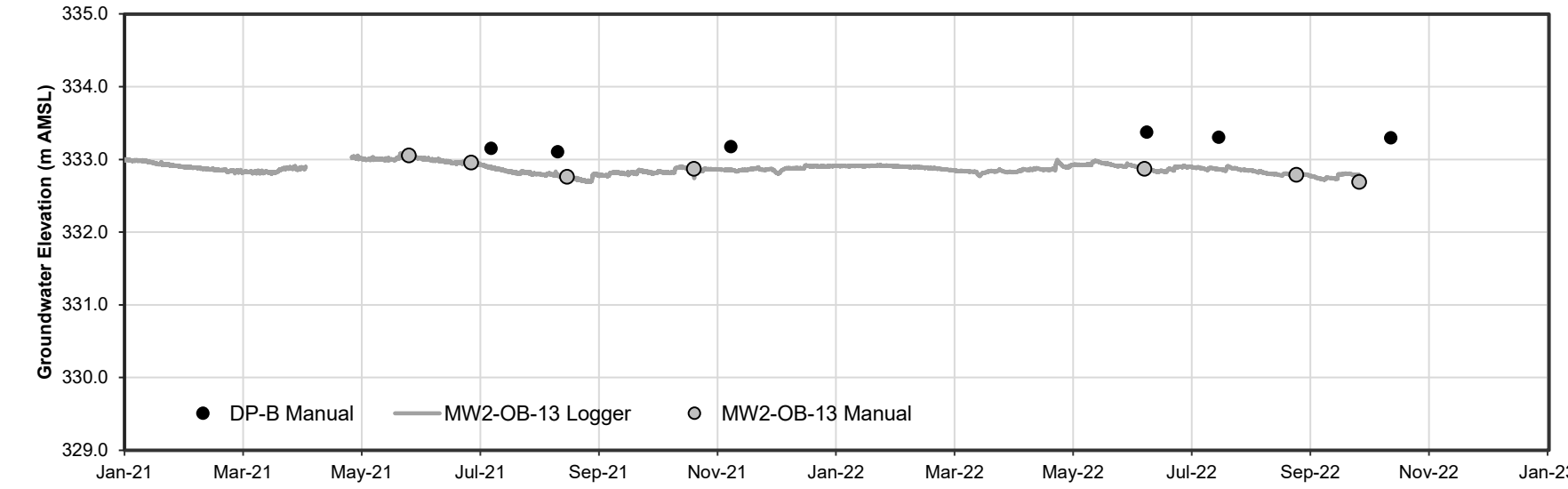
B -3-4

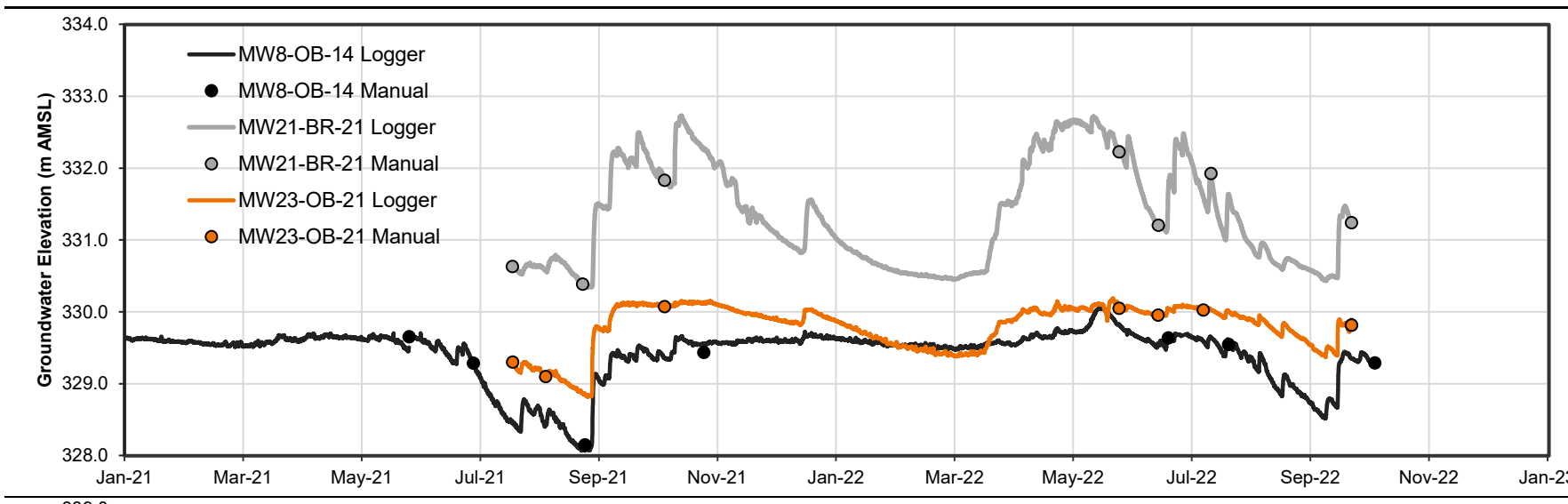
Title

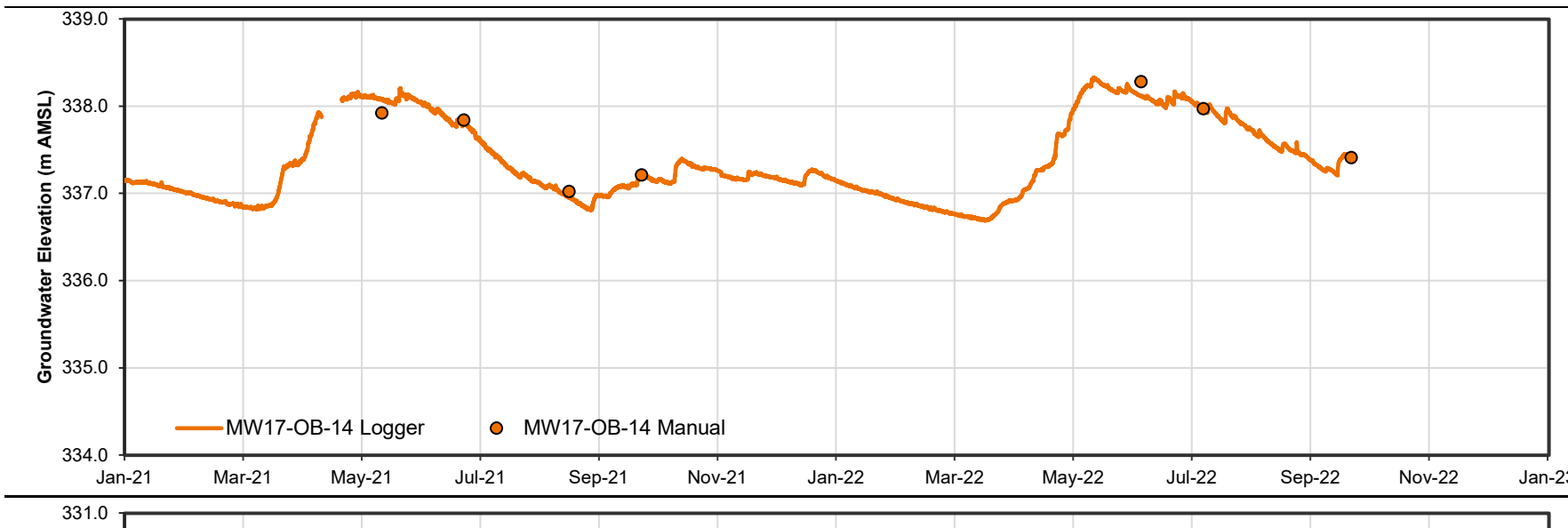
Hydrographs

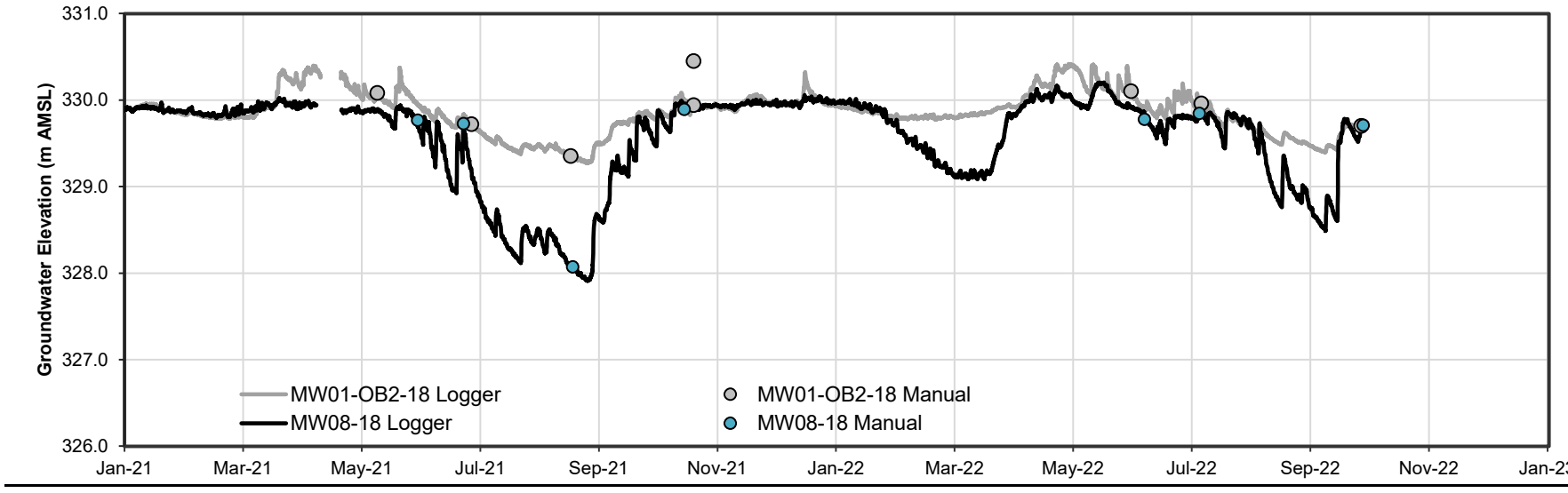
Stantec

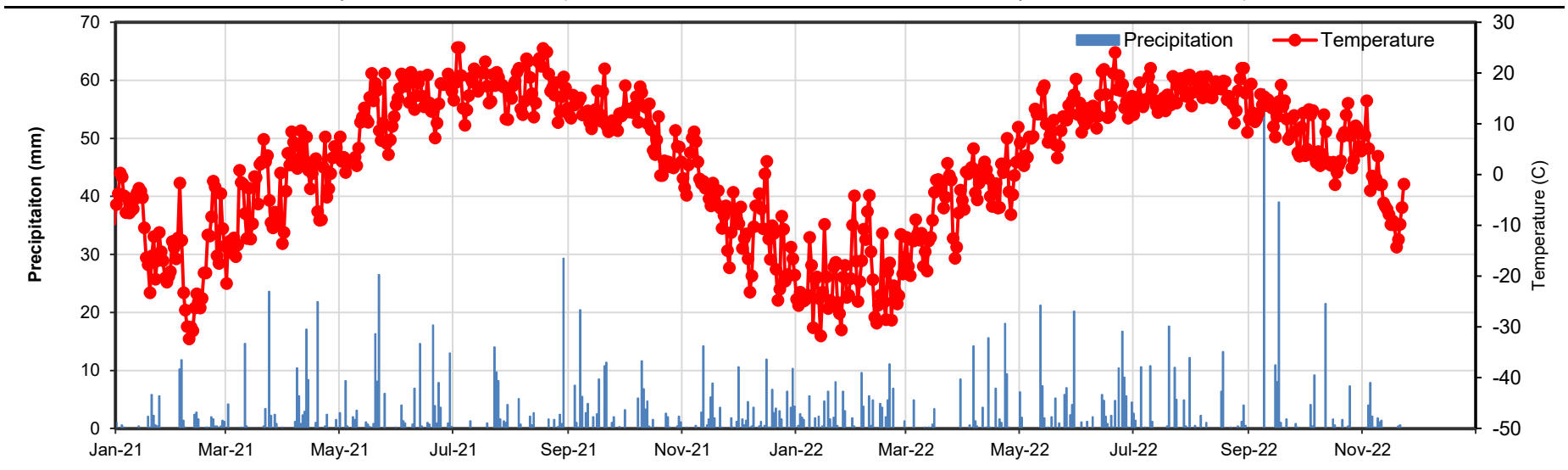
\\ca0004-ppfss04\WORK_GROUP\01609\active\160961397\03_data\field\Hydrogeology\loggers\corrected figures\2022 Fish Report Figures\Fig E-1 E-2_ Hydrographs.xlsx











Notes:

'Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

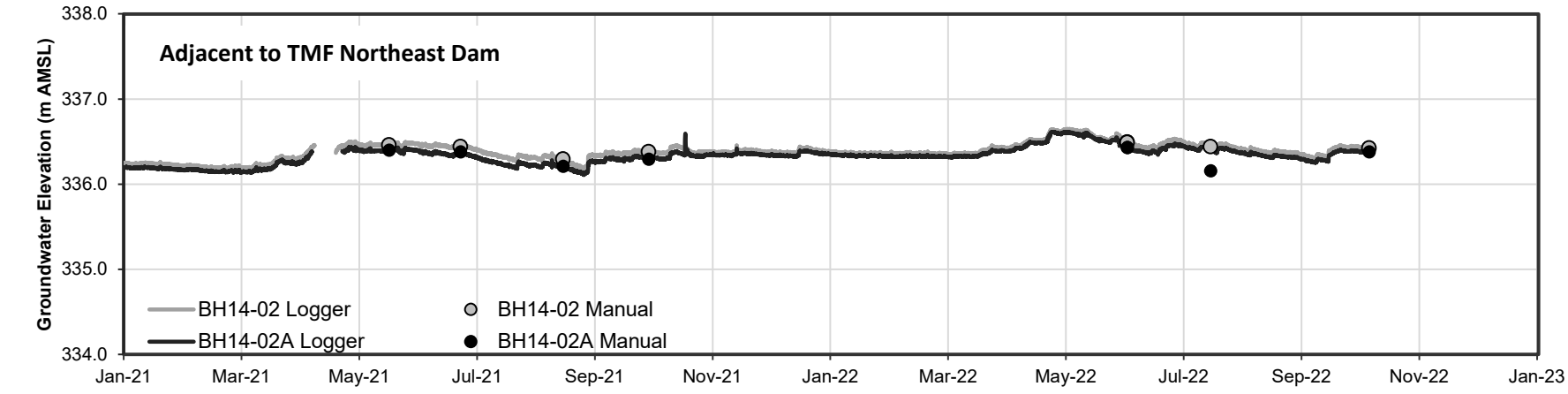
Figure No.

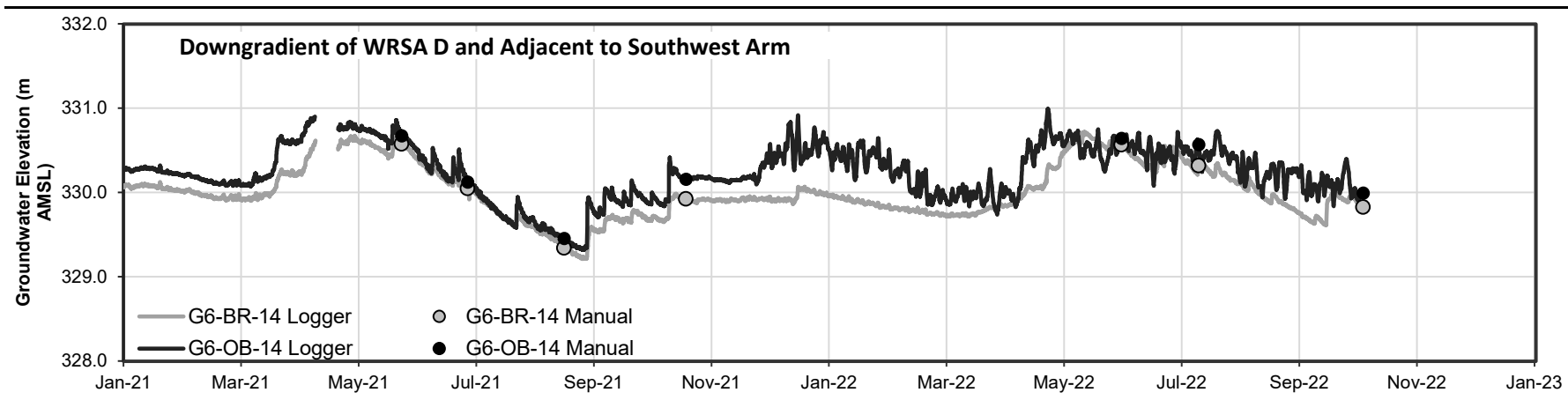
B -3-5

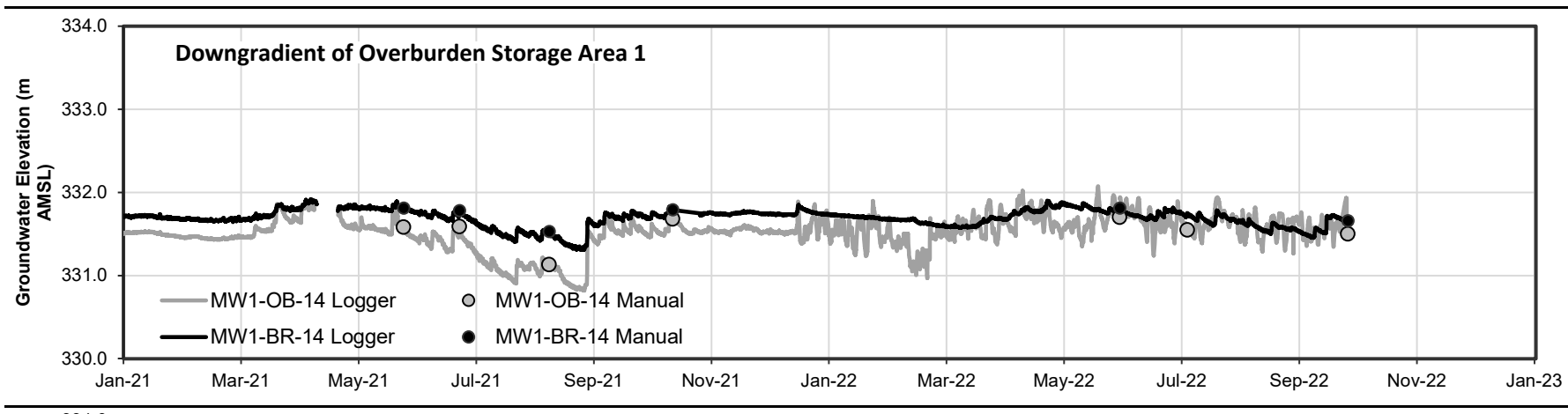
Title

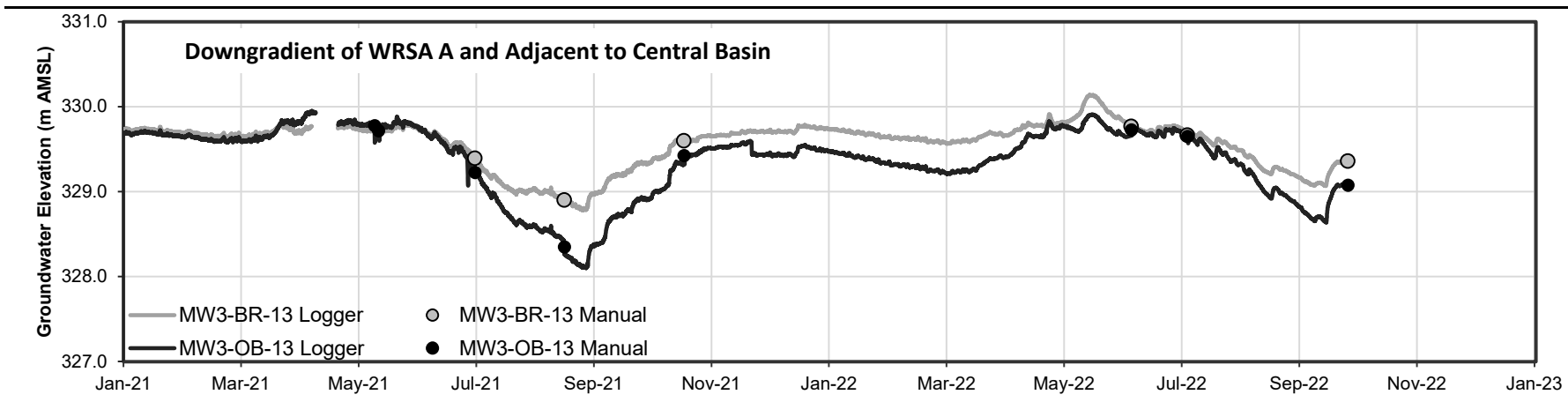
Hydrographs

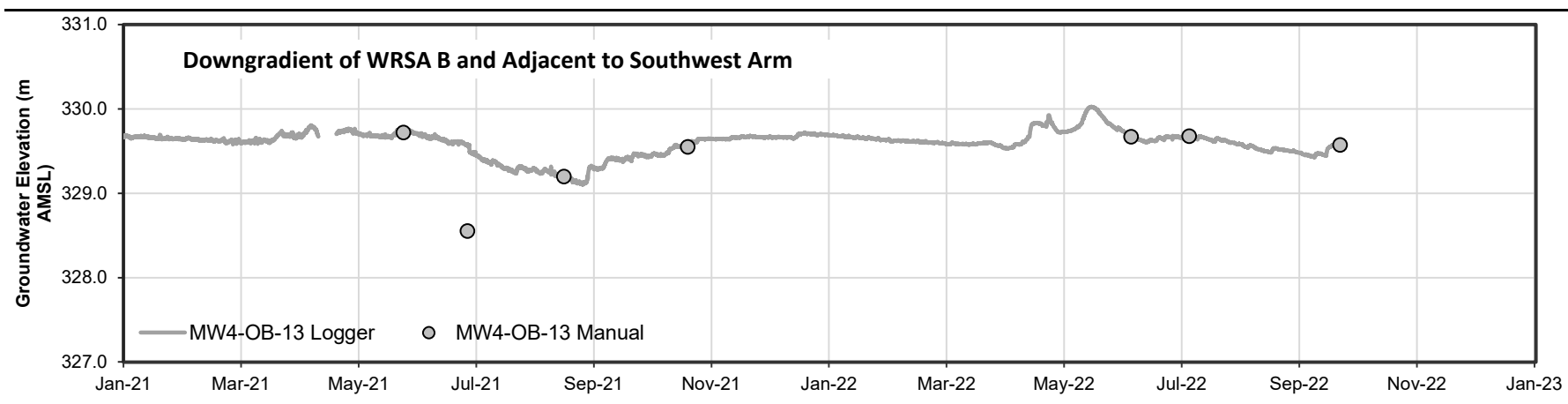
Stantec

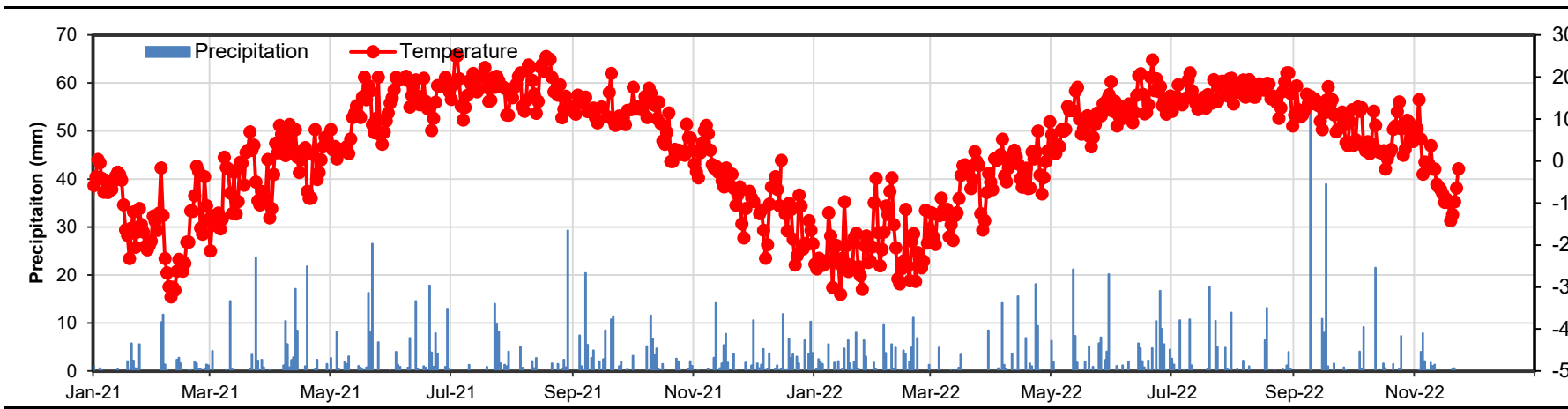












Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

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2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-6

Title

Hydrographs

Stantec

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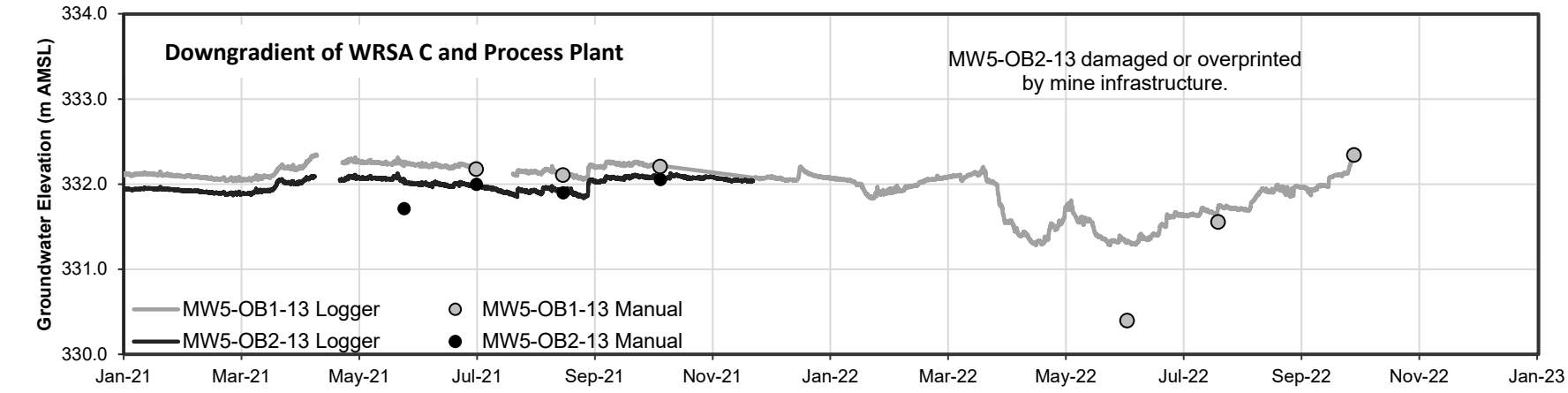

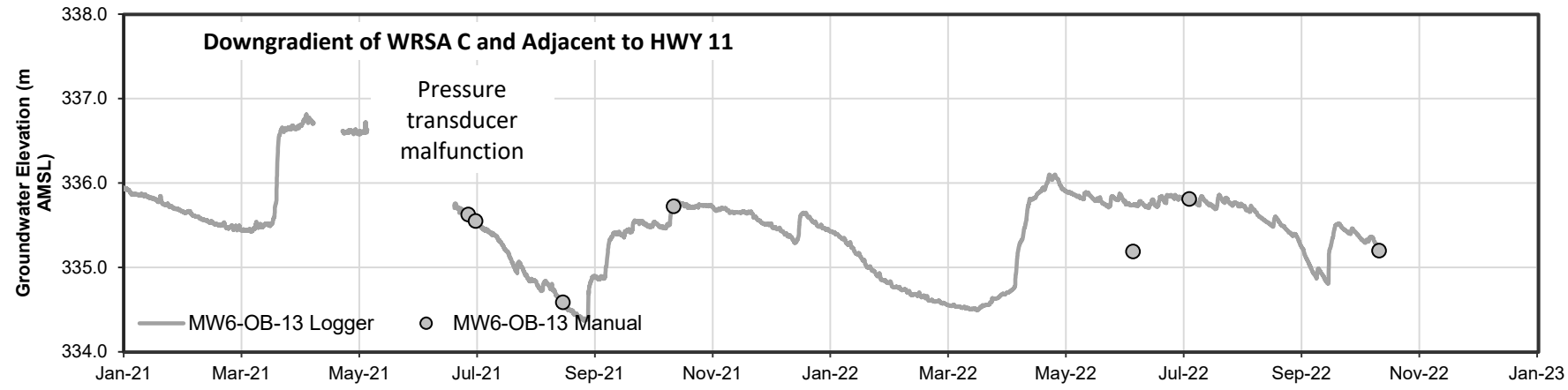

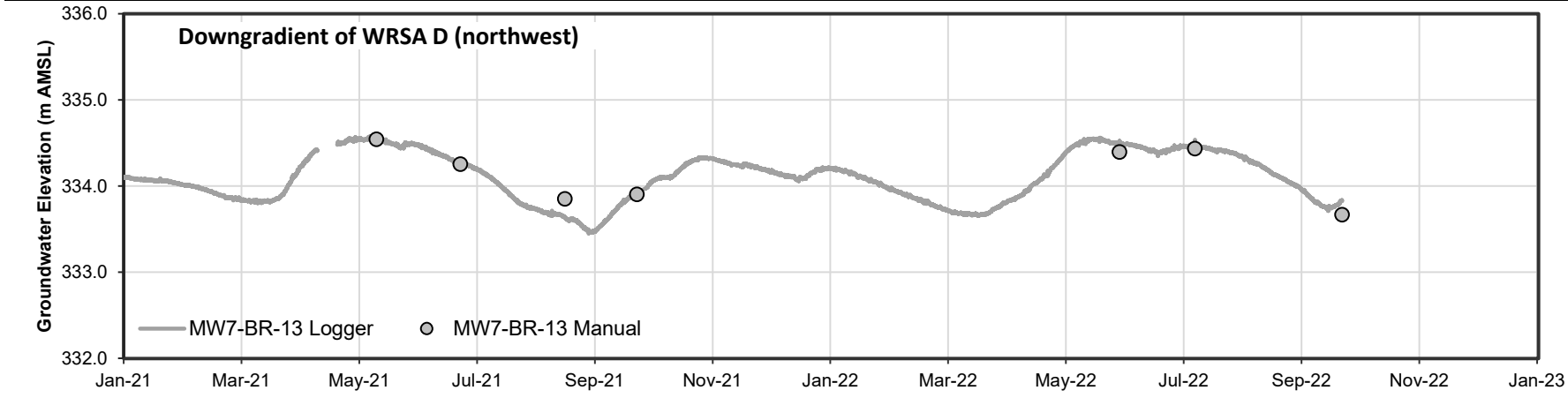

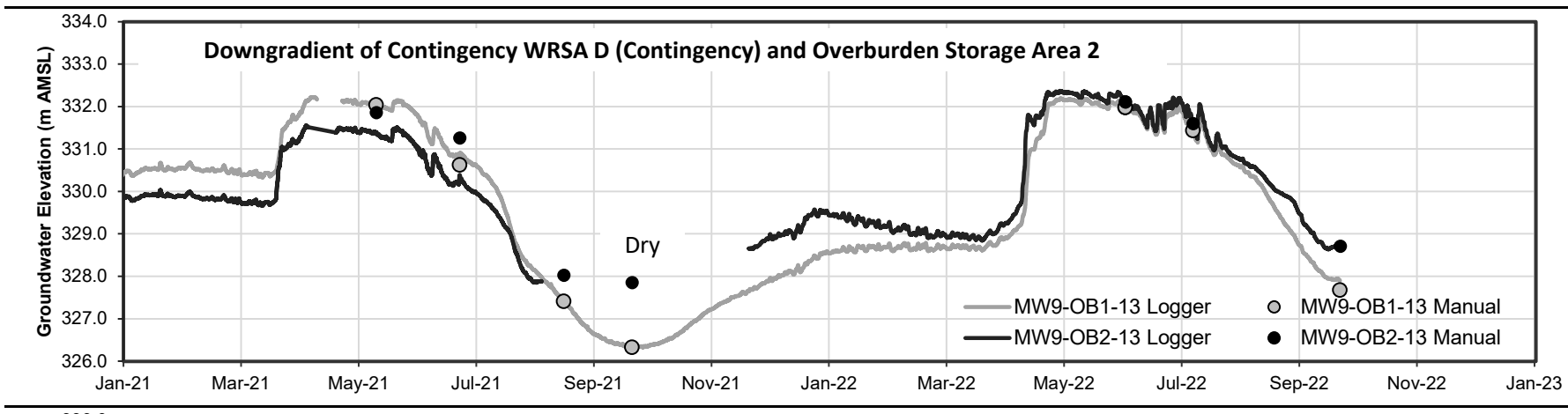

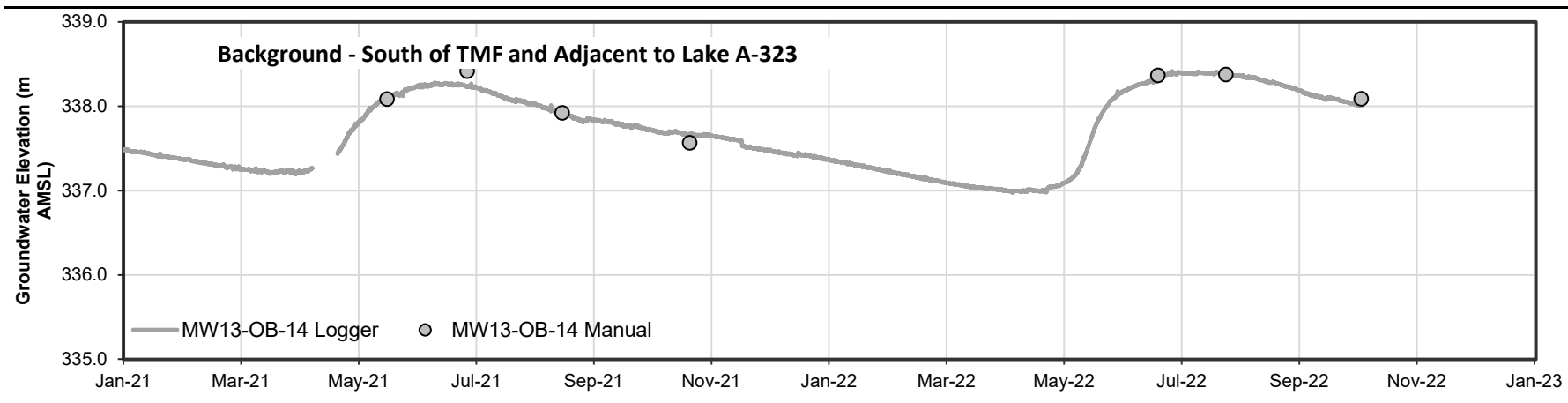

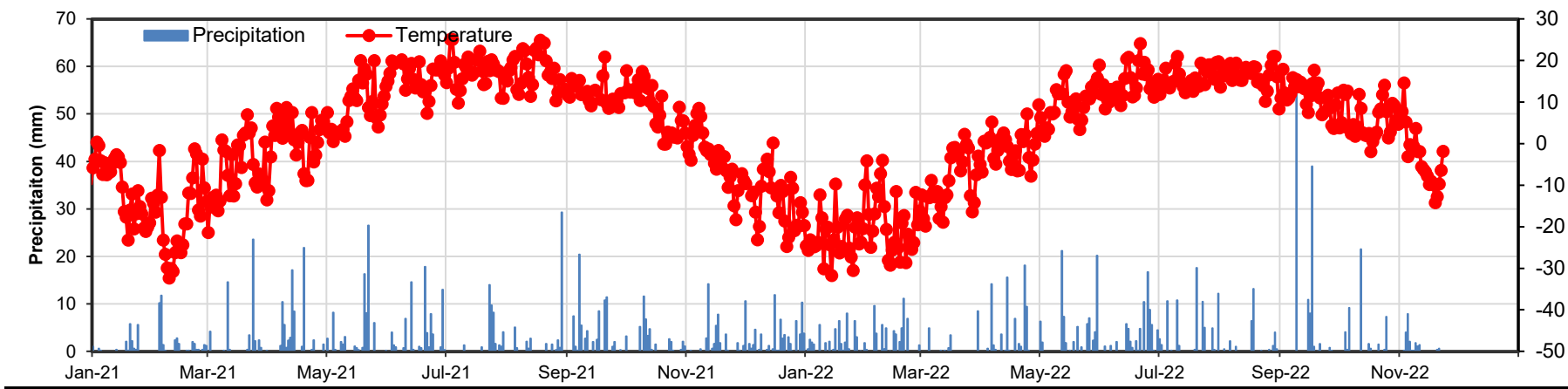

Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-7

Title

Hydrographs

Stantec

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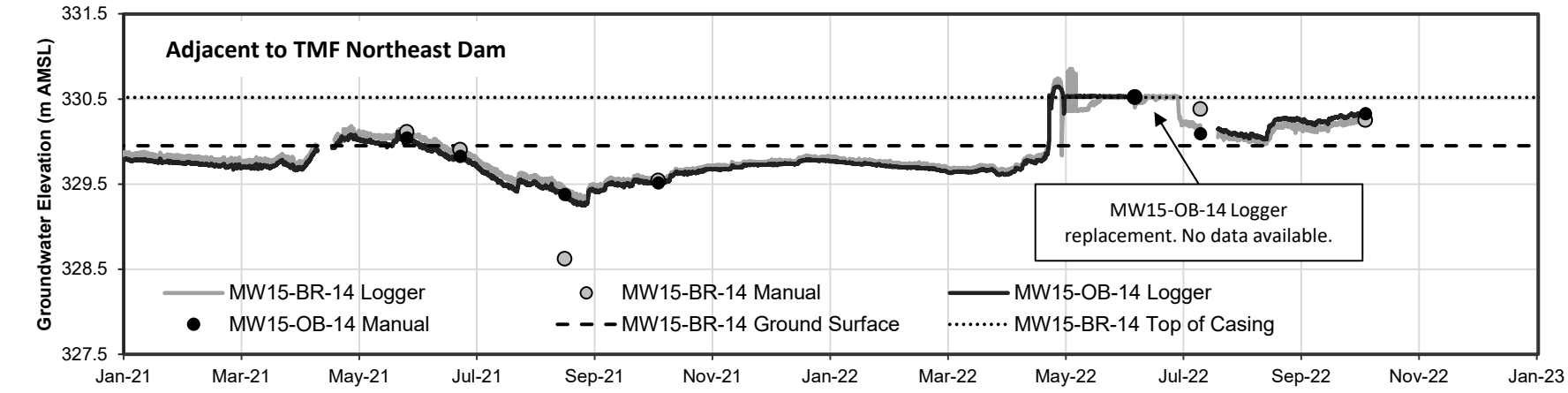

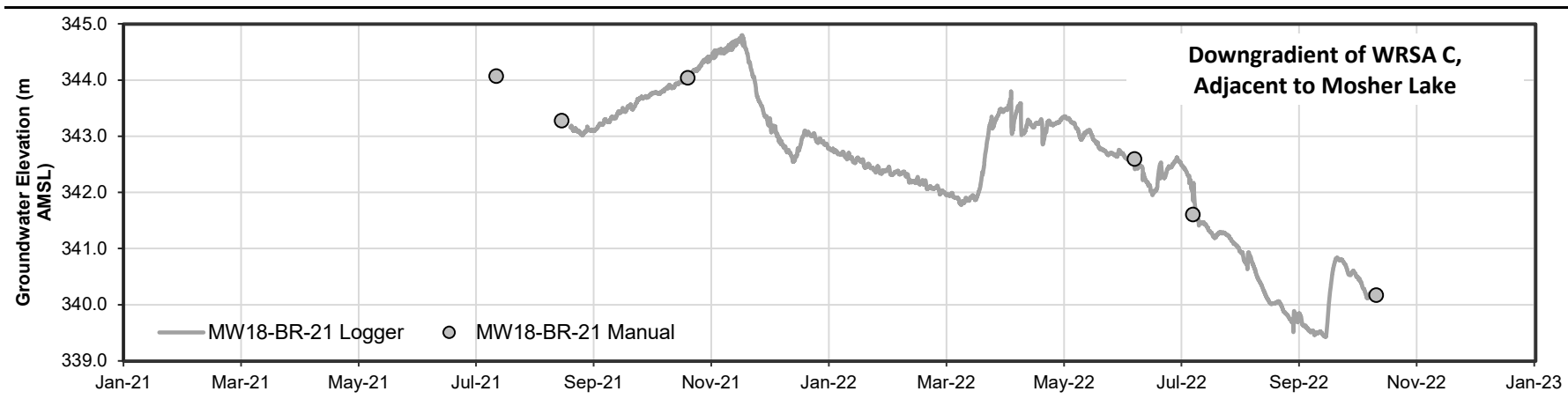

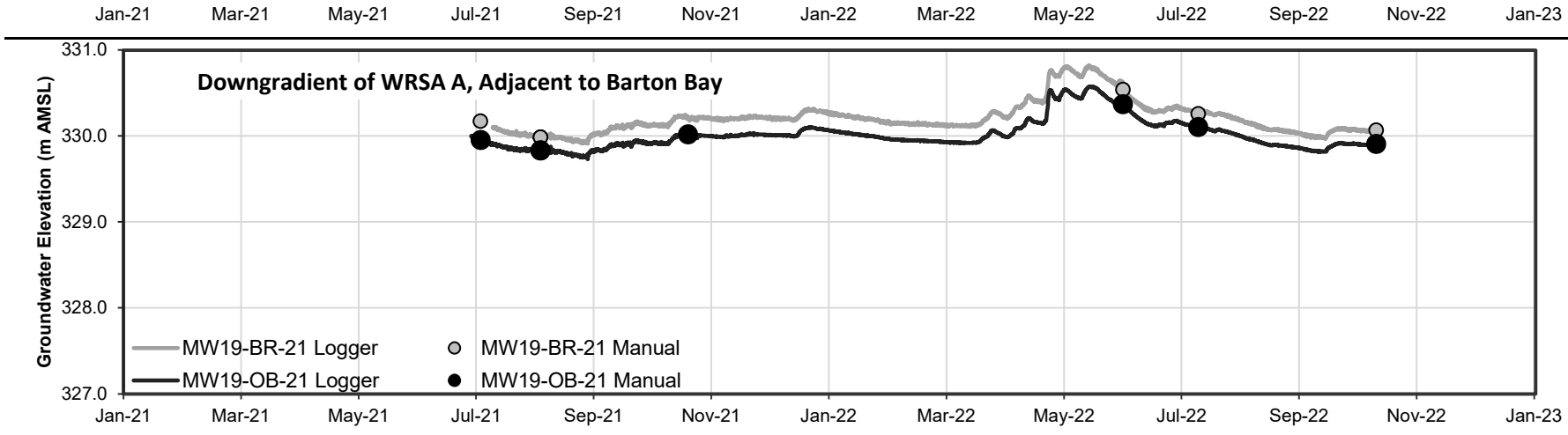

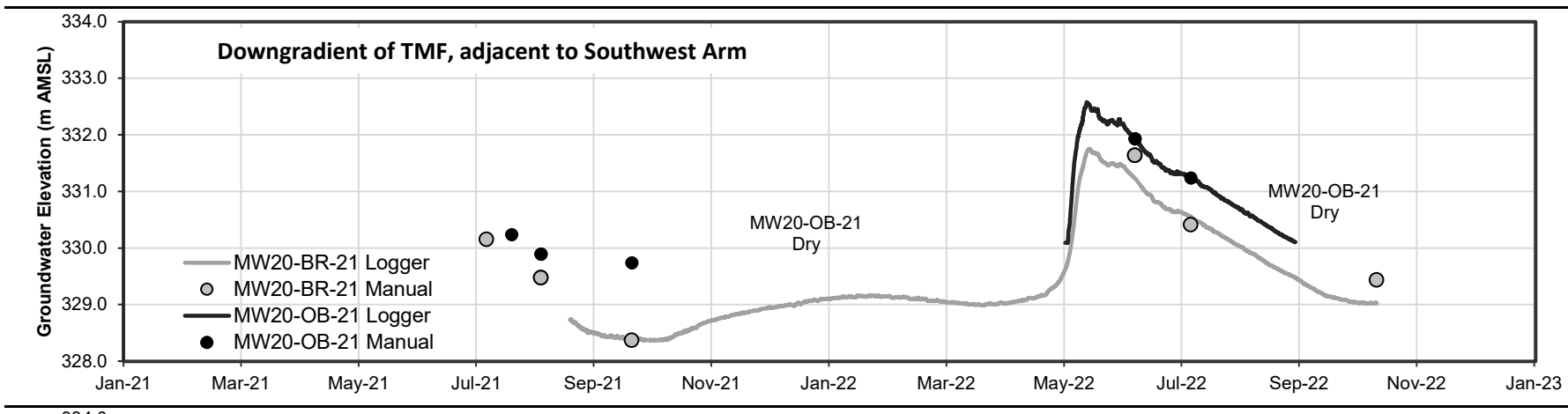

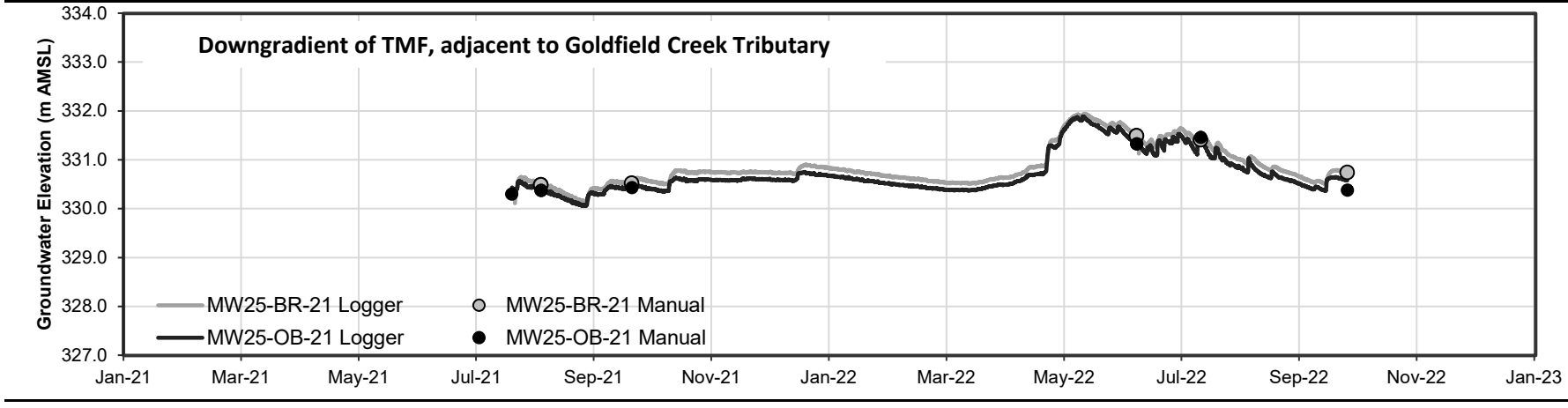

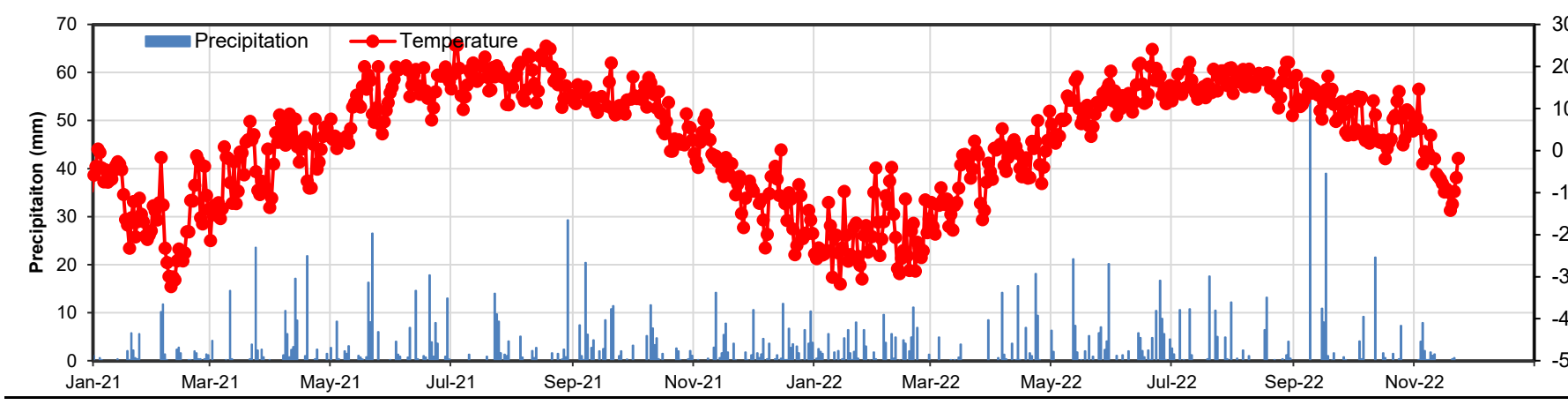

Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-8

Title

Hydrographs

Stantec

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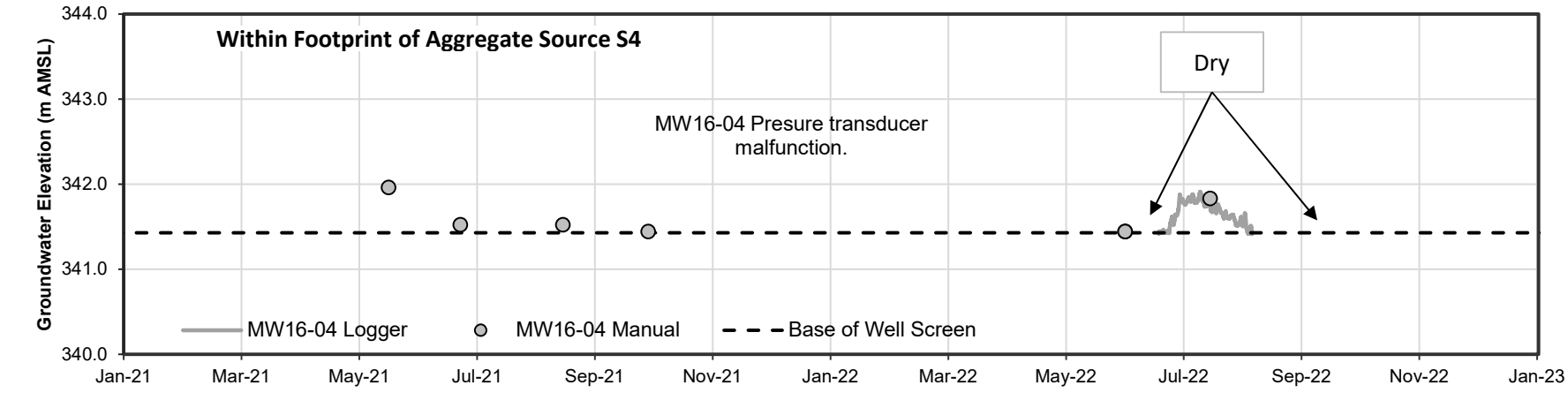

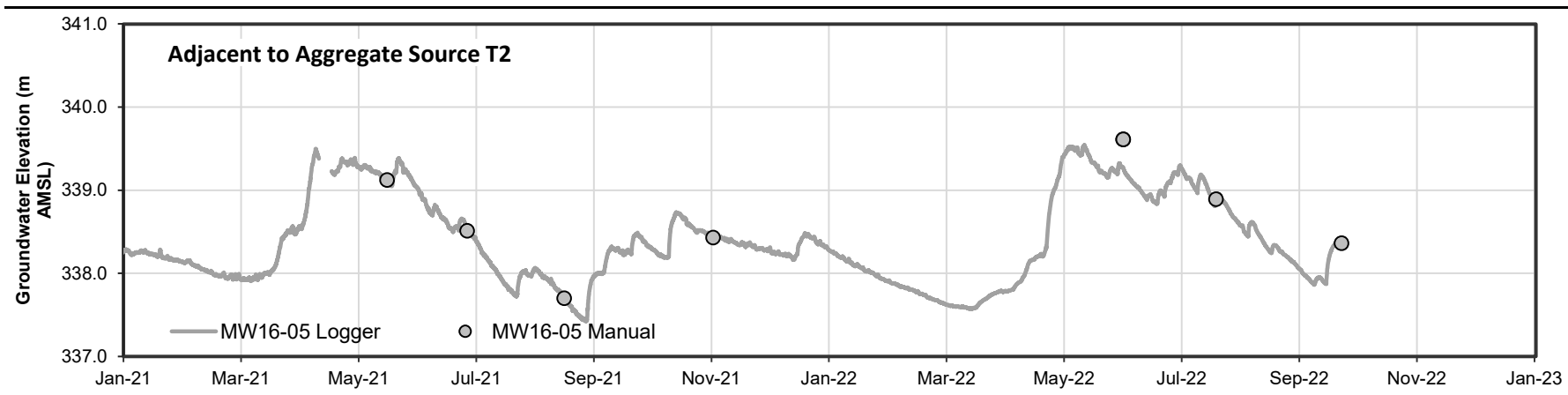

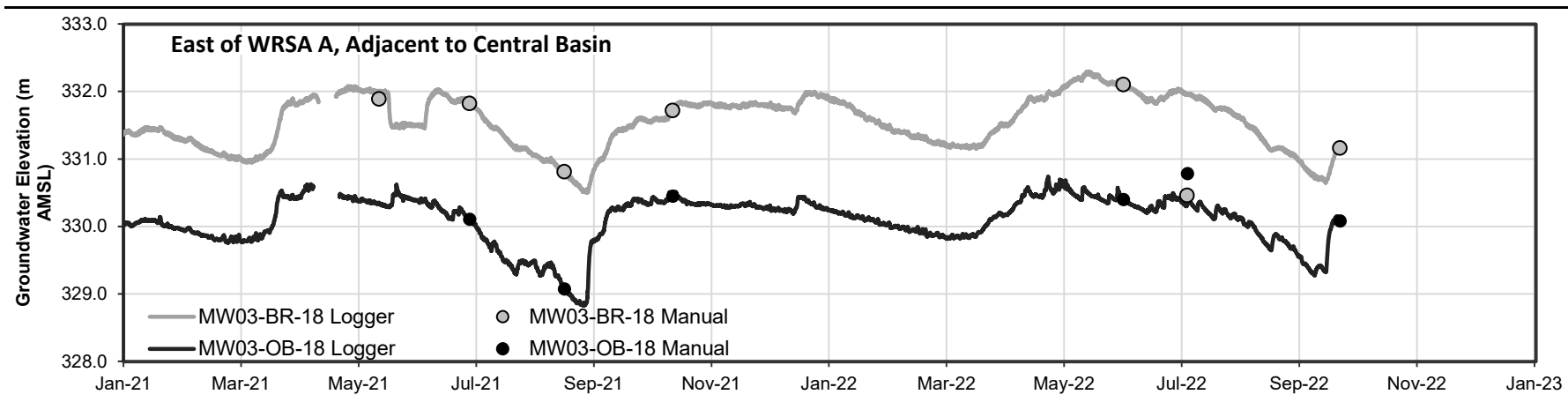

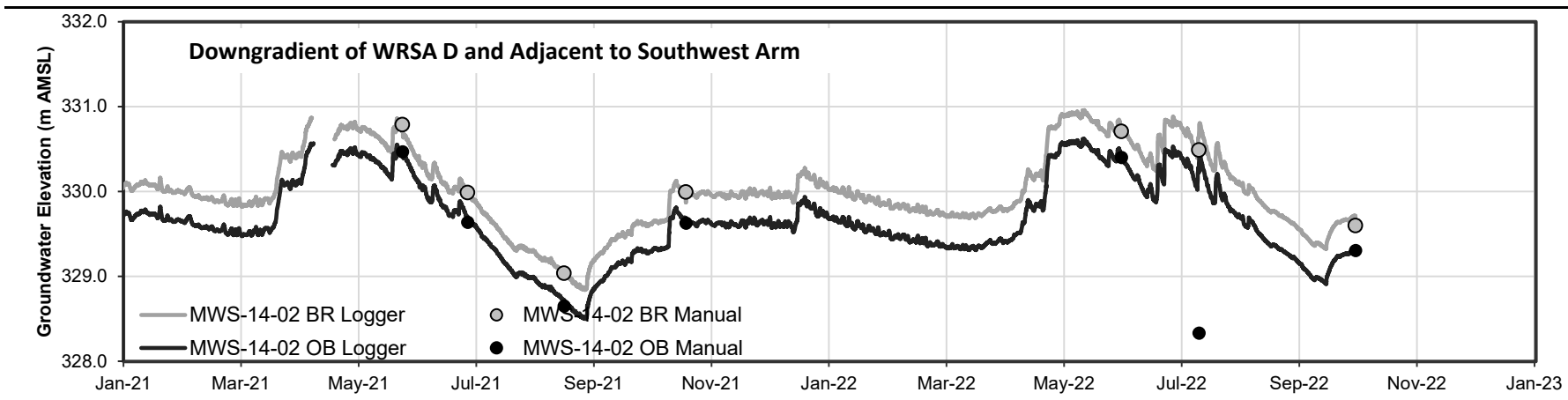

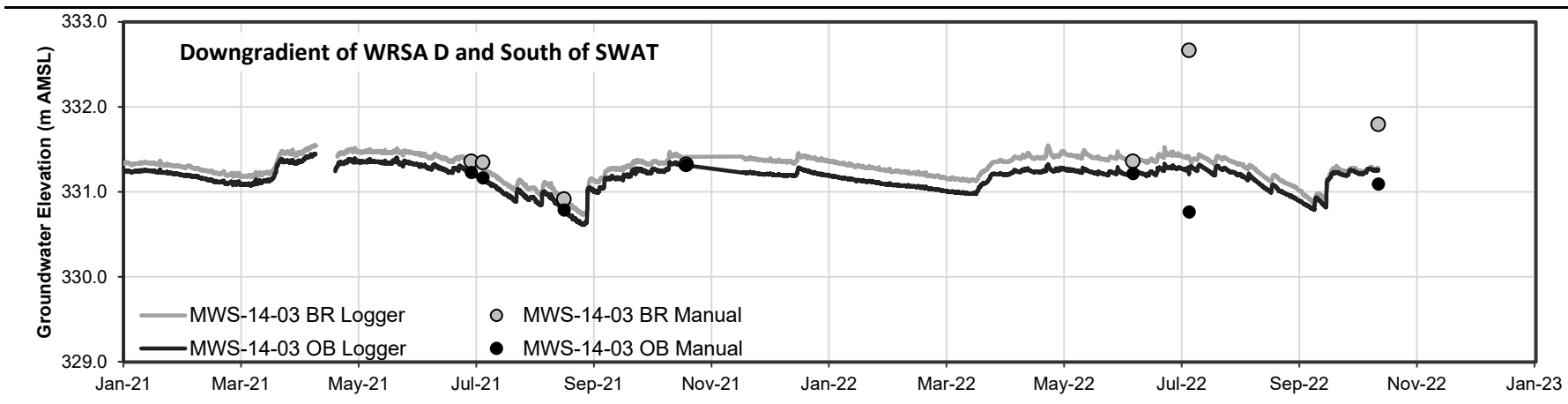

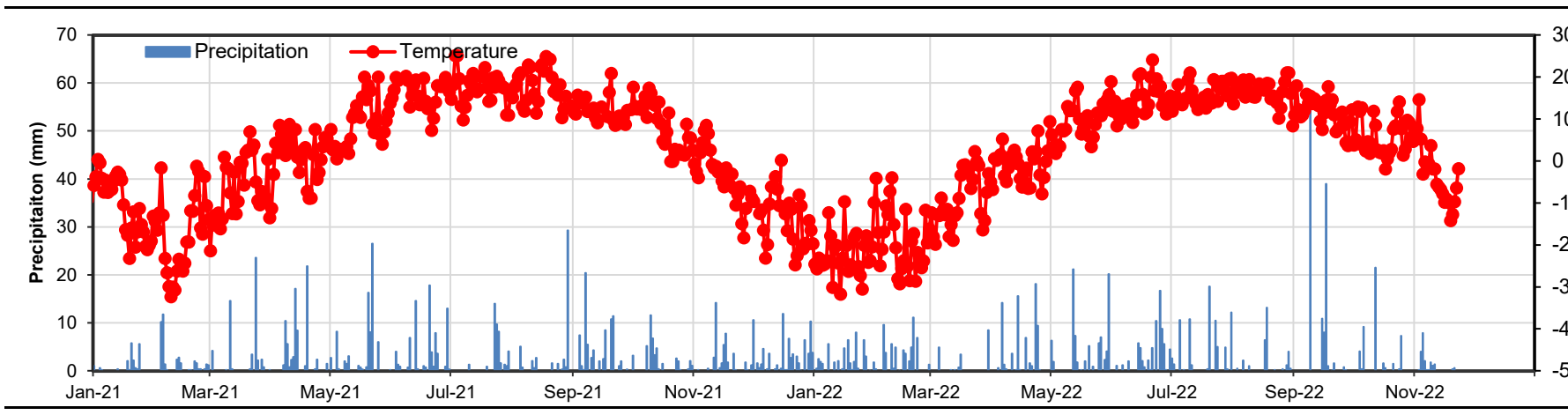

Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-9

Title

Hydrographs

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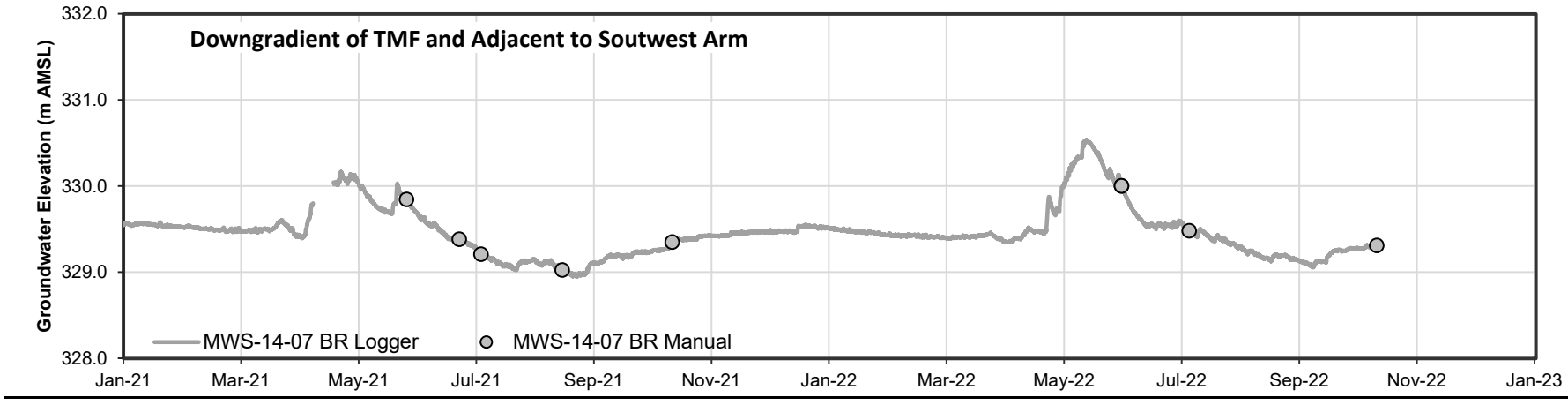
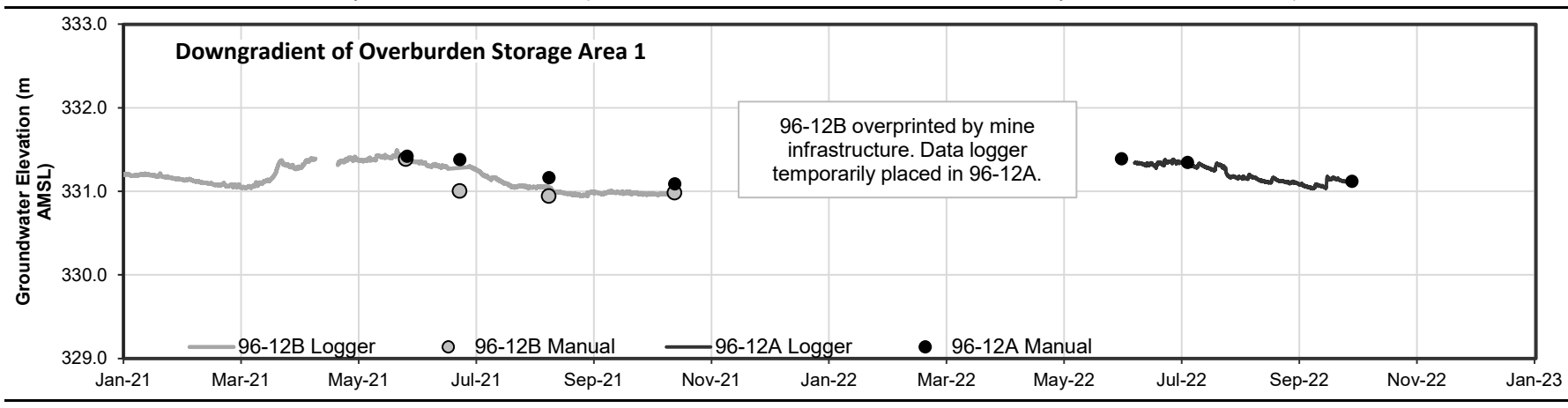
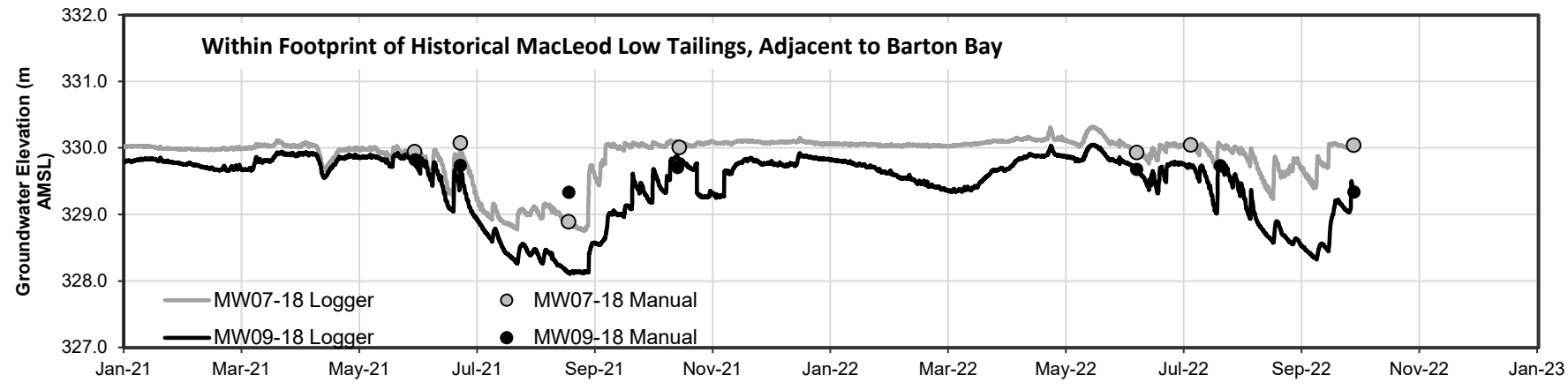
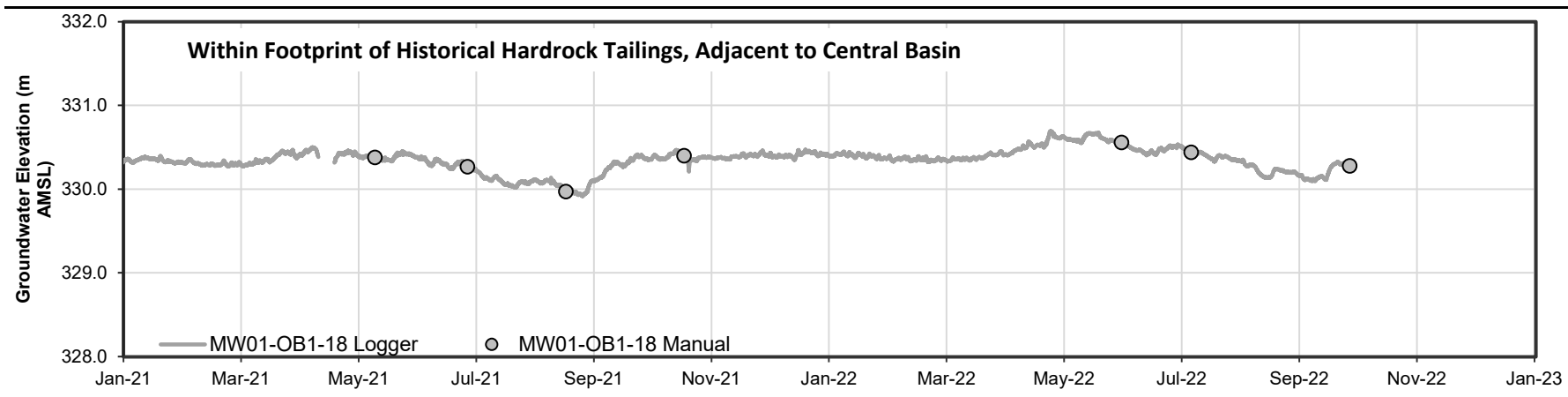
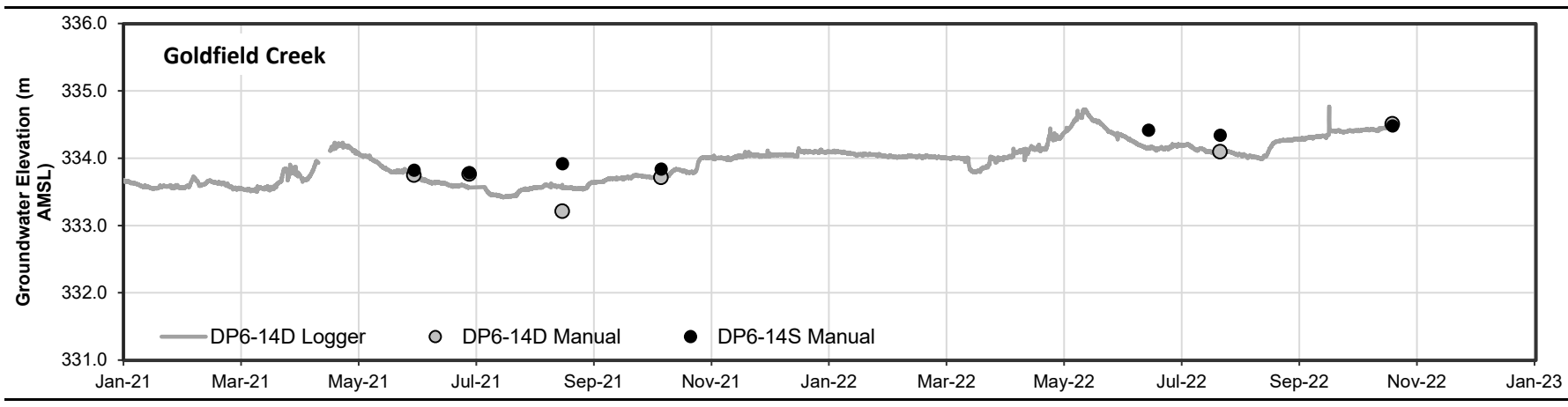
\\ca0004-ppfss04\WORK_GROUP\01609\active\160961397\03_data\field\Hydrogeology\loggers\corrected figures\2022 Fish Report Figures\Fig E-5__to_E-8_Hydrographs.xlsx

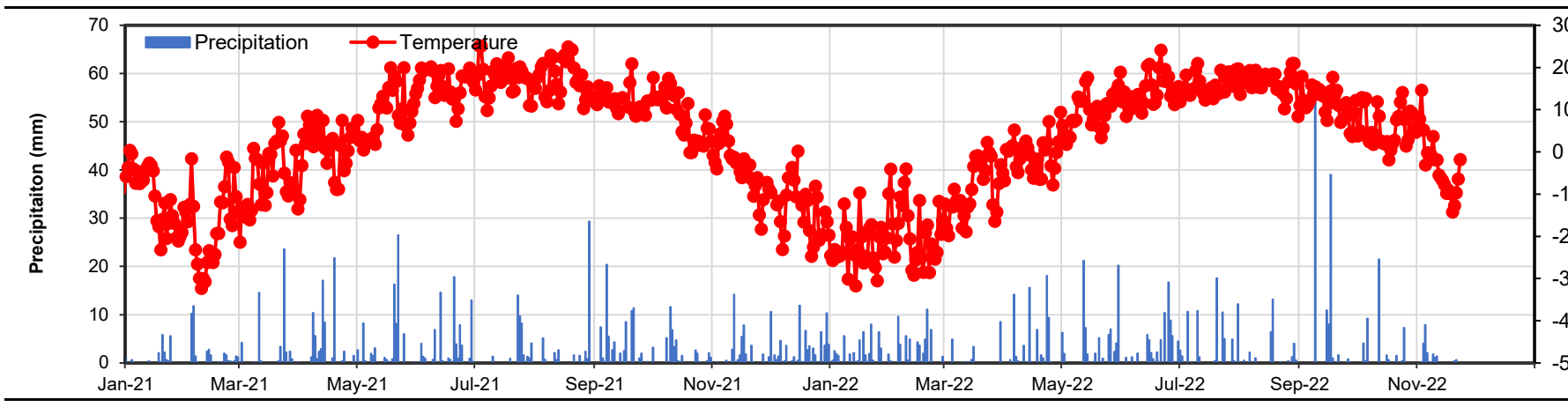












Notes:

Error in barologger. Data from mid-April 2021 removed.
Climate data obtain from the Environment Canada Website: Station Geraldton A

Client/Project

2022 Fish and Fish Habitat
Federal EIS Follow-Up Monitoring Report
Greenstone Project

Figure No.

B -3-10

Title

Hydrographs

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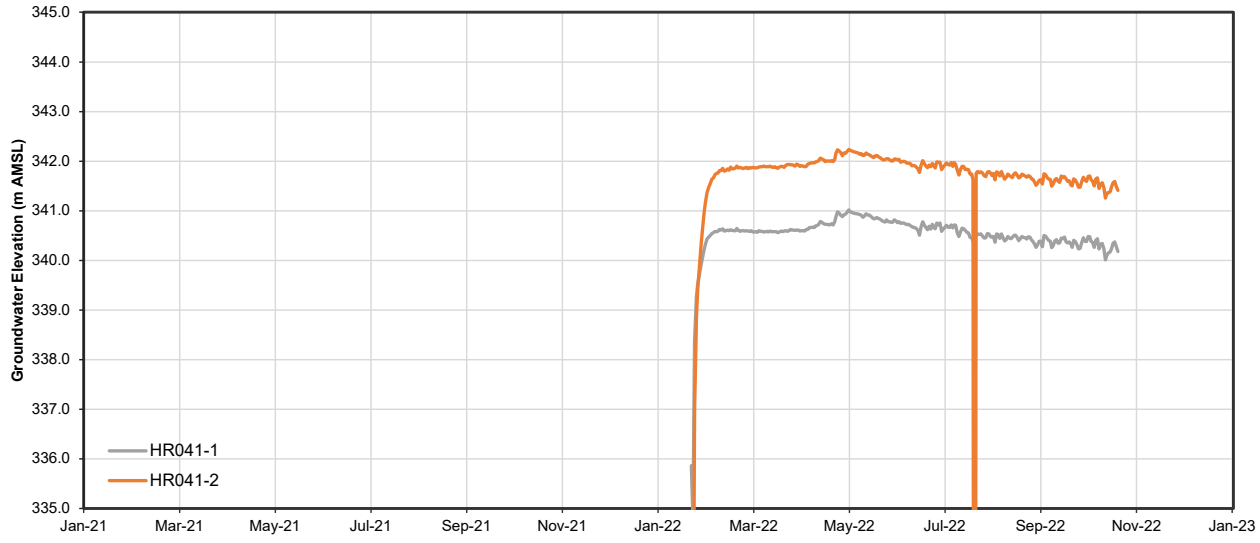

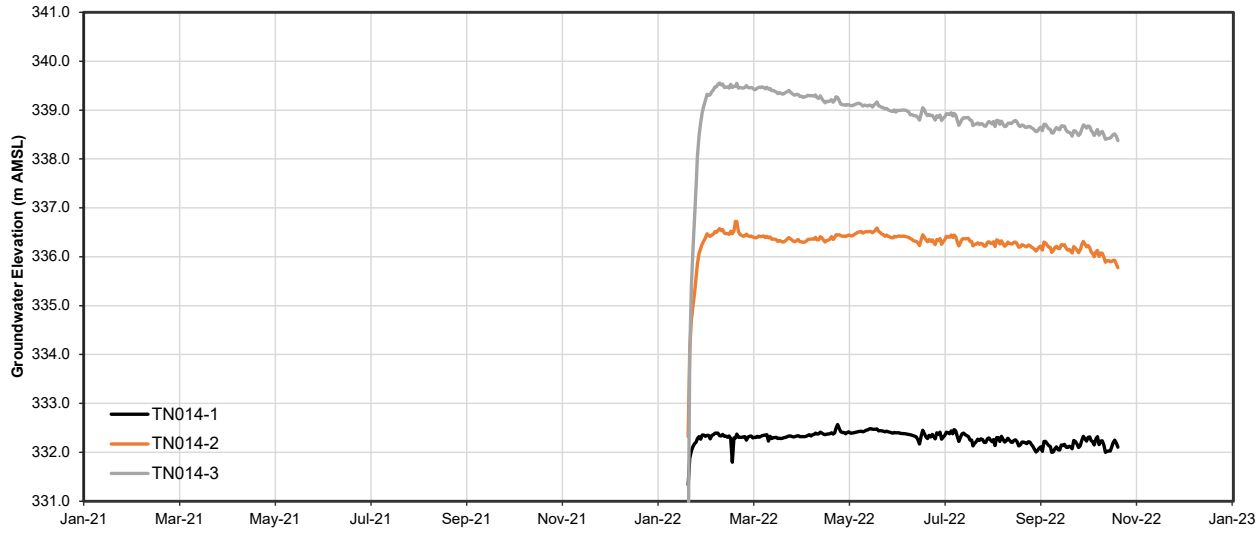

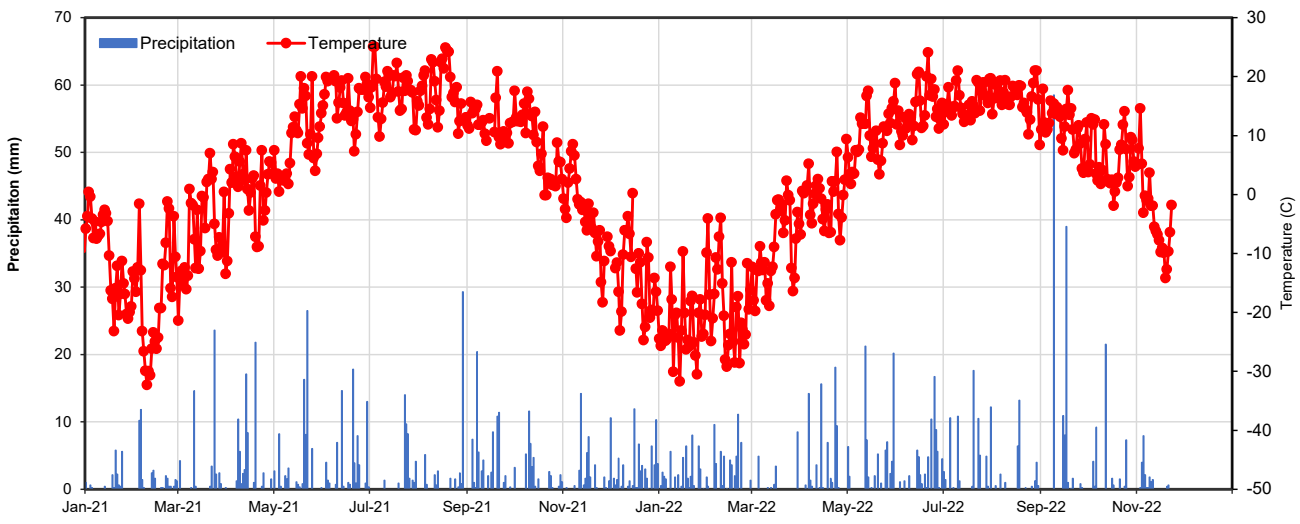

Notes:

Climate data obtain from the Environment Canada Website: Station Geraldton A

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2022 Fish and Fish Habitat
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Greenstone Project

Figure No.

B -3-11

Title

VWP Hydrographs

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EQUINOXGOLD
GREENSTONE GOLD MINES
AN EQUINOX GOLD / ORION JOINT VENTURE

B-4
Groundwater Quality Monitoring Data

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			96-01		96-02		96-03		96-04		96-07A1		96-07A2		96-12A		96-12B		96-14B	BH14-01		BH14-02		BH14-02A	
Sample Date			13-Oct-21	29-Sep-22	13-Oct-21	29-Sep-22	14-Oct-21	28-Sep-22	14-Oct-21	28-Sep-22	15-Oct-21	28-Sep-22	15-Oct-21	28-Sep-22	13-Oct-21	28-Sep-22	13-Oct-21	13-Oct-21	15-Oct-21	29-Sep-21	21-Sep-22	29-Sep-21	6-Oct-22	29-Sep-21	6-Oct-22
Sample ID			96-01	GGM	96-02	GGM	96-03	GGM	96-04	GGM	96-07A1	GGM	96-07A2	GGM	96-12A	GGM	96-12B	DUPLICATE 4	96-14B	BH14-01	BH14-01	BH14-02	BH14-02	BH14-02A	BH14-02A
Sampling Company			GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK	GGM	GGM	GGM	GGM	TESTMARK	GGM	TESTMARK	GGM	TESTMARK
Laboratory			ALS	478503	ALS	478503	ALS	478411	ALS	478411	ALS	478411	ALS	478411	ALS	478411	ALS	ALS	ALS	ALS	477744	ALS	479283	ALS	479283
Laboratory Work Order			L2651223	1806192	L2651223	1806193	L2651924	1805808	L2651924	1805807	L2652286	1805802	L2652286	1805803	L2651223	1805809	L2651223	L2651223	L2652286	L2645971	1803188	L2645971	1809508	L2645971	1809509
Laboratory Sample ID			L2651223-1		L2651223-2		L2651924-2		L2651924-1		L2652286-4		L2652286-5		L2651223-3		L2651223-4	L2651223-5	L2652286-3	L2645971-1		L2645971-2		L2645971-3	
Sample Type	Units	MOE APV																Field Duplicate							
General Chemistry																									
Acidity as CaCO3	mg/L	n/v	96	31	96	51	95	27	92	57	91	59	89	76	95	56	99	98	<50	<2.0	19	<2.0	24	<2.0	18
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	557	236	502	333	318	263	449	299	265	228	298	259	810	350	443	443	382	252	184	182	275	190	240
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	<2.0	<1	<2.0	<1	<2.0	<1	<2.0	<1	<2.0	<1	<2.0	<1	<2.0	<2.0	<2.0	<2.0	<1	<2.0	<1	<2.0	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00447	<2.0	0.00276	<2.0	0.00603	<2.0	0.00276	<2.0	0.00204	<2.0	0.00152	<2.0	0.00257	<2.0	<2.0	<2.0	<2.0	0.00677	<2.0	0.00389	<2.0	0.00525
Alkalinity, Total (as CaCO3)	mg/L	n/v	557	237	502	334	318	264	449	299	265	228	298	259	810	351	443	443	382	252	185	182	276	190	241
Ammonia (as N)	mg/L	n/v	3.30	1.67	0.653	0.19	0.941	0.87	1.78	0.44	1.59	0.4	0.717	0.48	1.11	1.11	1.61	1.70	2.13	0.113	0.08	0.0456	0.03	0.0727	<0.01
Chloride	mg/L	180[A]	6.88	3	6.7	3	51.5	42	6.1	5.6	5.5	3	4.3	<2	6.8	5	7.5	7.5	21.4	0.86	-	0.40	2.2	0.60	1.4
Cyanide	mg/L	0.0052[A]	**0.0291[A]**	**0.036[A]**	**0.0747[A]**	**0.026[A]**	**0.0337[A]**	**0.063[A]**	**0.0271[A]**	**0.047[A]**	**0.0471[A]**	**0.018[A]**	**0.0133[A]**	**0.015[A]**	**0.0303[A]**	**0.058[A]**	**0.0233[A]**	**0.0271[A]**	**0.0171[A]**	<0.0020	**0.009[A]**	<0.0020	**0.039[A]**	<0.0020	**0.01[A]**
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.0020	<0.001	0.0025	0.001	<0.0020	<0.001	<0.0020	<0.001	<0.0020	0.018	<0.0020	<0.001	<0.0020	<0.0020	0.0028	<0.0020	0.075	<0.0020	0.001	<0.0020	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	3,030	3,080	3,140	2,980	2,670	2,560	3,050	2,420	3,040	3,050	3,100	3,120	2,970	2,960	3,030	3,020	1,600	417	404	314	578	354	524
Fluoride	mg/L	n/v	0.13	<0.5	<0.40 DLDS	<0.5	<0.40 DLDS	<0.5	<0.40 DLDS	<0.2	<0.40 DLDS	<0.5	<0.40 DLDS	<0.5	<0.40 DLDS	<0.5	<0.40 DLDS	<0.40 DLDS	0.11	0.042	-	0.056	<0.05	0.068	<0.05
Hardness (as CaCO3)	mg/L	n/v	1,920	5,530	2,120	2,860	1,540	1,720	1,890	2,750	2,070	2,420	2,170	2,430	1,950	2,190	1,920	1,930	881	218	172	157	336	151	286
Nitrate (as N)	mg/L	n/v	<0.10 DLHC	<0.2	<0.40 DLDS	<0.2	<0.40 DLDS	<0.2	<0.40 DLDS	<0.08	<0.40 DLDS	<0.2	<0.40 DLDS	<0.2	<0.40 DLDS	<0.2	<0.40 DLDS	<0.40 DLDS	<0.10 DLDS	<0.020	-	<0.020	<0.02	<0.020	<0.02
Nitrite (as N)	mg/L	n/v	<0.050 DLHC	<0.1	<0.20 DLDS	<0.1	<0.20 DLDS	<0.1	<0.20 DLDS	<0.04	<0.20 DLDS	<0.1	<0.20 DLDS	<0.1	<0.20 DLDS	<0.1	<0.20 DLDS	<0.20 DLDS	<0.050 DLDS	<0.010	-	<0.010	<0.01	<0.010	<0.01
pH, lab	S.U.	n/v	7.41	7.42	6.95	7.21	7.97	7.55	7.72	7.21	7.87	7.08	7.37	6.95	6.96	7.18	6.92	6.98	7.95	8.07	7.6	7.77	7.36	7.92	7.49
Phosphorus, Total	mg/L	n/v	2.24	3.66	6.00	1.52	0.0323	0.024	7.23	7	3.78	3	7.71	4.25	3.81	0.008	4.52	3.20	0.217	0.0040	-	0.0549	0.013	0.0121	<0.001
Sulfate	mg/L	n/v	1,760	1,710	1,940	1,550	1,360	1,170	1,720	1,260	1,900	1,740	1,860	1,690	1,680	1,480	1,760	1,760	559	1.02	-	3.84	<0.3	17.3	<0.3
Total Dissolved Solids	mg/L	n/v	2,840	3,170	3,090	2,960	2,280	2,710	2,850	2,700	2,680	3,150	2,930	3,380	2,830	3,030	2,900	2,880	1,220	244	265	185	360	210	345
Total Kjeldahl Nitrogen	mg/L	n/v	3.21	<1	2.3	<1	2.94	<1	2.15	<1	1.64	<1	1.35	<1	2.04	<1	2.01	2.38	2.21	0.314	-	0.226	<1	0.185	<1
Total Suspended Solids	mg/L	n/v	3,870	6,190	14,900	3,490	12.4	22	703	1,600	4,740	708	250	144	8,520	1,020	234	268	191	3.9	7.67	104	119	10.5	25.7
Turbidity, Lab	NTU	n/v	>4000 TMV	6.8	>4000 TMV	23.8	45.3	3.3	712	8.7	>4000 TMV	15.9	429	20.5	>4000 TMV	21.5	327	346	135	1.80	-	36.1	49	7.74	6.5
Metals																									
Aluminum	µg/L	n/v	321	<10	20	3	<10 DLM	4	109	23	15	2	<10 DLHC	2	82	<1	<10 DLM	12	11	3.4	4	6.8	8	6.6	11
Antimony	µg/L	1,600[A]	<1 DLM	<1	<1 DLM	0.6	<1 DLM	<0.1	<1 DLHC	0.8	<1 DLHC	0.3	<1 DLHC	0.3	<1 DLM	<0.1	<1 DLM	<1 DLM	<1 DLHC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	3.3	8	**5,040[A]**	**4,940[A]**	17.7	12.6	**11,600[A]**	**14,100[A]**	**7,740[A]**	**9,890[A]**	**19,700[A]**	**18,800[A]**	**5,750[A]**	**936[A]**	**12,800[A]**	**12,700[A]**	91.8	6.08 DTC	3.3	13.3	15.9	13.5	8.5
Barium	µg/L	2,300[A]	24.6	20	17	16.6	29.7	29.6	18.3	17.6	12.2	14.8	12	12.8	122	86.9	103	103	40.8	14.3	6.4	6.3	13.5	15.8	9.2
Beryllium	µg/L	5.3[A]	<0.2 DLM	<0.2	<0.2 DLM	<0.02	<0.2 DLM	<0.02	<0.2 DLHC	0.16	<0.2 DLHC	<0.02	<0.2 DLHC	<0.02	<0.2 DLM	<0.02	<0.2 DLM	<0.2 DLM	<0.2 DLHC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.5 DLM	<0.5	<0.5 DLM	<0.05	<0.5 DLM	<0.05	<0.5 DLHC	<0.05	<0.5 DLHC	<0.05	<0.5 DLHC	<0.05	<0.5 DLM	<0.05	<0.5 DLM	<0.5 DLM	<0.5 DLHC	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	<100 DLM	30	<100 DLM	37	<100 DLM	<2	130	84	<100 DLHC	68	<100 DLHC	50	<100 DLM	42	<100 DLM	<100 DLM	<100 DLHC	<10	<2	<10	<2	<10	<2
Cadmium	µg/L	0.21[A]	<0.05 DLM	<0.05	<0.05 DLM	0.03	<0.05 DLM	0.01	<0.05 DLHC	<0.005	<0.05 DLHC	0.04	<0.05 DLHC	0.04	<0.05 DLM	0.03	<0.05 DLM	<0.05 DLM	<0.05 DLHC	<0.005	0.01	<0.005	0.06	<0.005	0.02
Calcium	mg/L	n/v	555	606	490	537	461	491	453	478	504	583	482	540	517	575	480	490	219	67.1	53.1	49.5	102	47.1	87.7
Cesium	µg/L	n/v	<0.1 DLM	<0.1	<0.1 DLM	0.04	<0.1 DLM	0.08	<0.1 DLHC	0.09	<0.1 DLHC	0.04	<0.1 DLHC	0.05	<0.1 DLM	0.05	<0.1 DLM	<0.1 DLM	6.14	0.011	0.03	0.456	0.75	0.109	0.2
Chromium	µg/L	64[A]	<1 DLM	4	<1 DLM	8	<1 DLM	0.5	<1 DLHC	2.2	<1 DLHC	2.5	<1 DLHC	2.6	<1 DLM	17.7	<1 DLM	<1 DLM	<1 DLHC	0.54 DTC	0.9	0.24	11.4	0.16	1.8
Cobalt	µg/L	5.2[A]	**9.8[A]**	**11[A]**	1.1	2.3	**21.2[A]**	**20.8[A]**	2.6	2.9	**5.7[A]**	5.1	**5.3[A]**	4.7	3.8	4.9	5	5.1	**5.5[A]**	0.18	0.3	<0.1	0.5	<0.1	0.4
Copper	µg/L	6.9[A]	<2 DLM	<2	<2 DLM	<0.2	<2 DLM	1.2	<2 DLHC	1	<2 DLHC	1	2.2	0.9	<2 DLM	0.5	<2 DLM	<2 DLM	<2 DLHC	0.52	0.3	0.4	2.4	<0.2	0.2
Iron	µg/L	n/v	2,400	4,200	46,400	60,000	4,440	6,000	32,700	45,000	55,700	66,000	49,400	71,000	32,800	550	32,100	31,300	8,020	5,040 DTC	1,150	1,410	5,100	1,310	2,070
Lead	µg/L	2[A]	<0.5 DLM	<0.5	<0.5 DLM	<0.05	<0.5 DLM	<0.05	<0.5 DLHC	0.32	<0.5 DLHC	0.2	<0.5 DLHC	<0.05	<0.5 DLM	<0.05	<0.5 DLM	<0.5 DLM	<0.5 DLHC	<0.05	<0.05	<0.05	0.07	<0.05	0.07
Lithium	µg/L	n/v	<10 DLM	10	<10 DLM	12	10	6	25	17	19	19	18	18	<10 DLM	9	<10 DLM	<10 DLM	10	<1	<1	<1	<1	4.8	<1
Magnesium	mg/L	n/v	131	134	218	233	93.2	101	185	185	197	204	235	267	160	176	176	172	80.9	12.2	9.02	8.16	16.6	8.21	14.2
Manganese	µg/L	n/v	2,830	2,650	663	695	503	501	266	191	148	157	159	167	2,010	2,030	1,460	1,440	901	242	122	406	986	444	751
Mercury	µg/L	0.77[A]	<0.005	0.0008	<0.005	0.0002	<0.005	0.0003	<0.005	0.0003	<0.005	0.0002	<0.005	0.0002	<0.005	0.0003	<0.005	<0.005	<0.005	<0.005	<0.1	<0.005	0.0006	<0.005	0.0004
Molybdenum	µg/L	730[A]	<0.5 DLM	<0.5	2.56	2.62	<0.5 DLM	0.16	2.45	2.53	0.63	1.03	<0.5 DLHC	0.71	<0.5 DLM	0.08	<0.5 DLM	<0.5 DLM	<0.5 DLHC	0.453 DTC	0.69	0.785	0.76	1.69	2.85
Nickel	µg/L	39[A]	<5 DLM	18	<5 DLM	33.6	<5 DLM	11.4	<5 DLHC	23.9	<5 DLHC	32.8	<5 DLHC	28.9	<5 DLM	5.4	<5 DLM	<5 DLM	<5 DLHC	<0.5	2.2	<0.5	8.2	<0.5	4.4
Phosphorus	µg/L	n/v	360	<500	<300 DLM	<50	<300 DLM	<50	<300 DLHC	<50	<300 DLHC	<50	<300 DLHC	<50	<300 DLM	<50	<300 DLM	<300 DLM	<300 DLHC	<30	<50	<30	<50	<30	<50
Potassium	mg/L	n/v	4.40	5.8	31.9	32.7	3.77	4.02	36.8	36.7	41.6	41.1	44.5	45.3	24.0	25.8	33.1	33.1	9.01	1.20	0.99	0.529	0.74	1.06	0.93
Rubidium	µg/L	n/v	<2 DLM	2	3.8	4.2	9.8	10	7.2	5.4	11.9	11.4	8.2	9.1	8.2	8.4	7.7	7.7	5.2	4.05	3.3	1.08	1.3	2.21	1.8
Selenium	µg/L	5[A]	<0.5 DLM	<0.5	<0.5 DLM	0.53	<0.5 DLM	1.52	<0.5 DLHC	0.71	<0.5 DLHC	0.59	<0.5 DLM	0.52	<0.5 DLM	0.51	<0.5 DLM	<0.5 DLM	<0.5 DLHC	<0.05	<0.05	0.082	<0.05	0.075	<0.05
Silicon	µg/L	n/v	8,930	9,400	11,300	11,600	6,650	6,270	11,100	7,690	10,900	11,000	15,800	13,800	9,450	11,300	9,690	9,300	8,250	6,090	4,350	6,130	5,730	6,800	6,330
Silver	µg/L	0.12[A]	<0.1 DLM	<0.1	<0.1 DLM	<0.01	<0.1 DLM	<0.01	<0.1 DLHC	<0.01	<0.1 DLHC	<0.01	<0.1 DLHC	<0.01	<0.1 DLM	<0.01	<0.1 DLM	<0.1 DLM	<0.1 DLHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	58.0	61.2	5.16	5.32	86.7	85.1	9.15	6.52	5.92	6.14	5.33	5.33	38.6	38.4	20.6	20.7	44.9	1.38	0.97	1.79	2.17	14.5	2.56
Strontium	µg/L	n/v	930	796	2,510	2,110	467	443	3,380	2,690	3,560	2,880	3,950	3,230	2,090	1,830	2,790	2,790	2,230	76.3	47.8	129	208	116	163
Sulfur	µg/L	n/v	592,000	591,000	611,000	578,000	483,000	466,000	583,000	491,000	698,000	616,000	719,000	639,000	548,000	624,000	555,000	545,000	214,000	<500	<500	<500	<500	6,780	<500
Tellurium	µg/L	n/v	<2 DLM	<2	<2 DLM	<0.2	<2 DLM	<0.2	<2 DLHC	<0.2	<2 DLHC	<0.2	<2 DLHC	<0.2	<2 DLM	<0.2	<2 DLM	<2 DLM	<2 DLHC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.1 DLM	<0.1	<0.1 DLM	<0.01	<0.1 DLM	<0.01	<0.1 DLHC	0.12	<0.1 DLHC	<0.01	<0.1 DLHC	<0.01	<0.1 DLM	<0.01	<0.1 DLM	<0.1 DLM	<0.1 DLHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<1 DLM	<1	<1 DLM	<0.1	<1 DLM	<0.1	<1 DLHC	<0.1	<1 DLHC	<0.1	<1 DLHC	<0.1	<1 DLM	<0.1	<1 DLM	<1 DLM	<1 DLHC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<1 DLM	<1	<1 DLM	0.3	<1 DLM	0.3	<1 DLHC	0.3	<1 DLHC	0.4	<1 DLHC	0.4	<1 DLM	<0.1	<1 DLM	<1 DLM	<1 DLHC	<0.1	0.3	<0.1	0.4	<0.1	0.4
Titanium	µg/L	n/v	18.6	5	<3 DLM	2.6	<3 DLM	1.6	5.7	3.1	<3 DLHC	2.6	<3 DLHC	3.1	6.6	2.1	<3 DLM	<3 DLM	<3 DLHC	<0.3	1.2	<0.3	2.4	<0.3	2.5
Tungsten	µg/L	n/v	<1 DLM	<1	3.1	3	<1 DLM	<0.1	4	2.8	<1 DLHC	0.4	<1 DLHC	0.2	<1 DLM	<0.1	<1 DLM	<1 DLM	<1 DLHC	12.6 DTC	0.6	0.19	<0.1	3.56	0.9
Uranium	µg/L	33[A]	3.74	3.7	<0.1 DLM	0.06	<0.1 DLM	0.09	0.22	0.24	0.4	0.38	0.85	0.75	0.45	0.38	0.38	0.35	1.86	0.059	0.05	0.187	0.3	0.529	0.34
Vanadium	µg/L	20[A]	<5 DLM	<5	<5 DLM	2.1	<5 DLM	<0.5	<5 DLHC	0.8	<5 DLHC	0.7	<5 DLHC	0.7	<5 DLM	4.8	<5 DLM	<5 DLM	<5 DLHC	0.74	1	<0.5	0.8	<0.5	0.9
Zinc	µg/L	89[A]	<10 DLM	<10	<10 DLM	4	<10 DLM	3	<10 DLHC	**7,100[A]**	<10 DLHC	4	<10 DLHC	10	<10 DLM	2	<10 DLM	<10 DLM	<10 DLHC	1.5	<1	1.5	2	1.1	2
Zirconium	µg/L	n/v	<2 DLM	<2	<2 DLM	0.4	<2 DLM	1	<2 DLHC	<0.2	<2 DLHC	<0.2	<2 DLHC	<0.2	6.1	0.9	3.4	3.2	<2 DLHC	1.05	0.9	0.75	1.4	0.28	1

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			BH-14-10		BH14-15					DP-C						G4-OB1-13			G4-OB2-13		G5-OB1-14			G5-OB2-14	
Sample Date			26-Oct-21	29-Sep-22	19-Oct-21	8-Jun-22	8-Jun-22	7-Jul-22	6-Oct-22	26-Oct-21	26-Oct-21	21-Jun-22	12-Jul-22	27-Sep-22	29-Sep-22	21-Sep-21	21-Sep-21	22-Sep-22	21-Sep-21	22-Sep-22	6-Oct-21	6-Oct-21	12-Oct-22	6-Oct-21	12-Oct-22
Sample ID			BH-14-10	GGM	BH14-15	GGM	Duplicate 3	BH-14-15	BH14-15	DP-C	DP-C	DP-C	DP-C	DPC	DP-C	G4-OB1-13	DUPLICATE 1	G4-OB1-13	G4-OB2-13	G4-OB2-13	G5-OB1-14	DUPLICATE 5	G5-OB1-14	G5-OB2-14	G5-OB2-14
Sampling Company			GGM	TESTMARK	ALS	TESTMARK	GGM	TESTMARK	TESTMARK	GGM	GGM	GGM	GGM	GGM	TESTMARK	GGM	GGM	GGM	ALS	TESTMARK	ALS	ALS	TESTMARK	ALS	TESTMARK
Laboratory			ALS	478503	L2653716	465781	465781	468876	479283	L2657452	L2657452	466782	470541	478411	478503	L2642733	L2642733	477858	L2642733	477858	L2648820	L2648820	479827	L2648820	479827
Laboratory Work Order			L2656399	1806191	L2653716-5	1764333	1764337	1774779	1809516	L2657452-1	L2657452-2	1767769	1777281	1805810	1806194	L2642733-7	L2642733-10	1803562	L2642733-8	1803563	L2648820-2	L2648820-4	1811733	L2648820-1	1811734
Laboratory Sample ID			L2656399-1				1764337																		
Sample Type	Units	MOE APV					Field Duplicate										Field Duplicate					Field Duplicate				
General Chemistry																									
Acidity as CaCO3	mg/L	n/v	295	52	4.1	19	18	14	21	-	5.8	5	20	12	11	<2.0	2.5	12	3.7	19	6.9	7.6	17	15.4	27
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	1,740	360	414	359	355	377	340	-	203	219	184	144	162	262	272	163	301	247	331	331	272	340	283
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	<2.0	1	1	2	1	-	<2.0	2	<1	<1	<1	8.6	7.0	1	<2.0	1	<2.0	<2.0	<1	<2.0	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00309	<2.0	0.00646	0.00693	0.0102	0.00538	-	<2.0	0.0186	0.00317	0.0049	0.00617	<2.0	<2.0	0.0138	<2.0	0.0102	<2.0	<2.0	0.00646	<2.0	0.00381
Alkalinity, Total (as CaCO3)	mg/L	n/v	1,740	361	414	360	356	379	341	-	203	221	184	144	163	270	279	164	301	248	331	331	273	340	284
Ammonia (as N)	mg/L	n/v	0.697	0.56	0.337	0.28	0.26	0.2	0.18	2.27	-	2.57	1.81	1.62	1.38	0.360	0.366	0.24	0.181	<0.01	0.507	0.531	0.27	0.572	0.26
Chloride	mg/L	180[A]	3.2	2	0.75	1.5	1.7	1.6	1.6	-	0.52	0.8	<0.2	1	1	1.55	1.61	2.3	0.35	1	0.99	0.98	1.7	0.22	0.7
Cyanide	mg/L	0.0052[A]	**0.712 DLHC[A]**	**0.186[A]**	<0.0020	**0.012[A]**	<0.002	**0.007[A]**	0.003	<0.0020	-	<0.002	<0.002	-	-	<0.0020	<0.0020	**0.013[A]**	<0.0020	<0.002	<0.0020	<0.0020	0.003	<0.0020	<0.002
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.0020	0.009	<0.001	<0.001	<0.001	<0.0020	-	0.002	<0.001	-	-	<0.0020	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.0020	0.003	<0.0020	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	3,130	3,030	636	592	584	621	654	-	364	280	320	314	371	472	468	462	513	513	543	543	525	583	573
Fluoride	mg/L	n/v	<0.40 DLDS	<0.5	0.313	0.31	0.34	0.46	0.3	-	0.242	0.2	0.3	0.15	0.14	0.411	0.378	0.4	0.441	0.42	0.266	0.263	0.3	0.279	0.22
Hardness (as CaCO3)	mg/L	n/v	2,210	2,410	293	894	867	1,580	483	163	-	180	173	165	191	167	163	201	261	323	204	208	226	270	547
Nitrate (as N)	mg/L	n/v	<0.40 DLDS	<0.2	<0.020	<0.02	<0.02	<0.02	<0.02	-	<0.020	<0.02	<0.02	0.08	1.29	<0.020	<0.020	<0.02	<0.020	0.1	<0.020	<0.020	<0.02	<0.020	<0.02
Nitrite (as N)	mg/L	n/v	<0.20 DLDS	<0.1	<0.010	<0.01	<0.01	<0.01	<0.01	-	<0.010	<0.01	<0.01	<0.01	0.44	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01
pH, lab	S.U.	n/v	6.76	7.26	8.02	7.58	7.61	7.78	7.5	-	7.94	8.04	7.27	7.46	7.56	8.29	8.14	7.91	8.12	7.78	7.96	7.92	7.58	7.63	7.35
Phosphorus, Total	mg/L	n/v	24.4	0.16	0.350	0.91	0.887	1.95	0.23	0.171	-	0.405	0.305	0.25	0.17	0.537	0.216	0.127	0.956	0.084	0.278	0.143	0.017	0.190	0.2
Sulfate	mg/L	n/v	1,850	1,570	0.49	0.5	0.3	<0.3	<0.3	-	<0.30	<0.3	<0.3	0.5	8.2	<0.30	0.87	0.7	0.51	<0.3	<0.30	<0.30	<0.3	<0.30	<0.3
Total Dissolved Solids	mg/L	n/v	3,170	2,990	411	320	330	385	390	-	210	205	180	-	-	267	304	200	300	250	324	320	315	342	315
Total Kjeldahl Nitrogen	mg/L	n/v	1.80	<1	0.672	<0.04	<0.04	0.1	<1	3.65	-	7.8	40	<1	<1	0.750	0.671	<1	0.364	<1	0.734	0.792	<1	0.744	<1
Total Suspended Solids	mg/L	n/v	38,900	13,800	702	543	809	4,100	3,050	-	22.0	146	353	-	-	65.7	772	27.7	491	499	654	586	242	334	466
Turbidity, Lab	NTU	n/v	>4000 TMV	31.6	419	>1000	>1000	417	333	-	15.0	96.5	301	5.7	202	41.3	364	2.8	308	4	347	313	59.8	169	49
Metals																									
Aluminum	µg/L	n/v	573	<10	2.2	3	2	3	6	30	-	17	64	19	12	76.5	27	4	77.3	3	9.1	10.8	5	5.2	3
Antimony	µg/L	1,600[A]	2.6	1	<0.1	<0.1	<0.1	<0.1	<0.1	1.1	-	0.8	0.6	0.5	0.5	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	**18,200[A]**	**3,040[A]**	9.95	5.2	5.3	6.7	7.5	2.4	-	1.6	1	0.6	1.2	1.89	2.14	2.8	1.11	0.9	0.45	0.43	1.3	6.89	9.2
Barium	µg/L	2,300[A]	23.7	14	44.4	62	54.4	52.2	46.9	33.4	-	36.3	28.5	28.8	32.6	37.8	37.5	34.4	35.3	32.9	81.4	82	94.3	58.1	61.8
Beryllium	µg/L	5.3[A]	0.038	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	31	20	83	47	44	54	62	<100	-	<2	<2	<2	<2	68	67	50	31	11	52	54	17	24	2
Cadmium	µg/L	0.21[A]	0.0148	<0.05	<0.005	0.02	0.02	0.02	0.03	<0.05	-	<0.005	0.009	0.02	0.01	<0.005	<0.005	0.02	<0.005	0.04	<0.005	<0.005	0.008	<0.005	0.009
Calcium	mg/L	n/v	532	612	84.1	76.3	75.4	79.6	83	49.0	-	49.3	50.2	50	58.8	35.4	34.7	38.2	66.1	69.4	50.0	51.0	51.9	79.7	86.9
Cesium	µg/L	n/v	0.101	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	-	<0.01	<0.01	<0.01	<0.01	0.014	0.011	<0.01	0.017	<0.01	<0.01	0.012	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	2.98	7	<0.1	0.6	0.3	0.4	2.1	1.8	-	1	0.4	8.3	8.4	0.44	0.21	2.4	0.33	2.6	0.11	0.13	0.4	0.1	0.3
Cobalt	µg/L	5.2[A]	3.2	4	0.69	0.5	0.6	0.7	0.8	<1	-	0.4	0.3	0.3	0.6	0.27	0.24	0.4	0.26	0.3	0.6	0.61	0.7	1.09	1
Copper	µg/L	6.9[A]	1.77	<2	<0.2	1.2	0.6	0.8	0.3	2.4	-	1.8	1.1	<0.2	<0.2	0.91	<0.2	0.4	1.67	1.8	<0.2	<0.2	1.8	<0.2	1.1
Iron	µg/L	n/v	45,300	500	7,510	6,200	5,200	5,600	6,600	230	-	110	70	250	420	757	473	520	852	460	551	564	540	2,050	2,290
Lead	µg/L	2[A]	**2.2[A]**	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	-	0.07	<0.05	0.22	0.15	0.095	<0.05	<0.05	0.13	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	9.7	10	8.6	9	8	8	11	<10	-	2	1	1	2	3.9	3.5	4	8.1	8	1.2	1.3	<1	3.3	2
Magnesium	mg/L	n/v	215	196	20.1	19.4	18.5	18.6	22.9	9.88	-	9.33	10.3	9.82	11.4	19.1	18.5	20.7	23.4	25.8	19.1	19.6	19.5	17.3	17.2
Manganese	µg/L	n/v	976	854	190	122	119	134	133	267	-	179	1.1	53.9	145	25.6	21.9	23.1	79.4	49.3	124	125	133	153	137
Mercury	µg/L	0.77[A]	<0.005	0.0003	<0.005	0.00007	0.0001	0.0003	0.001	<0.005	-	0.0006	0.0005	-	-	<0.005	<0.005	<0.1	<0.005	<0.1	<0.005	<0.005	0.0006	<0.005	0.0007
Molybdenum	µg/L	730[A]	4.72	4	1.56	0.78	0.96	0.85	1.16	2.15	-	1.52	1.34	1.16	0.84	1.39	1.36	1.55	0.57	0.73	3.79 DTC	3.9	3.39	1.96	1.58
Nickel	µg/L	39[A]	12.7	13	0.54	2.1	1.2	3.5	7	6.9	-	5	2.5	2.9	3.6	0.74	0.73	2.4	<0.5	1.8	<0.5	<0.5	1.2	<0.5	0.5
Phosphorus	µg/L	n/v	107	<500	53	60	<50	70	70	<300	-	<50	50	<50	<50	<30	<30	<50	49	<50	<30	<30	<50	<30	<50
Potassium	mg/L	n/v	27.0	28.9	2.56	2.41	2.43	2.39	2.57	0.99	-	1.16	0.92	0.69	0.66	3.26	3.19	3.24	2.74	2.7	3.59	3.48	3.39	1.97	2
Rubidium	µg/L	n/v	9.46	8	1.48	1.4	1.6	1.4	1.3	<2	-	1.3	1	1	0.9	0.94	0.75	0.7	0.93	0.8	2.64	2.75	2.9	1.8	1.9
Selenium	µg/L	5[A]	<0.05	<0.5	<0.05	<0.05	<0.05	0.14	<0.05	<0.5	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.21	0.051	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	n/v	12,700	11,200	10,400	7,950	7,580	8,030	10,400	7,080	-	6,310	6,040	6,860	7,290	5,560	5,600	5,700	9,730	9,530	8,020	8,270	7,890	11,500	10,800
Silver	µg/L	0.12[A]	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	11.3	18.7	28.0	25.1	23.2	23.9	28.2	3.42	-	3.55	3.01	3.1	3.61	40.1	40.1	43.4	14.6	15.4	37.5	37.8	31.2	17.5	15.5
Strontium	µg/L	n/v	1,840	1,480	197	183	180	179	178	63.8	-	59.8	69.3	54.9	69.3	283	272	243	251	219	415	423	323	255	189
Sulfur	µg/L	n/v	655,000	590,000	<500	<500	<500	<500	<500	<5,000	-	2,300	1,100	<500	2,400	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Tellurium	µg/L	n/v	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.027	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	0.4	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<1	<0.1	0.1	<0.1	<0.1	0.3	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.5	<0.1	<0.1	0.4	<0.1	0.3
Titanium	µg/L	n/v	24.5	<3	0.36	2.6	2.6	3.1	3.6	<3	-	2	2.2	2.2	2.1	4.53	1.37	1.6	5.38	2.5	0.4	0.44	1.2	0.38	1.7
Tungsten	µg/L	n/v	1.29	<1	0.85	1.1	1.4	1.3	1.3	<1	-	<0.1	0.1	<0.1	<0.1	17.1	16.3	14.9	<0.1	<0.1	0.19	0.18	0.2	<0.1	<0.1
Uranium	µg/L	33[A]	1.34	0.9	0.124	0.09	0.12	0.08	0.06	0.16	-	0.19	0.36	0.18	0.16	0.116	0.125	0.1	0.089	0.15	0.735	0.752	0.56	0.514	0.3
Vanadium	µg/L	20[A]	1.94	<5	<0.5	<0.5	<0.5	<0.5	0.8	<5	-	0.6	1.1	2.2	2.2	0.51	<0.5	0.6	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	15	<10	<1	1	<1	<1	<1	<10	-	8	3	10	12	1.9	<1	<1	2.4	2	<1	<1	1	<1	1
Zirconium	µg/L	n/v	0.68	<2	0.56	0.7	0.6	0.6	0.7	<2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.27	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			G6-BR-14						G6-OB-14				G7-OB1-14				G7-OB2-14				H96-06A1			H96-06A2	
Sample Date			19-Oct-21	1-Jun-22	1-Jun-22	11-Jul-22	4-Oct-22	4-Oct-22	19-Oct-21	1-Jun-22	11-Jul-22	4-Oct-22	29-Sep-21	7-Jun-22	6-Jul-22	4-Oct-22	29-Sep-21	7-Jun-22	6-Jul-22	4-Oct-22	18-Oct-21	6-Oct-22	6-Oct-22	18-Oct-21	6-Oct-22
Sample ID			G6-BR-14	G6BR14	Duplicate 1	G6-BR-14	G6-BR-14	Duplicate 7	G6-OB-14	G6OB14	G6-OB-14	G6-OB-14	G7-OB1-14	G7-OB1-14	G7-OB1-14	G7-OB1-14	G7-OB2-14	G7-OB2-14	G7-OB2-14	G7-OB2-14	H96-06A1	H96-06-A1	Duplicate 2	H96-06A2	H96-06-A2
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	ALS	TESTMARK
Laboratory Work Order			L2653716	464944	464944	469178	479023	479023	L2653716	464944	469178	479023	L2645971	465562	468759	479023	L2645971	465562	468759	479023	L2653042	479283	479283	L2653042	479283
Laboratory Sample ID			L2653716-3	1761384	1761390	1775876	1808325	1808327	L2653716-4	1761385	1775877	1808326	L2645971-5	1763653	1774490	1808330	L2645971-4	1763652	1774491	1808329	L2653042-6	1809510	1809513	L2653042-5	1809511
Sample Type	Units	MOE APV			Field Duplicate			Field Duplicate															Field Duplicate		
General Chemistry																									
Acidity as CaCO3	mg/L	n/v	2.6	13	11	25	38	35	<2.0	6	7	17	4.3	6	4	24	<2.0	10	6	24	6.1	53	53	7.3	50
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	300	304	303	314	244	252	156	133	120	104	172	162	168	126	212	213	219	173	429	438	425	347	341
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	2	2	<1	<1	<1	<2.0	<1	<1	<1	<2.0	1	1	<1	<2.0	<1	2	<1	<2.0	<1	<1	<2.0	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00956	0.0105	0.00399	0.00269	0.00302	<2.0	0.0107	0.00709	0.00302	<2.0	0.0115	0.0132	0.00191	<2.0	0.00814	0.0129	0.00295	<2.0	0.00347	0.00363	<2.0	0.00372
Alkalinity, Total (as CaCO3)	mg/L	n/v	300	306	305	315	244	252	156	134	120	104	172	163	169	126	212	214	221	173	429	439	426	347	342
Ammonia (as N)	mg/L	n/v	0.372	0.21	0.22	0.25	0.29	0.33	<0.0050	<0.01	0.14	<0.01	0.0339	<0.01	<0.01	<0.01	0.0404	0.02	<0.01	0.01	0.697	0.19	0.2	0.870	0.29
Chloride	mg/L	180[A]	0.35	1.2	1	0.7	0.6	0.7	0.22	0.9	0.6	0.4	0.26	1.8	0.3	0.5	0.41	0.7	0.5	0.6	3.8	<2	<2	5.4	4
Cyanide	mg/L	0.0052[A]	<0.0020	<0.002	<0.002	0.003	<0.002	0.002	<0.0020	<0.002	0.004	<0.002	<0.0020	0.002	<0.002	<0.002	<0.0020	0.005	<0.002	0.004	**0.0163[A]**	**0.026[A]**	**0.023[A]**	**0.0250[A]**	**0.059[A]**
Cyanide (Free)	mg/L	n/v	<0.0020	0.002	0.001	<0.001	0.002	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	0.001	<0.0020	<0.001	<0.001	0.004	<0.0020	0.009	0.003	<0.0020	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	503	528	456	518	524	526	274	244	212	233	289	275	282	277	348	366	376	381	3,790	2,510	2,290	4,420	1,080
Fluoride	mg/L	n/v	0.321	0.32	0.28	0.28	0.22	0.28	0.072	0.09	<0.05	0.06	0.084	0.52	<0.05	0.09	0.117	0.1	0.18	0.13	<0.40 DLDS	<0.5	<0.5	<0.40 DLDS	<0.5
Hardness (as CaCO3)	mg/L	n/v	256	291	282	283	314	314	131	157	165	159	147	198	218	227	184	456	788	398	1,830	1,760	1,690	3,440	3,770
Nitrate (as N)	mg/L	n/v	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.020	0.33	0.03	<0.02	<0.020	<0.02	<0.02	<0.02	0.032	<0.02	<0.02	<0.02	<0.40 DLDS	<0.2	<0.2	<0.40 DLDS	<0.2
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.20 DLDS	<0.1	<0.1	<0.20 DLDS	<0.1
pH, lab	S.U.	n/v	8.05	7.75	7.79	7.37	7.2	7.25	8.13	7.8	7.62	7.25	8.00	7.83	7.89	7.05	7.99	7.68	7.88	7.24	7.96	7.31	7.33	7.89	7.34
Phosphorus, Total	mg/L	n/v	0.0518	0.033	0.03	0.059	0.057	0.061	0.0555	0.012	0.069	0.038	0.0198	0.007	0.099	0.052	0.117	0.087	0.73	0.16	18.5	1.57	1.64	12.2	9
Sulfate	mg/L	n/v	<0.30	<0.3	<0.3	<0.3	<0.3	<0.3	2.65	3.8	2	1.6	<0.30	<0.3	<0.3	<0.3	1.30	2.6	2.8	2.1	2,490	1,260	1,010	3,190	2,830
Total Dissolved Solids	mg/L	n/v	298	210	220	290	360	325	164	436	125	195	161	125	210	240	214	175	220	260	3,730	2,650	2,090	4,660	3,950
Total Kjeldahl Nitrogen	mg/L	n/v	0.427	<0.04	0.1	1.99	<1	<1	<0.050	<0.04	1.41	<1	0.143	0.19	0.09	<1	0.263	<0.04	0.8	<1	0.978	<1	<1	1.19	<1
Total Suspended Solids	mg/L	n/v	38.6	91	65	65.3	5.3	221	89.6	12	109	69.3	5.1	4.5	61.7	21.3	119	240	705	70.7	920	107	45	257	631
Turbidity, Lab	NTU	n/v	24.6	15.1	21.4	107	3.8	4.7	25.7	11.7	31.4	1.8	1.03	79.2	33.6	3.5	41.4	273	35	42	852	130	113	159	339
Metals																									
Aluminum	µg/L	n/v	1.4	1	2	1	2	2	2	2	3	4	2.8	6	7	4	11.4	5	12	7	10	3	3	14	90
Antimony	µg/L	1,600[A]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1 DLHC	<0.1	0.4	<1 DLHC	<1
Arsenic	µg/L	150[A]	2	1.3	1.4	1.2	1.1	1.1	4.62	0.6	0.5	0.9	0.85	0.9	1.1	0.9	0.95	0.9	1.1	0.8	**12,200[A]**	**8,490[A]**	**9,320[A]**	**33,400[A]**	**48,100[A]**
Barium	µg/L	2,300[A]	51.3	43.6	43.4	51.6	54.4	53.4	8.81	11.8	17.6	9.4	8.41	18.5	10.7	8.8	18.6	29.9	21.2	23.6	13.3	20.1	19.8	12.8	18
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2 DLHC	<0.02	<0.02	<0.2 DLHC	<0.2
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5 DLHC	<0.05	<0.05	<0.5 DLHC	<0.5
Boron	µg/L	3,550[A]	30	11	10	10	12	11	<10	<2	<2	<2	<10	<2	<2	<2	<10	<2	<2	<2	<100 DLHC	6	8	<100 DLHC	70
Cadmium	µg/L	0.21[A]	<0.005	0.007	0.02	0.02	0.01	0.02	<0.005	<0.005	0.006	<0.005	<0.005	0.03	0.03	0.03	<0.005	0.04	0.04	0.03	<0.05 DLHC	0.01	0.01	<0.05	<0.05
Calcium	mg/L	n/v	65.1	70	73.2	72.5	75.8	76.9	36.7	34.7	32.6	36.3	45.7	46.3	50.3	53.7	55.2	59.2	66.2	71.2	218	382	370	305	385
Cesium	µg/L	n/v	0.662	0.37	0.37	0.52	0.62	0.61	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	0.01	<0.1 DLHC	0.17	0.15	<0.1 DLHC	<0.1
Chromium	µg/L	64[A]	<0.1	3.7	3.6	0.2	0.2	0.2	0.43	2.2	0.7	0.7	0.13	<0.1	0.6	0.3	0.35	0.1	1	0.5	<1 DLHC	0.2	0.2	<1 DLHC	1
Cobalt	µg/L	5.2[A]	<0.1	0.2	0.2	0.3	0.2	0.2	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	0.2	<0.1	0.1	0.1	0.2	1.1	0.6	0.6	2.4	2
Copper	µg/L	6.9[A]	<0.2	0.3	0.3	0.3	0.3	<0.2	0.44	0.7	1.5	1	0.61	0.9	0.2	0.4	0.52	0.9	<0.2	1.1	<2 DLHC	0.3	0.3	3.6	2
Iron	µg/L	n/v	764	780	840	850	900	910	<10	40	20	30	577	580	690	670	605	830	960	830	9,640	8,900	10,200	16,900	16,500
Lead	µg/L	2[A]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.056	<0.05	<0.05	0.07	<0.5 DLHC	<0.05	**10.6[A]**	<0.5 DLHC	0.6
Lithium	µg/L	n/v	6.9	6	5	7	7	7	1.1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	2	16	9	10	26	30
Magnesium	mg/L	n/v	22.6	22	22.7	23	25.1	25	9.47	9.11	7.95	8.91	8.00	6.82	6.7	8.8	11.2	10	10.2	13.9	312	184	199	650	733
Manganese	µg/L	n/v	47.5	39	41.2	45.9	49.1	48.2	11.4	2.6	3.3	11.4	58.2	54.7	62.3	64.4	40.4	43.2	51.2	47.8	81.4	57.2	49.2	212	246
Mercury	µg/L	0.77[A]	<0.005	-	-	0.002	0.0003	0.0003	<0.005	-	0.0005	0.0004	<0.005	0.0003	0.0002	0.0003	<0.005	0.0003	0.0003	0.0003	<0.005	0.0002	-	<0.005	<0.00001
Molybdenum	µg/L	730[A]	0.452	0.89	0.89	0.59	0.47	0.47	0.231	0.14	0.15	0.25	0.235	0.24	0.19	0.2	0.268	0.4	0.2	0.55	6.56	5.19	5.39	1.96	1.4
Nickel	µg/L	39[A]	<0.5	2	2.1	1.9	2	2	<0.5	0.6	0.6	0.6	<0.5	0.7	1.1	1.4	<0.5	1.1	1.4	1.9	<5 DLHC	0.8	<0.5	<5 DLHC	<5
Phosphorus	µg/L	n/v	33	<50	<50	<50	<50	<50	<30	<50	<50	<50	<30	<50	<50	<50	<30	<50	<50	<50	<300 DLHC	<50	<50	<300 DLHC	<500
Potassium	mg/L	n/v	2.37	1.98	2.17	2.2	2.46	2.42	0.414	0.36	0.35	0.5	0.647	0.64	0.72	0.75	0.929	0.88	1.01	1.22	19.0	13	13.8	31.4	34
Rubidium	µg/L	n/v	0.75	0.8	0.8	0.8	0.8	0.8	0.48	0.3	0.4	0.5	1.03	1.1	1.1	1.1	2.02	1.7	1.8	2	21.5	16.8	17.6	32.9	36
Selenium	µg/L	5[A]	<0.05	<0.05	0.11	<0.05	0.06	0.12	0.107	<0.05	<0.05	<0.05	0.058	<0.05	<0.05	<0.05	0.068	<0.05	<0.05	<0.05	<0.5 DLHC	0.46	0.5	<0.5 DLHC	1.6
Silicon	µg/L	n/v	9,160	9,510	9,530	8,670	9,980	10,200	5,780	4,780	4,430	4,930	5,080	3,890	4,680	4,720	5,650	4,290	5,300	5,730	12,400	10,500	10,800	13,300	12,100
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1 DLHC	<0.01	<0.01	<0.1 DLHC	<0.1
Sodium	mg/L	180[A]	14.1	11.6	11.9	11.9	13.3	12.9	2.97	1.99	1.56	2.15	1.87	1.56	1.53	1.79	2.26	1.86	1.98	2.57	5.30	3.95	4.15	8.79	9.4
Strontium	µg/L	n/v	319	272	280	272	278	269	38.1	32.9	28.8	28.7	49	44.1	41.2	43.7	64.8	63.6	59.9	67.8	1,180	982	1,020	2,110	1,720
Sulfur	µg/L	n/v	<500	1,500	2,100	500	<500	<500	<500	2,000	500	800	<500	<500	1,100	<500	<500	900	2,000	1,600	495,000	371,000	399,000	1,120,000	1,170,000
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2 DLHC	<0.2	<0.2	<2 DLHC	<2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1 DLHC	<0.01	<0.01	<0.1 DLHC	<0.1
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1 DLHC	<0.1	<0.1	<1 DLHC	<1
Tin	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	0.5	<1 DLHC	<0.1	0.1	<1 DLHC	<1
Titanium	µg/L	n/v	<0.3	2	2.3	3	2.7	3	<0.3	1	1.5	1.6	<0.3	1.5	1.8	1.7	1.3	2.1	3.1	2.5	<3 DLHC	1.3	1.5	<3 DLHC	4
Tungsten	µg/L	n/v	0.39	0.9	0.9	0.5	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	11.8	14.7	13.3	2.6	4
Uranium	µg/L	33[A]	0.031	0.06	0.06	0.04	0.02	0.02	0.207	0.2	0.16	0.17	<0.01	<0.01	<0.01	<0.01	0.043	0.02	0.03	0.03	0.79	0.9	0.9	2.16	1.6
Vanadium	µg/L	20[A]	<0.5	1	0.9	<0.5	<0.5	<0.5	1.01	1.2	0.9	1.1	<0.5	<0.5	0.7	0.5	1.2	1	1.5	0.9	<5 DLHC	<0.5	<0.5	<5 DLHC	<5
Zinc	µg/L	89[A]	<1	<1	<1	1	<1	<1	<1	<1	2	3	<1	1	<1	1	1.3	2	<1	1	<10 DLHC	5	5	27	20
Zirconium	µg/L	n/v	0.44	<0.2	0.2	0.3	0.4	0.4	<0.2	<0.2	<0.2	<0.2	0.84	0.9	1	0.9	1.63	1.3	1.4	1.1	<2 DLHC	0.3	0.3	<2 DLHC	<2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
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Sample Location			H96-06A3		H96-06B		HARDROCK SHAFT 1	MAC-1		MAC-4			MAC-6		
Sample Date			18-Oct-21	6-Oct-22	18-Oct-21	6-Oct-22	4-Nov-21	23-Sep-21	21-Sep-22	23-Sep-21	23-Sep-21	21-Sep-22	23-Sep-21	21-Sep-22	21-Sep-22
Sample ID			H96-06A3	H96-06-A3	H96-06B	H96-06-B	HARDROCK SHAFT 1	MAC-1	MAC-1	MAC-4	DUPLICATE2	MAC-4	MAC-6	MAC-6	Duplicate 1
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	ALS	TESTMARK	ALS	ALS	TESTMARK	ALS	ALS	TESTMARK	ALS	TESTMARK	TESTMARK
Laboratory Work Order			L2653042	479283	L2653042	479283	L2659827	L2643916	477744	L2643916	L2643916	477744	L2643916	477744	477744
Laboratory Sample ID			L2653042-7	1809514	L2653042-8	1809512	L2659827-1	L2643916-1	1803189	L2643916-3	L2643916-4	1803190	L2643916-5	1803191	1803192
Sample Type	Units	MOE APV									Field Duplicate				Field Duplicate
General Chemistry															
Acidity as CaCO3	mg/L	n/v	30.7	71	11.6	47	6.6	5.9	33	9.3	8.8	26	7.4	15	21
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	786	609	549	376	225	216	215	309	301	229	369	199	194
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	1	<2.0	<1	<2.0	<2.0	<1	<2.0	<2.0	<1	<2.0	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00399	<2.0	0.00324	<2.0	<2.0	0.00135	<2.0	<2.0	0.00513	<2.0	0.00693	0.00502
Alkalinity, Total (as CaCO3)	mg/L	n/v	786	610	549	377	225	216	215	309	301	230	369	200	195
Ammonia (as N)	mg/L	n/v	0.0190	<0.01	0.273	0.15	0.0973	0.0160	0.04	<0.0050	<0.0050	<0.01	0.0374	<0.01	0.04
Chloride	mg/L	180[A]	1.3	2	2.80	3	178	3.89	-	3.36	3.16	-	2.34	-	-
Cyanide	mg/L	0.0052[A]	**0.0448[A]**	**0.073[A]**	**0.0526[A]**	**0.056[A]**	0.0025	<0.0020	<0.002	<0.0020	<0.0020	<0.002	<0.0020	<0.002	<0.002
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.0020	0.002	<0.0020	<0.0020	<0.001	<0.0020	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	2,320	2,340	2,280	1,950	1,480	535	610	656	639	604	661	474	477
Fluoride	mg/L	n/v	<0.20 DLDS	<0.5	0.37	<0.5	<0.10	0.051	-	0.092	0.093	-	0.109	-	-
Hardness (as CaCO3)	mg/L	n/v	1,630	1,510	1,300	1,410	513	253	342	317	320	362	306	269	263
Nitrate (as N)	mg/L	n/v	<0.20 DLDS	<0.2	<0.10 DLDS	<0.2	<0.10	0.540	-	0.625	0.612	-	0.064	-	-
Nitrite (as N)	mg/L	n/v	<0.10 DLDS	<0.1	<0.050 DLDS	<0.1	<0.050	<0.010	-	<0.010	<0.010	-	<0.010	-	-
pH, lab	S.U.	n/v	7.86	7.37	7.97	7.28	7.85	7.44	6.9	7.74	7.70	7.48	7.88	7.61	7.47
Phosphorus, Total	mg/L	n/v	0.877	0.87	8.27	5.2	0.0028	0.0425	-	0.0494	0.0498	-	0.0797	-	-
Sulfate	mg/L	n/v	846	1,050	1,070	791	327	79.8	-	67.1	64.1	-	24.7	-	-
Total Dissolved Solids	mg/L	n/v	1,880	1,980	2,000	1,920	973	362	425	412	417	395	372	320	2,070
Total Kjeldahl Nitrogen	mg/L	n/v	0.344	<1	0.444	<1	0.268	0.328	-	0.166	0.074	-	0.142	-	-
Total Suspended Solids	mg/L	n/v	40.6	216	5,250	977	6.1	236	446	126	133	112	25.4	4.7	2
Turbidity, Lab	NTU	n/v	73.4	111	2,060	458	40.5	203	-	53.6	56.1	-	11.1	-	-
Metals															
Aluminum	µg/L	n/v	<10 DLHC	2	24	4	<1	25.3	27	1.6	1.3	4	1.3	3	2
Antimony	µg/L	1,600[A]	<1 DLHC	0.3	<1 DLHC	<0.1	0.3	0.59	0.2	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	**1,850[A]**	**2,630[A]**	**25,900[A]**	**39,300[A]**	3.07	1.49	2	0.5	0.5	1	108	**200[A]**	**202[A]**
Barium	µg/L	2,300[A]	24.6	24.3	13.3	15.3	23.5	28.5	30.7	42.5	41.9	37.2	68.3	69.6	66.9
Beryllium	µg/L	5.3[A]	<0.2 DLHC	<0.02	<0.2 DLHC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.5 DLHC	<0.05	<0.5 DLHC	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	<100 DLHC	<2	120	92	56	<10	<2	<10	<10	<2	17	<2	<2
Cadmium	µg/L	0.21[A]	<0.05 DLHC	0.007	<0.05 DLHC	0.01	<0.005	0.0303	0.129	0.0223	0.0202	<0.005	<0.005	0.007	0.006
Calcium	mg/L	n/v	275	309	216	252	138	77.2	104	92.6	93.9	102	92.0	85	83.7
Cesium	µg/L	n/v	0.19	0.2	<0.1 DLHC	<0.01	0.305	<0.01	0.02	0.095	0.1	<0.01	0.085	0.17	0.17
Chromium	µg/L	64[A]	<1 DLHC	0.2	<1 DLHC	0.3	<0.1	0.23	1.9	0.33	0.35	1.5	<0.1	1	0.7
Cobalt	µg/L	5.2[A]	<1 DLHC	0.9	1.6	1.6	0.94	0.67	1	0.67	0.67	0.4	1.62	2.3	2.3
Copper	µg/L	6.9[A]	<2 DLHC	0.4	<2 DLHC	0.3	0.88	2.22	1.8	2.8	2.74	2.6	0.88	<0.2	<0.2
Iron	µg/L	n/v	5,100	4,300	6,480	6,700	1,920	356	730	<10	<10	70	345	430	420
Lead	µg/L	2[A]	<0.5 DLHC	<0.05	<0.5 DLHC	<0.05	<0.05	0.125	0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	16	13	<10 DLHC	9	4.2	<1	<1	6.3	6.3	6	3.8	3	3
Magnesium	mg/L	n/v	228	216	185	187	40.8	14.7	19.4	20.8	20.9	21	18.5	14	13.5
Manganese	µg/L	n/v	145	119	366	338	288	173	174	0.13	0.12	0.1	271	255	253
Mercury	µg/L	0.77[A]	0.0941	0.0006	<0.005	0.0003	<0.005	<0.005	0.001	<0.005	<0.005	0.0004	<0.005	0.0003	0.0004
Molybdenum	µg/L	730[A]	0.58	0.57	3.94	4.21	0.448	0.267	0.25	0.618	0.61	0.91	1.29	0.72	0.77
Nickel	µg/L	39[A]	<5 DLHC	3.1	<5 DLHC	1.1	2.52	6.91	5.6	<0.5	<0.5	1.1	0.95	1.9	1.9
Phosphorus	µg/L	n/v	<300 DLHC	<50	<300 DLHC	170	<30	<30	<50	<30	<30	<50	<30	<50	<50
Potassium	mg/L	n/v	9.47	11.2	3.07	3.34	4.77	0.944	1.31	4.15	4.17	3.87	2.35	1.86	1.88
Rubidium	µg/L	n/v	10.9	12.8	<2 DLHC	1.3	6.98	0.53	0.6	2.78	2.71	2.8	1.36	1.4	1.4
Selenium	µg/L	5[A]	<0.5 DLHC	0.29	<0.5 DLHC	0.54	<0.05	0.102	0.34	0.413	0.362	0.56	<0.05	0.14	0.16
Silicon	µg/L	n/v	8,820	10,100	12,800	10,600	3,980	3,990	4,120	7,040	7,070	6,270	7,870	6,110	5,930
Silver	µg/L	0.12[A]	<0.1 DLHC	<0.01	<0.1 DLHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	3.94	3.86	6.76	7.12	98.3	2.29	12.7	3.27	3.36	3.91	8.57	6.16	5.9
Strontium	µg/L	n/v	579	496	821	628	1,070	738	686	121	117	96	246	215	214
Sulfur	µg/L	n/v	330,000	297,000	310,000	317,000	118,000	25,100	15,800	21,300	21,700	16,700	5,910	7,400	7,600
Tellurium	µg/L	n/v	<2 DLHC	<0.2	<2 DLHC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2.3	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.1 DLHC	<0.01	<0.1 DLHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<1 DLHC	<0.1	<1 DLHC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<1 DLHC	<0.1	<1 DLHC	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.4	<0.1	0.3	<0.1
Titanium	µg/L	n/v	<3 DLHC	1.3	<3 DLHC	2	<0.3	0.36	1.1	<0.3	<0.3	2.3	<0.3	1.4	1.5
Tungsten	µg/L	n/v	4.7	5.7	<1 DLHC	0.2	0.33	31.4 DTC	3.1	1.8	1.76	0.9	6.32	2.9	2.7
Uranium	µg/L	33[A]	1.54	1.23	0.27	0.25	1.08	0.25	0.32	4.24	4.17	2.93	1.44	0.61	0.6
Vanadium	µg/L	20[A]	<5 DLHC	<0.5	<5 DLHC	<0.5	<0.5	<0.5	<0.5	1.65	1.67	1.7	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	<10 DLHC	4	<10 DLHC	3	1.1	2.3	1	1.6	1.4	2	1.6	<1	<1
Zirconium	µg/L	n/v	<2 DLHC	0.2	<2 DLHC	0.4	<0.2	0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MOSHER SHAFT 1										MW1-BR-14		MW01-OB1-18		MW1-OB-14	
Sample Date			4-Nov-21	4-Nov-21	4-Nov-21	4-Nov-21	4-Nov-21	13-Oct-22	13-Oct-22	13-Oct-22	13-Oct-22	13-Oct-22	12-Oct-21	26-Sep-22	20-Oct-21	27-Sep-22	12-Oct-21	26-Sep-22
Sample ID			MOSHER SHAFT 122M	MOSHER SHAFT 21M	MOSHER SHAFT 244M	MOSHER SHAFT 396M	MOSHER SHAFT 521M	Mosheshaft112m	Mosheshaft244m	Mosheshaft29m	Mosheshaft396m	Mosheshaft512m	MW1-BR-14	MW1-BR-14	MW-01-BR	MW01-OB1-18	MW1-OB-14	MW1-OB-14
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	ALS	ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	ALS	TESTMARK
Laboratory Work Order			L2659827	L2659827	L2659827	L2659827	L2659827	479977	479977	479977	479977	479977	L2650748	478164	L2654089	478277	L2650748	478164
Laboratory Sample ID			L2659827-2	L2659827-6	L2659827-3	L2659827-4	L2659827-5	1812544	1812545	1812543	1812546	1812547	L2650748-5	1804844	L2654089-1	1805246	L2650748-4	1804845
Sample Type	Units	MOE APV																
General Chemistry																		
Acidity as CaCO3	mg/L	n/v	6.3	5.3	5.0	6.8	6.0	15	17	13	16	17	13.6	26	3.7	55	24.9	34
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	254	233	254	258	245	238	231	214	246	246	271	275	279	322	350	310
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<2.0	<2.0	<2.0	<2.0	<1	<1	<1	<1	<1	<2.0	<1	<2.0	<1	<2.0	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	<2.0	<2.0	<2.0	<2.0	0.00589	0.0055	0.00759	0.00513	0.00513	<2.0	0.00632	<2.0	0.00324	<2.0	0.00282
Alkalinity, Total (as CaCO3)	mg/L	n/v	254	233	254	258	245	239	232	215	247	247	271	276	279	323	350	310
Ammonia (as N)	mg/L	n/v	0.0197	0.0120	0.0284	0.0416	0.0300	<0.01	<0.01	0.01	<0.01	<0.01	0.0349	0.1	0.952	0.76	0.0150	0.01
Chloride	mg/L	180[A]	1.56	1.40	1.75	1.82	1.56	6.3	6.1	11.4	5.9	8	96.8	100	3.40	3	120	146
Cyanide	mg/L	0.0052[A]	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	**0.007[A]**	**0.01[A]**	**0.006[A]**	**0.009[A]**	**0.009[A]**	<0.0020	**0.009[A]**	<0.0020	**0.027[A]**	<0.0020	<0.002
Cyanide (Free)	mg/L	n/v	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.002	0.001	0.001	<0.001	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	481	478	481	483	479	517	515	522	513	545	1,420	1,380	1,340	2,750	1,030	1,030
Fluoride	mg/L	n/v	0.045	0.046	0.039	0.043	0.040	<0.05	<0.05	0.05	<0.05	<0.05	<0.040 DLDS	<0.1	0.29	<0.5	0.068	0.06
Hardness (as CaCO3)	mg/L	n/v	241	242	244	242	251	229	232	234	187	244	663	743	645	4,690	384	413
Nitrate (as N)	mg/L	n/v	0.030	0.209	0.040	0.025	0.047	<0.02	<0.02	0.03	<0.02	<0.02	<0.040 DLDS	<0.04	<0.10 DLDS	<0.2	<0.040 DLDS	<0.02
Nitrite (as N)	mg/L	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.020 DLDS	<0.02	<0.050 DLDS	<0.1	<0.020 DLDS	<0.01
pH, lab	S.U.	n/v	7.87	7.95	7.95	7.87	7.92	7.54	7.51	7.65	7.48	7.48	7.83	7.57	8.08	7.28	7.43	7.22
Phosphorus, Total	mg/L	n/v	0.0030	0.0054	0.0036	0.0040	0.0025	0.011	0.005	<0.001	0.009	0.005	0.0111	0.017	0.0254	<0.05	0.0314	0.015
Sulfate	mg/L	n/v	15.4	30.4	17.1	13.1	24.9	3.5	3.1	17	3.1	11.8	328	334	502	1,480	<0.60 DLDS	0.4
Total Dissolved Solids	mg/L	n/v	288	289	300	296	274	365	355	380	380	410	952	1,160	979	2,740	604	665
Total Kjeldahl Nitrogen	mg/L	n/v	0.120	0.110	0.114	0.150	<0.050	<1	<1	<1	<1	<1	0.075	<1	0.953	<1	0.191	<1
Total Suspended Solids	mg/L	n/v	<3.0	<3.0	7.3	5.1	9.8	21	18	9.67	16.5	12.7	7.0	27.7	21.1	666	30.8	70
Turbidity, Lab	NTU	n/v	15.3	0.49	21.3	28.7	13.2	97	96.1	17.6	94.6	96	16.4	10.2	49.4	15.4	84.6	74.3
Metals																		
Aluminum	µg/L	n/v	1.8	2.3	1.9	1.8	1.9	<1	<1	<1	<1	<1	1.5	3	1.5	3	3.8	5
Antimony	µg/L	1,600[A]	0.15	0.46	0.17	0.12	0.13	<0.1	<0.1	0.6	<0.1	0.1	<0.1	0.1	<0.1	0.8	<0.1	<0.1
Arsenic	µg/L	150[A]	23.8 DTC	6.25	27.4	32.6	30.8	2.9	4.8	3.3	5.2	4.3	1.82	3.2	99.2	103	18.1	21.3
Barium	µg/L	2,300[A]	103	72.6	106	115	111	149	148	142	148	157	38.4	41.3	31	36.5	28.5	33.2
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	11	<10	11	11	11	<2	<2	<2	<2	3	109	79	47	4	11	<2
Cadmium	µg/L	0.21[A]	<0.005	0.0169	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.02	<0.005	<0.005	<0.005	0.02	<0.005	0.03
Calcium	mg/L	n/v	73.9	74.5	74.7	74.1	76.1	72.7	74	78.6	76.6	80.9	191	223	145	429	118	131
Cesium	µg/L	n/v	0.027	0.074	0.034	0.025	0.027	0.02	0.02	0.06	0.02	0.04	0.133	0.15	0.038	0.11	<0.01	0.01
Chromium	µg/L	64[A]	0.75 DTC	0.91 DTC	0.92 DTC	0.61 DTC	1.03 DTC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	0.47	0.9	0.21	0.9
Cobalt	µg/L	5.2[A]	0.16	0.33	0.19	0.14	0.2	0.9	0.8	**6.4[A]**	0.7	1.8	0.79	1.4	0.4	1.4	0.58	1.1
Copper	µg/L	6.9[A]	0.28	2.01	0.37	<0.2	<0.2	0.2	0.2	0.5	0.2	0.3	<0.2	0.6	<0.2	1.6	0.26	1.5
Iron	µg/L	n/v	1,750 DTC	<10	2,570	3,120	2,980 DTC	10	<10	<10	<10	60	876	1,040	4,700	5,900	7,420	10,000
Lead	µg/L	2[A]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05
Lithium	µg/L	n/v	1.3	1.2	1.4	1.4	1.3	1	1	<1	<1	2	3.8	4	7.8	10	3.3	3
Magnesium	mg/L	n/v	13.7	13.5	14.0	14.0	14.7	14.9	14.8	14.3	14.4	18.4	45.1	50.4	68.4	216	21.6	23.9
Manganese	µg/L	n/v	90.2 DTC	22.1	99	117	115 DTC	299	298	636	287	359	243	264	132	422	536	546
Mercury	µg/L	0.77[A]	<0.005	<0.005	<0.005	<0.005	<0.005	0.0008	0.0008	0.001	0.0007	0.0007	<0.005	0.0003	<0.005	0.0003	<0.005	0.0005
Molybdenum	µg/L	730[A]	0.231	0.53	0.263	0.188	0.228	0.29	0.17	0.6	0.15	0.28	0.895	0.92	2.66	0.92	0.443	0.47
Nickel	µg/L	39[A]	0.75	1.72	0.88	0.61	0.72	1.1	1	6.5	0.9	2.2	1.24	5.2	<0.5	12.8	<0.5	8.9
Phosphorus	µg/L	n/v	<30	<30	<30	<30	<30	<50	<50	<50	<50	<50	<30	<50	<30	<50	<30	<50
Potassium	mg/L	n/v	2.40	2.48	2.52	2.49	2.59	2.59	2.54	1.93	2.5	3.13	2.28	2.56	5.86	14.1	1.28	1.5
Rubidium	µg/L	n/v	1.63	1.55	1.62	1.69	1.79	2.2	2.2	1.6	2.2	2.3	9.6	10.7	5.26	11	1.22	1.8
Selenium	µg/L	5[A]	0.056	0.089	<0.05	<0.05	0.056	0.14	0.11	0.26	<0.05	<0.05	<0.05	0.48	<0.05	0.57	<0.05	0.22
Silicon	µg/L	n/v	4,790	4,450	4,820	4,920	4,780	4,610	4,650	4,540	4,500	5,580	5,210	5,070	9,030	10,500	9,960	9,770
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.03	0.04	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	3.46	3.01	3.71	3.96	4.02	6.01	6.03	5.05	5.7	7.65	49.3	49.1	44.8	13.9	66.5	63.6
Strontium	µg/L	n/v	329	284	340	361	359	503	494	469	493	510	260	233	687	1,150	164	147
Sulfur	µg/L	n/v	5,750	9,920	5,750	4,590	5,820	900	800	4,900	<500	5,500	112,000	130,000	183,000	534,000	<500	1,700
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	0.56 DTC	0.4 DTC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.4	<0.1	<0.1
Titanium	µg/L	n/v	<0.3	<0.3	<0.3	<0.3	<0.3	0.7	0.7	0.8	0.7	0.8	<0.3	1.2	<0.3	2.3	<0.3	2.7
Tungsten	µg/L	n/v	0.86	1.08	0.87	0.9	0.88	0.5	0.5	0.9	0.5	0.7	0.88	0.8	1.27	1.4	<0.1	<0.1
Uranium	µg/L	33[A]	0.796	1.14	0.775	0.712	0.762	0.33	0.28	1.07	0.28	0.44	3.34	3.52	0.858	1.23	0.072	0.08
Vanadium	µg/L	20[A]	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	1.8	1.3	1.8	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
Zinc	µg/L	89[A]	9.3	37	10.7	6.5	5.2	2	2	17	2	2	<1	<1	1.3	7	<1	2
Zirconium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.27	0.4	<0.2	0.3	0.56	0.8

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MW01-OB-18		MW01-OB2-18		MW2-OB-13		MW02-OB-18		MW3-BR-13				MW03-BR-18					MW3-OB-13			
Sample Date			27-Sep-22	27-Sep-22	18-Oct-21	18-Oct-21	20-Oct-21	26-Sep-22	18-Oct-21	27-Sep-22	18-Oct-21	6-Jun-22	5-Jul-22	26-Sep-22	12-Oct-21	2-Jun-22	5-Jul-22	5-Jul-22	22-Sep-22	18-Oct-21	6-Jun-22	5-Jul-22	26-Sep-22
Sample ID			MW01-OB2-18	Duplicate 4	MW01-OB-18	DUPLICATE 8	MW2-OB-13	MW2-OB-13	MW02-OB-18	MW02-OB-18	MW3-BR-13	MW3-BR-13	MW3-BR-13	MW3-BR-13	MW03-BR-18	MW03-BR-18	MW03-BR-18	Duplicate 1	MW03-BR-18	MW3-OB-13	MW3-OB-13	MW3-OB-13	MW3-OB-13
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			TESTMARK	TESTMARK	ALS	ALS	ALS	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			478277	478277	L2653042	L2653042	L2654089	478164	L2653042	478277	L2653042	465320	468654	478164	L2650748	465080	468654	1774086	478031	L2653042	465320	468654	478164
Laboratory Sample ID			1805247	1805252	L2653042-3	L2653042-9	L2654089-5	1804846	L2653042-4	1805248	L2653042-2	1762828	1774083	1804843	L2650748-6	1761891	1774081	Field Duplicate	1804285	L2653042-1	1762829	1774084	1804842
Sample Type	Units	MOE APV		Field Duplicate		Field Duplicate																	
General Chemistry																							
Acidity as CaCO3	mg/L	n/v	20	19	14.0	15.1	<2.0	16	9.0	28	2.5	24	35	28	4.6	0.4	16	28	15	12.2	25	36	24
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	239	228	412	415	280	227	154	137	331	326	329	274	359	354	359	351	282	384	415	425	338
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	1	<1	<2.0	<2.0	<2.0	<1	<2.0	<1	<2.0	<1	<1	<1	<2.0	2	2	1	2	<2.0	1	<1	1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	0.00833	0.00777	<2.0	<2.0	<2.0	0.00661	<2.0	0.00339	<2.0	0.00513	0.00289	0.00408	<2.0	0.00759	0.0102	0.00538	0.0155	<2.0	0.00563	0.00389	0.00693
Alkalinity, Total (as CaCO3)	mg/L	n/v	240	229	412	415	280	228	154	137	331	327	330	275	359	356	361	352	284	384	416	426	339
Ammonia (as N)	mg/L	n/v	0.28	0.27	2.28	2.32	0.165	<0.01	3.73	1.69	0.703	0.57	0.46	0.56	0.631	0.52	0.51	0.56	0.5	0.518	0.41	0.39	0.42
Chloride	mg/L	180[A]	3.8	3.8	<1.0 DLDS	4.0	3.02	3.1	7.0	6	21.7	25.5	23.6	21	0.66	1.5	1.2	1.4	1.3	9.36	9.4	8.3	10.5
Cyanide	mg/L	0.0052[A]	0.003	0.004	<0.0020	<0.0020	<0.0020	<0.002	**0.123[A]**	**0.137[A]**	<0.0020	**0.012[A]**	**0.01[A]**	**0.009[A]**	<0.0020	<0.002	<0.002	0.005	<0.002	<0.0020	<0.002	0.004	**0.021[A]**
Cyanide (Free)	mg/L	n/v	<0.001	<0.001	<0.0020	<0.0020	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.0020	0.001	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	1,320	1,320	2,750	2,740	485	470	3,390	3,310	1,020	1,070	1,040	1,040	616	595	595	594	606	811	852	831	866
Fluoride	mg/L	n/v	0.3	0.3	<0.20 DLDS	<0.20 DLDS	0.076	0.09	<0.40 DLDS	<0.5	0.180	0.26	0.39	0.2	0.163	0.17	0.28	0.3	0.15	0.251	0.38	0.49	0.31
Hardness (as CaCO3)	mg/L	n/v	707	705	1,750	1,850	246	364	1,800	2,170	535	547	593	632	301	316	325	311	301	429	492	482	512
Nitrate (as N)	mg/L	n/v	0.07	0.08	<0.20 DLDS	<0.20 DLDS	<0.020	<0.02	<0.40 DLDS	<0.2	0.065	0.09	<0.02	0.07	<0.020	0.04	<0.02	<0.02	<0.02	<0.040 DLDS	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	n/v	<0.02	<0.02	<0.10 DLDS	<0.10 DLDS	<0.010	<0.01	<0.20 DLDS	<0.1	<0.020 DLDS	<0.01	<0.01	<0.02	<0.010	0.11	<0.01	<0.01	<0.01	<0.020 DLDS	<0.01	<0.01	<0.01
pH, lab	S.U.	n/v	7.69	7.66	7.82	7.94	8.15	7.59	7.77	7.3	8.00	7.48	7.23	7.38	8.13	7.65	7.78	7.5	7.96	7.87	7.52	7.36	7.61
Phosphorus, Total	mg/L	n/v	0.014	0.004	2.10	1.44	0.0244	0.13	12.0	7.27	0.0588	0.05	0.116	0.046	0.0840	0.112	0.122	0.136	0.099	0.106	0.031	0.046	0.082
Sulfate	mg/L	n/v	501	492	1,520	1,530	0.47	0.6	2,170	2,120	238	261	263	235	0.53	1.2	0.6	1.2	0.9	86.1	74.4	66	95.2
Total Dissolved Solids	mg/L	n/v	1,110	1,090	2,360	2,540	279	280	3,160	2,920	710	865	870	850	363	365	390	350	365	520	495	560	510
Total Kjeldahl Nitrogen	mg/L	n/v	<1	<1	2.61	3.11	0.322	<1	4.26	<1	0.735	<0.04	1.89	<1	0.756	<0.04	<0.04	1.53	<1	0.545	<0.04	1.24	<1
Total Suspended Solids	mg/L	n/v	34	15	481	448	45.3	1,150	1,760	996	7.0	28	10.7	18.8	4.0	22.7	27	20	9.67	126	66.7	20.7	176
Turbidity, Lab	NTU	n/v	2.3	9.8	453	431	27.1	>1000	1,010	17.8	61.1	44.7	90.3	76.7	12.0	18.3	13.6	16.4	8.7	81.2	38.6	22.9	27.3
Metals																							
Aluminum	µg/L	n/v	2	2	18.7	25	3.5	6	2.8	20	3.1	3	9	3	1.9	3	4	2	2	1.7	<1	1	3
Antimony	µg/L	1,600[A]	0.4	0.4	<0.5 DLHC	<1 DLHC	0.1	0.5	0.58	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	5.2	5.4	**653[A]**	**652[A]**	2.3	1.4	**25,300[A]**	**24,900[A]**	43.9	50.1	53.7	47	122	126	135	137	118	5.49	3.5	4.1	5.7
Barium	µg/L	2,300[A]	30.7	28.3	40.9	41.4	23.2	24.4	16.4	16	390	432	432	481	98.5	106	117	105	98	87.1	96.2	91.8	94.2
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.1 DLHC	<0.2 DLHC	<0.02	<0.02	<0.04 DLHC	<0.2	<0.02	0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.25 DLHC	<0.5 DLHC	<0.05	<0.05	<0.1 DLHC	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	23	24	<50 DLHC	<100 DLHC	<10	<2	767	550	23	11	9	7	37	24	26	23	21	30	21	20	15
Cadmium	µg/L	0.21[A]	0.01	0.02	<0.025 DLHC	<0.05 DLHC	<0.005	0.02	<0.01 DLHC	0.08	<0.005	0.08	0.09	0.106	<0.005	0.006	0.01	0.01	0.02	<0.005	0.009	0.01	0.01
Calcium	mg/L	n/v	159	164	385	407	75.6	75.5	487	541	162	178	181	198	72.0	72	74.8	77.3	74	106	112	118	118
Cesium	µg/L	n/v	0.04	0.04	0.153	0.16	0.014	0.01	0.024	<0.1	1.39	1.4	1.25	1.48	0.277	0.26	0.27	0.27	0.26	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	0.6	0.6	0.87	<1 DLHC	0.28	1.4	<0.2 DLHC	3	0.26	0.5	1	0.4	0.12	<0.1	0.9	1	2.8	0.16	0.6	1.5	1
Cobalt	µg/L	5.2[A]	1.1	1.1	<0.5 DLHC	<1 DLHC	0.1	0.4	**12.9[A]**	**14[A]**	0.46	0.6	0.6	0.8	<0.1	0.1	0.2	0.2	0.4	0.5	0.6	0.6	0.8
Copper	µg/L	6.9[A]	2.6	0.9	1.1	<2 DLHC	0.24	1.1	0.58	3	0.24	0.7	0.5	**34.9[A]**	<0.2	0.6	1.9	0.4	0.4	0.56	0.5	0.3	0.3
Iron	µg/L	n/v	210	240	22,900	23,800	1,570	390	5,330	7,000	6,790	8,500	8,200	9,500	1,430	1,670	1,630	1,630	1,540	2,160	1,570	1,600	1,610
Lead	µg/L	2[A]	0.07	<0.05	<0.25 DLHC	<0.5 DLHC	<0.05	<0.05	<0.1 DLHC	<0.5	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	7	7	12.3	12	<1	<1	162	130	7.1	10	8	6	9.4	13	9	8	9	8.4	11	8	7
Magnesium	mg/L	n/v	78.2	79.5	192	203	13.9	14.7	143	148	31.8	32.1	31.9	36.8	29.3	26.2	26.2	25.6	30	40.1	39	38.1	42.9
Manganese	µg/L	n/v	119	119	587	602	61.2	85.3	551	528	582	630	623	662	28.5	23.9	26.8	26.1	25.7	97.4	94.1	92.1	105
Mercury	µg/L	0.77[A]	0.0003	0.0004	<0.005	<0.005	<0.005	0.0006	<0.005	0.0003	<0.005	-	0.002	0.0003	<0.005	0.0003	0.0005	0.0003	<0.1	<0.005	-	0.0002	0.0004
Molybdenum	µg/L	730[A]	3.39	3.4	0.33	<0.5 DLHC	3.09	3.71	19	16.7	0.359 DTC	0.7	0.74	0.34	0.737	0.6	0.63	0.61	0.65	1.26	1.34	1.83	1.61
Nickel	µg/L	39[A]	11.3	11.4	<2.5 DLHC	<5 DLHC	0.88	4.2	1.6	16	<0.5	4.8	5.7	11.8	<0.5	1.7	2.5	2	3.1	<0.5	2.3	2.7	4.8
Phosphorus	µg/L	n/v	<50	<50	<150 DLHC	<300 DLHC	<30	<50	<60 DLHC	<500	40	<50	<50	<50	46	<50	<50	<50	60	<30	<50	<50	<50
Potassium	mg/L	n/v	6.4	6.66	12.5	13.3	1.62	1.9	27.4	27.6	2.99	2.89	3.21	3.23	4.89	4.5	5.04	4.96	4.86	3.83	3.97	4.17	4.38
Rubidium	µg/L	n/v	5.8	5.6	10.4	11.4	6.05	6.4	7.64	7	2.06	2.3	2.2	2.2	1.37	1.3	1.3	1.3	1.3	1.43	1.7	1.7	1.8
Selenium	µg/L	5[A]	0.3	0.26	<0.25 DLHC	<0.5 DLHC	<0.05	<0.05	0.1	1.3	<0.05	0.37	0.26	0.63	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.36	<0.05	0.23
Silicon	µg/L	n/v	7,810	8,060	12,600	12,800	7,670	6,540	7,590	7,200	8,610	7,580	8,370	7,910	7,150	5,980	6,730	6,420	7,680	10,100	8,080	8,730	9,160
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.05 DLHC	<0.1 DLHC	<0.01	0.05	<0.02 DLHC	<0.1	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	39.9	39.9	14.0	14.7	4.94	4.87	146	121	12.7	13.8	14.7	13.1	15.3	12.2	12.7	11.7	13	10.7	9.24	9.85	11.5
Strontium	µg/L	n/v	651	639	1,250	1,280	80.6	69.6	1,380	1,190	576	520	481	564	581	484	465	463	474	619	553	512	547
Sulfur	µg/L	n/v	176,000	187,000	509,000	534,000	<500	2,200	757,000	680,000	85,000	83,100	86,800	99,500	<500	<500	1,700	1,400	800	32,900	21,700	23,400	22,900
Tellurium	µg/L	n/v	<0.2	<0.2	<1 DLHC	<2 DLHC	<0.2	<0.2	<0.4 DLHC	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.05 DLHC	<0.1 DLHC	<0.01	<0.01	<0.02 DLHC	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.5 DLHC	<1 DLHC	<0.1	<0.1	<0.2 DLHC	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	0.4	0.1	<0.5 DLHC	<1 DLHC	<0.1	0.1	<0.2 DLHC	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4
Titanium	µg/L	n/v	1.5	1.9	<1.5 DLHC	<3 DLHC	<0.3	2	<0.6 DLHC	<3	<0.3	2	2.5	2.1	<0.3	1.6	2.2	2	2.4	<0.3	2	2.3	2.2
Tungsten	µg/L	n/v	0.8	0.8	3.98	4.2	0.17	0.2	0.81	<1	1.91	1.3	1.6	1.4	0.47	0.2	0.2	0.1	0.2	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	33[A]	0.79	0.78	0.788	0.77	0.379	0.57	4.34	4.7	1.66	1.41	1.54	1.84	0.539	0.34	0.37	0.38	0.37	0.295	0.29	0.33	0.39
Vanadium	µg/L	20[A]	<0.5	<0.5	<2.5 DLHC	<5 DLHC	<0.5	<0.5	<1 DLHC	<5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	9	8	<5 DLHC	<10 DLHC	4.5	9	4.2	10	1.1	2	<1	1	<1	1	2	<1	1	<1	1	2	1
Zirconium	µg/L	n/v	<0.2	<0.2	<1 DLHC	<2 DLHC	<0.2	<0.2	<0.4 DLHC	<2	3.87	4.2	3.8	4.7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MW03-OB-18				MW4-OB-13		MW5-OB1-13		MW5-OB2-13	MW6-OB-13					MW07-18		MW7-BR-13		MW08-18		
Sample Date			12-Oct-21	2-Jun-22	5-Jul-22	22-Sep-22	20-Oct-21	22-Sep-22	5-Oct-21	28-Sep-22	5-Oct-21	12-Oct-21	12-Oct-21	6-Jun-22	5-Jul-22	11-Oct-22	15-Oct-21	28-Sep-22	23-Sep-21	22-Sep-22	15-Oct-21	28-Sep-22	28-Sep-22
Sample ID			MW03-OB-18	MW03-OB-18	MW03-OB-18	MW03-OB-18	MW4-OB-13	MW4-OB-13	MW5OB1-13	MW5-OB1-13	MW5-OB2-13	MW6-OB-13	DUPLICATE 3	MW6-OB-13	MW6-OB-13	MW6-OB-13	MW07-18	MW07-18	MW7-BR-13	MW7-BR-13	MW08-18	MW08-18	Douplicate 5
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	ALS	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	TESTMARK
Laboratory Work Order			L2650748	465080	468654	478031	L2654089	478031	L2648196	478408	L2648196	L2650748	L2650748	465320	468654	479641	L2652286	478411	L2643174	477858	L2652286	478411	478411
Laboratory Sample ID			L2650748-7	1761890	1774082	1804286	L2654089-3	1804289	L2648196-4	1805781	L2648196-3	L2650748-3	L2650748-8	1762827	1774085	1811013	L2652286-2	1805806	L2643174-4	1803564	L2652286-1	1805805	1805811
Sample Type	Units	MOE APV											Field Duplicate										Field Duplicate
General Chemistry																							
Acidity as CaCO3	mg/L	n/v	18.7	29	25	22	11.0	39	<2.0	12	4.6	30.8	27.1	31	31	21	275	56	<2.0	17	9.4	16	16
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	384	368	385	306	469	324	253	189	252	255	215	228	232	253	548	520	302	236	234	163	167
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	1	1	<2.0	<1	<2.0	<1	<2.0	<2.0	<2.0	<1	<1	<1	<2.0	1	<2.0	2	<2.0	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00408	0.00502	0.00852	<2.0	0.00355	<2.0	0.00777	<2.0	<2.0	<2.0	0.00191	0.00115	0.00389	<2.0	0.00479	<2.0	0.0112	<2.0	0.00437	0.00538
Alkalinity, Total (as CaCO3)	mg/L	n/v	384	369	386	307	469	325	253	190	252	255	215	228	232	254	548	521	302	237	234	163	168
Ammonia (as N)	mg/L	n/v	0.0209	<0.01	<0.01	<0.01	2.36	1.72	0.0536	0.04	0.110	0.0541	0.0578	0.08	0.04	0.19	0.215	0.13	0.443	0.35	1.61	1.22	1.69
Chloride	mg/L	180[A]	0.62	1.6	1.2	1.4	0.12	0.8	3.60	3.8	1.09	**192[A]**	**194[A]**	**194[A]**	175	150	13.9	12.6	0.75	1.3	19.1	15.8	13
Cyanide	mg/L	0.0052[A]	<0.0020	<0.002	<0.002	<0.002	<0.0020	<0.002	<0.0020	**0.008[A]**	<0.0020	<0.0020	<0.0020	**0.01[A]**	<0.002	**0.007[A]**	**0.0425[A]**	**0.04[A]**	<0.0020	0.002	**0.0136[A]**	**0.009[A]**	**0.008[A]**
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	700	684	671	685	704	701	427	429	428	1,110	1,070	1,010	953	1,080	2,180	2,150	523	507	3,730	2,980	3,000
Fluoride	mg/L	n/v	0.340	0.35	0.43	0.31	0.126	0.11	0.073	<0.05	0.149	0.072	<0.040 DLDS	<0.05	<0.05	<0.1	0.11	<0.2	0.271	0.26	0.47	0.7	0.6
Hardness (as CaCO3)	mg/L	n/v	375	931	410	651	371	537	216	233	212	280	282	257	400	371	1,390	1,720	214	253	1,290	1,240	1,200
Nitrate (as N)	mg/L	n/v	<0.020	<0.02	<0.02	<0.02	<0.020	<0.02	<0.020	<0.02	<0.020	0.087	<0.040 DLDS	<0.02	<0.02	<0.04	<0.10 DLDS	<0.08	<0.020	<0.02	<0.40 DLDS	<0.08	<0.2
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.020 DLDS	<0.020 DLDS	0.81	<0.01	<0.02	<0.050 DLDS	<0.04	<0.010	<0.01	<0.20 DLDS	<0.04	<0.1
pH, lab	S.U.	n/v	7.63	7.38	7.47	7.7	7.58	7.32	8.05	7.66	8.02	7.12	7.12	7.05	6.83	7.36	7.69	7.45	7.97	7.82	7.96	7.41	7.5
Phosphorus, Total	mg/L	n/v	0.168	1.12	0.154	0.41	1.29	0.54	0.0470	0.027	0.0448	0.0476	0.0375	0.063	0.273	0.016	3.13	0.97	0.0537	0.008	3.37	1.29	0.3
Sulfate	mg/L	n/v	21.5	24.9	22.3	21.2	<0.30	<0.3	8.73	8.3	5.34	18.1	15.8	7.7	1	2.7	876	656	<0.30	0.4	2,050	1,540	1,420
Total Dissolved Solids	mg/L	n/v	364	390	420	415	441	465	237	200	241	767	758	645	625	605	1,770	2,010	296	245	3,000	2,800	2,770
Total Kjeldahl Nitrogen	mg/L	n/v	0.146	<0.04	0.28	<1	2.74	<1	0.078	<1	0.144	1.09	0.967	<0.04	1.3	<1	0.49	<1	0.472	<1	1.89	<1	<1
Total Suspended Solids	mg/L	n/v	174	91	168	694	876	284	6.2	7.67	37.4	65.2	89.8	48.3	228	241	1,080	1,900	33.7	7	742	210	230
Turbidity, Lab	NTU	n/v	78.7	501	66.6	15.3	654	403	7.48	2.5	28.7	61.2	61.6	24.3	128	146	724	3.6	22.4	2.4	474	14.1	4.6
Metals																							
Aluminum	µg/L	n/v	42.7	1	1	3	190	11	1.4	2	1.3	82.2	84.3	92	61	60	6.4	8	2	2	10.5	2	<1
Antimony	µg/L	1,600[A]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.26	0.3	<0.1	<0.1	<0.5 DLHC	0.8	0.6
Arsenic	µg/L	150[A]	0.64	0.6	0.5	0.5	96.1	101	6.28	7.8	1.99	15.2	15.4	13.6	21.4	23.4	**1,520[A]**	**2,160[A]**	2.19	2.9	**5,350[A]**	**7,110[A]**	**2,180[A]**
Barium	µg/L	2,300[A]	36.6	43.5	49.4	36.3	42.7	34.7	21.4	20.6	30.5	64.9	63.3	58.8	68	96.1	132	122	28.8	32.4	19.6	17.6	13.9
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1 DLHC	<0.02	<0.02	<0.02	<0.1 DLHC	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25 DLHC	<0.05	<0.05	<0.05	<0.25 DLHC	<0.05	<0.05
Boron	µg/L	3,550[A]	10	<2	<2	<2	13	<2	<10	<2	11	<10	<10	<2	<2	<2	<50 DLHC	<2	41	28	112	94	80
Cadmium	µg/L	0.21[A]	0.0069	0.007	<0.005	0.006	<0.005	0.03	<0.005	0.02	<0.005	<0.005	<0.005	0.02	0.03	0.02	<0.025 DLHC	0.05	<0.005	0.02	<0.025 DLHC	0.04	0.05
Calcium	mg/L	n/v	111	115	119	114	122	124	66.60	78.7	64.10	88.4	89.1	77	86.9	122	394	416	51.1	57.1	338	309	298
Cesium	µg/L	n/v	<0.01	<0.01	<0.01	<0.01	0.025	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01	0.076	0.05	2.03	1.84	0.081	0.06	0.05
Chromium	µg/L	64[A]	0.23	0.1	1.3	5.6	1.1	8.3	0.12	0.1	<0.1	2.08	1.98	1.5	2.7	1.8	<0.5 DLHC	4.6	0.27	2.6	<0.5 DLHC	1.4	8.2
Cobalt	µg/L	5.2[A]	<0.1	0.2	0.2	0.3	0.75	1	<0.1	0.3	<0.1	4.38	4.32	4.1	4.2	4	**9.09[A]**	**8.1[A]**	0.17	0.5	**9.66[A]**	3.3	2.7
Copper	µg/L	6.9[A]	<0.2	0.5	1	0.2	0.66	<0.2	<0.2	<0.2	0.32	0.3	<0.2	3.3	3.1	5.3	1.3	1.3	<0.2	0.5	1.1	**13.1[A]**	2.8
Iron	µg/L	n/v	1,290	1,480	1,140	1,230	7,250	7,800	996	1,250	485	15,900	16,300	13,800	16,400	20,300	14,600	21,600	789	660	12,100	16,000	310
Lead	µg/L	2[A]	<0.05	<0.05	0.08	<0.05	0.206	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	<0.25 DLHC	0.14	<0.05	<0.05	<0.25 DLHC	0.08	<0.05
Lithium	µg/L	n/v	6.9	10	7	7	7.1	6	1.5	1	4.3	2.4	2.2	2	1	<1	13.2	12	3.9	4	118	125	108
Magnesium	mg/L	n/v	23.9	21.5	21.2	23.5	15.9	15.5	12.00	13	12.60	14.4	14.4	11	11.5	16	98.1	96.7	20.9	24.2	107	95	98.1
Manganese	µg/L	n/v	60.7	53.4	56.5	55.5	341	343	141	139	51.4	2,480	2,440	2,130	2,030	2,790	1,460	1,400	237	274	1,290	678	670
Mercury	µg/L	0.77[A]	<0.005	0.00005	0.001	<0.1	<0.005	0.0004	<0.005	0.0003	<0.005 PDM	<0.005	<0.005	-	0.003	0.0009	<0.005	0.0002	<0.005	0.0003	<0.005	0.0003	0.0003
Molybdenum	µg/L	730[A]	0.67	0.85	0.65	0.67	2.65	2.37	0.701	0.64	0.443	1.37	1.29	1.1	1.22	1.72	0.53	0.48	1.21	0.89	8.3	8.69	7.6
Nickel	µg/L	39[A]	<0.5	1.8	1.7	3.1	1.1	7.2	<0.5	2.5	<0.5	1.17	1.15	2.6	3.6	3.1	9.5	21.5	0.84	3.9	19.1	19.1	6.3
Phosphorus	µg/L	n/v	<30	<50	<50	<50	253	220	<30	<50	<30	<30	<30	<50	<50	<50	<150 DLHC	<50	<30	<50	<150 DLHC	<50	<50
Potassium	mg/L	n/v	1.95	1.66	1.89	1.95	0.939	0.88	0.56	0.58	1.37	0.781	0.774	0.56	0.89	1.92	12.7	10.9	3.53	3.28	37.2	35.2	35.6
Rubidium	µg/L	n/v	1.59	1.4	1.4	1.5	0.99	0.6	0.37	0.4	0.38	0.76	0.75	0.6	0.9	1.1	8.7	7.4	3.02	3.1	13.9	12.4	10.5
Selenium	µg/L	5[A]	<0.05	0.14	<0.05	<0.05	0.062	<0.05	<0.05	0.18	<0.05	0.329	0.29 DTSE	0.28	0.41	0.36	<0.25 DLHC	0.74	<0.05	0.18	<0.25 DLHC	1.25	1.01
Silicon	µg/L	n/v	7,580	6,210	6,930	7,680	8,640	9,380	7,100	6,520	8,980	5,730	5,740	3,540	4,990	5,640	12,700	14,400	6,930	6,980	4,850	4,730	4,160
Silver	µg/L	0.12[A]	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05 DLHC	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Sodium	mg/L	180[A]	4.26	3.41	3.55	3.81	8.77	7.31	2.79	2.28	4.42	97.8	97.8	84.7	101	114	23.9	24.6	22.1	22.9	**420[A]**	**346[A]**	**340[A]**
Strontium	µg/L	n/v	122	102	95.6	100	181	152	106	91.8	150	174	173	115	140	158	1,140	858	332	293	2,450	1,710	1,740
Sulfur	µg/L	n/v	7,350	5,800	9,800	7,900	<500	1,000	2,170	4,000	1,410	5,870	6,060	<500	800	900	341,000	249,000	<500	<500	736,000	504,000	520,000
Tellurium	µg/L	n/v	<0.2	<0.2	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1 DLHC	<0.2	<0.2	<0.2	<1 DLHC	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05 DLHC	<0.01	<0.01	<0.01	0.089	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	<0.1	0.25	0.24	0.2	0.2	0.2	<0.5 DLHC	<0.1	<0.1	<0.1	<0.5 DLHC	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5 DLHC	0.4	0.13	1.2	<0.5 DLHC	0.3	<0.1
Titanium	µg/L	n/v	3.31	1.6	2	2.2	11.1	4.5	<0.3	2	<0.3	2.33	2.23	3.8	3.5	2.8	<1.5 DLHC	3.3	<0.3	1.7	<1.5 DLHC	1.2	0.8
Tungsten	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.68	0.6	0.19	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5 DLHC	<0.1	1.89	1.8	<0.5 DLHC	0.4	0.3
Uranium	µg/L	33[A]	0.023	0.01	0.02	0.01	0.05	0.02	0.016	0.03	<0.01	0.718	0.7	0.38	0.56	0.55	1.26	0.96	0.206	0.22	11.2	2.83	2.34
Vanadium	µg/L	20[A]	<0.5	<0.5	<0.5	1.4	1.42	3.1	<0.5	<0.5	<0.5	8.2	8.13	6	8.3	7.2	<2.5 DLHC	1.2	<0.5	0.6	<2.5 DLHC	<0.5	2.2
Zinc	µg/L	89[A]	<1	1	2	<1	1.7	<1	<1	<1	<1	1	1.2	1	2	2	<5 DLHC	5	<1	<1	<5 DLHC	4	28
Zirconium	µg/L	n/v	0.23	<0.2	<0.2	<0.2	1.84	1.8	0.53	0.6	<0.2	0.98	0.98	0.7	1	0.9	<1 DLHC	0.4	<0.2	<0.2	<1 DLHC	<0.2	<0.2

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Greenstone Project

Sample Location			MW8-OB-14		MW09-18			MW9-OB1-13		MW9-OB2-13	MW10-18	MW11-BR-14		MW11-OB-14		MW12-OB-14			MW13-OB-14		MW14-BR-14		
Sample Date			25-Oct-21	4-Oct-22	14-Oct-21	14-Oct-21	28-Sep-22	21-Sep-21	22-Sep-22	22-Sep-22	20-Oct-21	6-Oct-21	27-Sep-22	2-Nov-21	27-Sep-22	4-Oct-21	4-Oct-21	3-Oct-22	21-Oct-21	3-Oct-22	23-Sep-21	28-Sep-22	28-Sep-22
Sample ID			MW8-OB-14	MW8-OB-14	MW-09-18	DUPLICATE 6	MW09-18	MW9-OB1-13	MW9-OB1-13	MW9-OB2-13	MW10-18	MW11-BR-14	MW11-BR-14	MW11-OB-14	MW11-OB-14	MW12-OB-14	DUPLICATE	MW12-OB-14	MW13-OB-14	MW13-OB-14	MW-14-BR-14	MW14-BR-14	Duplicate 6
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	ALS	ALS	TESTMARK	ALS	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	ALS	TESTMARK	ALS	ALS	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	TESTMARK
Laboratory Work Order			L2655596	479023	L2651924	L2651924	478411	L2642733	477858	477858	L2654089	L2648820	478277	L2658891	478277	L2647728	L2647728	478774	L2654719	478774	L2643174	478408	478408
Laboratory Sample ID			L2655596-2	1808328	L2651924-3	L2651924-4	1805804	L2642733-6	1803565	1803566	L2654089-2	L2648820-3	1805249	L2658891-1	1805250	L2647728-1	L2647728-2	1807321	L2654719-2	1807320	L2643174-1	1805780	1805783
Sample Type	Units	MOE APV				Field Duplicate											Field Duplicate						Field Duplicate
General Chemistry																							
Acidity as CaCO3	mg/L	n/v	5.9	41	3.4	<2.0	26	<2.0	21	30	24.2	7.7	15	9.3	9	8.6	4.6	10	2.6	8	<2.0	11	10
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	344	253	359	358	301	311	254	376	494	302	219	287	131	217	213	167	399	141	283	205	197
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	<2.0	<2.0	1	<2.0	1	1	<2.0	<2.0	<1	<2.0	<1	<2.0	<2.0	1	<2.0	1	<2.0	1	1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00224	<2.0	<2.0	0.00709	<2.0	0.00795	0.00513	<2.0	<2.0	0.00709	<2.0	0.00646	<2.0	<2.0	0.0145	<2.0	0.0123	<2.0	0.0112	0.0126
Alkalinity, Total (as CaCO3)	mg/L	n/v	344	253	359	358	302	311	255	377	494	302	220	287	131	217	213	168	399	142	283	206	198
Ammonia (as N)	mg/L	n/v	0.162	0.07	0.173	0.196	0.15	0.430	0.21	0.11	0.0205	0.0560	<0.01	0.0283	<0.01	<0.0050	<0.0050	<0.01	0.0271	0.03	0.184	0.26	0.22
Chloride	mg/L	180[A]	0.41	0.9	3.71	3.88	3	0.73	1.3	3.6	9.22	0.48	0.9	0.84	1.3	0.38	0.39	1.2	0.34	0.6	0.85	1.2	1.1
Cyanide	mg/L	0.0052[A]	<0.0020	**0.008[A]**	**0.0687[A]**	**0.0692[A]**	**0.06[A]**	<0.0020	0.004	0.003	<0.0020	<0.0020	**0.006[A]**	0.0032	**0.007[A]**	<0.0020	<0.0020	<0.002	<0.0020	0.002	<0.0020	<0.002	<0.002
Cyanide (Free)	mg/L	n/v	<0.0020	0.006	<0.0020	<0.0020	0.003	<0.0020	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.0020	0.002	<0.0020	<0.0020	<0.001	<0.0020	0.001	<0.0020	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	544	547	1,840	1,840	2,660	540	533	769	1,060	551	491	583	287	371	366	374	302	304	466	421	426
Fluoride	mg/L	n/v	0.568	0.42	0.17	0.17	0.2	0.399	0.38	0.34	<0.040	0.192	0.18	0.272	0.19	0.093	0.093	0.09	0.034	<0.05	0.485	0.45	0.44
Hardness (as CaCO3)	mg/L	n/v	296	378	606	620	1,430	233	343	663	577	237	237	110	178	182	180	430	154	3,890	123	221	227
Nitrate (as N)	mg/L	n/v	<0.020	<0.02	<0.10 DLDS	<0.10 DLDS	<0.08	<0.020	0.3	0.34	0.267	<0.020	<0.02	0.029	<0.02	<0.020	<0.020	<0.02	0.028	<0.02	<0.020	<0.02	<0.02
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.050 DLDS	<0.050 DLDS	<0.04	<0.010	<0.01	<0.01	<0.020	<0.010	<0.01	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
pH, lab	S.U.	n/v	7.90	7.12	8.13	8.03	7.62	8.28	7.67	7.48	7.53	7.90	7.62	7.74	7.58	8.02	8.05	7.86	7.96	7.93	7.96	7.82	7.87
Phosphorus, Total	mg/L	n/v	0.203	0.05	0.143	0.312	0.13	0.324	0.33	0.25	0.0813	0.0051	0.005	0.685	0.2	0.136	0.165	0.28	1.44	2.93	0.163	0.2	0.14
Sulfate	mg/L	n/v	<0.30	<0.3	713	706	1,320	1.10	0.3	12.2	134	27.3	7.8	41.5	3.7	12.1	12.0	10.9	3.04	2.5	<0.30	<0.3	<0.3
Total Dissolved Solids	mg/L	n/v	304	355	1,390	1,350	2,190	297	260	400	724	314	325	420	190	229	223	255	170	235	291	260	245
Total Kjeldahl Nitrogen	mg/L	n/v	0.144	<1	1.95	1.10	<1	0.682	<1	<1	0.101	0.150	<1	0.674	<1	<0.050	<0.050	<1	0.194	<1	0.339	<1	<1
Total Suspended Solids	mg/L	n/v	3,010	102	329	236	512	909	207	251	449	3.9	63.7	621	186	333	412	718	2,730	2,010	256	85.5	81.3
Turbidity, Lab	NTU	n/v	260	29.2	140	140	1.5	349	6.4	1.5	80.3	1.11	0.4	218	24.8	74.5	53.5	267	3,220	>1000	62.7	6.7	2.9
Metals																							
Aluminum	µg/L	n/v	15.2	2	1,240	2,510	3	<1	2	2	9.6	7.5	7	357	43	4.9	5.3	2	6.3	4	13.4	7	7
Antimony	µg/L	1,600[A]	<0.5 DLM	<0.1	0.57	<1 DLM	0.4	<0.1	<0.1	<0.1	0.17	0.17	0.2	1.19	1.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	2.87	3.3	**242[A]**	**245[A]**	**183[A]**	1.84	2.8	0.2	3.85	1.4	7.3	2.87	5.2	0.4	0.4	0.4	0.71	0.4	4.35	6.4	6.7
Barium	µg/L	2,300[A]	26.6	31.4	89.4	92.3	58.1	46.2	47	35.8	55.1	47	32.9	69	91.6	23.1	22.3	25.9	7.17	13.7	35.4	38.4	41
Beryllium	µg/L	5.3[A]	<0.1 DLM	<0.02	0.47	<0.2 DLM	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.062	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.25 DLM	<0.05	<0.25 DLM	<0.5 DLM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	<50 DLM	24	67	<100 DLM	39	61	41	<2	<10	23	4	16	<2	<10	<10	<2	<10	<2	56	35	36
Cadmium	µg/L	0.21[A]	<0.025 DLM	<0.005	0.051	<0.05 DLM	0.05	<0.005	0.02	0.03	0.0271	<0.005	0.02	0.0116	0.03	<0.005	<0.005	0.005	<0.005	0.007	<0.005	0.01	0.009
Calcium	mg/L	n/v	74.7	74.3	127	130	246	47.0	51	124	176	71.8	73.9	37.7	32	52.6	52.2	59.4	46.6	50.5	27.7	29.7	29.9
Cesium	µg/L	n/v	<0.05 DLM	<0.01	0.175	<0.1 DLM	0.06	0.011	0.01	<0.01	0.019	0.012	0.02	0.031	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.036	0.03	0.03
Chromium	µg/L	64[A]	<0.5 DLM	0.3	0.72	<1 DLM	0.6	0.16	2.6	4.4	0.32	<0.1	0.6	1.07	1.1	0.25	0.25	0.5	0.56	0.5	0.2	0.4	0.4
Cobalt	µg/L	5.2[A]	0.89	1.3	1.53	1.3	2.5	0.24	0.6	0.7	0.33	0.6	0.8	0.42	1.1	<0.1	<0.1	0.2	<0.1	0.2	0.12	0.8	0.8
Copper	µg/L	6.9[A]	<1 DLM	0.4	3.1	<2 DLM	3.2	0.36	0.4	2.1	2.59	0.44	2	5.99	3.4	0.24	0.6	1.7	1.14	2.2	<0.2	0.5	1.1
Iron	µg/L	n/v	592	780	1,230	1,810	1,500	1,330	1,050	250	29	22	130	358	860	26	21	30	13	20	281	320	360
Lead	µg/L	2[A]	0.26	<0.05	**2.12[A]**	1.97	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.8	0.15	<0.05	<0.05	0.07	<0.05	0.06	<0.05	<0.05	0.07
Lithium	µg/L	n/v	9.1	8	50.8	53	74	6.6	7	11	1.7	<1	<1	<1	<1	2.3	2.4	3	<1	<1	1.2	2	2
Magnesium	mg/L	n/v	26.7	28.5	70.4	71.5	192	28.0	30.5	32.9	33.1	13.9	14.9	3.81	3.6	12.2	12.0	14.7	9.09	10.6	13.1	15.6	16
Manganese	µg/L	n/v	180	196	320	328	326	29.9	42.6	21.9	1.94	194	218	29.9	245	11.8	10.8	2.6	1.69	0.8	75.6	62.7	64.4
Mercury	µg/L	0.77[A]	<0.005	0.0003	<0.005	<0.005	0.0006	<0.005	0.0004	0.0004	<0.005	<0.005	0.0005	<0.005	0.01	<0.005	<0.005	0.0005	<0.005	0.0003	<0.005	0.0003	0.0003
Molybdenum	µg/L	730[A]	5.54	4.8	5.21	5.63	5.78	1.21	1.39	1.05	0.562	10.3	5.45	3.59 D	2.09	0.829	0.913	0.75	0.241	0.25	2.79	2.45	2.58
Nickel	µg/L	39[A]	<2.5 DLM	11.6	4.6	<5 DLM	11.5	<0.5	3.3	2.6	1.38	1.1	2	1.63	2.8	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	1.3	1.5
Phosphorus	µg/L	n/v	<150 DLM	<50	<150 DLM	<300 DLM	<50	34	<50	<50	<30	<30	<50	<30	<50	<30	<30	<50	<30	<50	<30	<50	<50
Potassium	mg/L	n/v	3.71	3.97	20.1	20.8	28.1	3.43	3.43	2.88	1.58	2.06	1.74	2.19	2.05	1.84	1.84	2.05	0.459	0.51	3.14	3.14	3.21
Rubidium	µg/L	n/v	<1 DLM	0.8	8.7	9.1	10	0.92	0.9	1	2.22	4.86	3.8	1.02	1.3	2.62	2.51	2.3	1.42	1.9	2.1	1.7	1.7
Selenium	µg/L	5[A]	<0.25 DLM	<0.05	0.63	<0.5 DLM	0.55	<0.05	0.12	0.55	0.069	<0.05	0.19	0.437	<0.05	<0.05	0.054	0.15	0.1	0.07	0.099	<0.05	<0.05
Silicon	µg/L	n/v	8,500	8,240	10,400	14,300	7,730	8,910	8,970	8,920	7,760	6,880	6,980	4,460	3,680	4,410	4,440	4,350	3,960	3,840	6,430	6,100	6,350
Silver	µg/L	0.12[A]	<0.05 DLM	<0.01	<0.05 DLM	<0.1 DLM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	12.2	11.8	**182[A]**	**189[A]**	**193[A]**	24.9	25.3	7	5.60	16.3	9.84	95.2	31.7	2.08	2.02	2.21	2.03	2.43	46.4	51.1	51.4
Strontium	µg/L	n/v	204	171	900	933	1,600	371	313	146	213	216	195	75	56.7	46.5	45.5	40.3	39	33.3	187	161	161
Sulfur	µg/L	n/v	<2,500 DLM	<500	254,000	253,000	450,000	<500	<500	3,600	49,900	3,750	2,600	13,300	3,000	3,430	3,380	3,000	1,020	700	<500	1,400	1,700
Tellurium	µg/L	n/v	<1 DLM	<0.2	<1 DLM	<2 DLM	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.05 DLM	<0.01	<0.05 DLM	<0.1 DLM	0.03	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	0.012	<0.01	0.017	0.032	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.5 DLM	<0.1	2.07	1.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.23	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.5 DLM	<0.1	<0.5 DLM	<1 DLM	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.5	<0.1	<0.1	0.3	<0.1	0.5	<0.1	0.4	<0.1
Titanium	µg/L	n/v	<1.5 DLM	2.6	16.7	28	1.7	<0.3	2.4	2.2	<0.3	<0.3	1.7	7.63	2.9	<0.3	<0.3	1.2	0.32	1.2	<0.81 DLM	1.8	1.9
Tungsten	µg/L	n/v	<0.5 DLM	<0.1	<0.5 DLM	<1 DLM	0.2	5.71	4.2	0.1	<0.1	1.45	0.9	0.16	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	7.08	6	6.1
Uranium	µg/L	33[A]	1.44	1.04	4.71	4.82	4.31	0.032	0.04	1.17	1.28	2.58	1.58	6.69	1.66	1.34	1.34	1.09	0.336	0.32	0.226	0.2	0.2
Vanadium	µg/L	20[A]	<2.5 DLM	<0.5	2.6	<5 DLM	1.8	<0.5	0.8	1.4	<0.5	<0.5	<0.5	1.02	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	<5 DLM	1	8.9	<10 DLM	5	1.2	<1	2	2.2	1.1	3	1.9	2	<1	<1	2	1.2	1	<1	<1	2
Zirconium	µg/L	n/v	<1 DLM	<0.2	2.1	3.1	0.4	<0.2	<0.2	<0.2	0.39	0.23	0.3	1.07	1.1	<0.2	<0.2	<0.2	<0.2	<0.2	0.36	0.3	0.3

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MW14-OB-14		MW15-BR-14				MW15-OB-14				MW17-OB-14		MW18-BR-21					MW19-BR-21			
Sample Date			23-Sep-21	28-Sep-22	4-Oct-21	7-Jun-22	11-Jul-22	4-Oct-22	4-Oct-21	7-Jun-22	11-Jul-22	4-Oct-22	23-Sep-21	22-Sep-22	20-Oct-21	8-Jun-22	11-Jul-22	11-Oct-22	11-Oct-22	20-Oct-21	2-Jun-22	11-Jul-22	11-Oct-22
Sample ID			MW-14-OB-14	MW14-OB-14	MW15-BR-14	MW15-BR-14	MW15-BR-14	MW15-BR-14	MW15-OB-14	MW15-OB-14	MW15-OB-14	MW15-OB-14	MW17-OB-14	MW17-OB-14	MW18-BR-21	MW18-BR-21	MW18-BR-21	MW18-BR-21	Duplicate 8	MW19-BR-21	MW19-BR-21	MW19-BR-21	MW19-BR-21
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			L2643174	478408	L2647728	465562	469178	479023	L2647728	465562	469178	479023	L2643174	477858	L2654089	465781	469178	479641	479641	L2654089	465080	469178	479641
Laboratory Sample ID			L2643174-2	1805779	L2647728-3	1763655	1775874	1808331	L2647728-4	1763654	1775875	1808332	L2643174-5	1803560	L2654089-4	1764334	1775884	1811004	1811011	L2654089-6	1761893	1775881	1811005
Sample Type	Units	MOE APV																	Field Duplicate				
General Chemistry																							
Acidity as CaCO3	mg/L	n/v	2.2	18	<2.0	8	17	22	4.2	7	11	18	<2.0	24	<2.0	<2	<2	<5	<5	<2.0	19	25	15
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	353	286	189	184	188	147	206	197	203	161	363	305	209	173	169	76	85	268	242	254	198
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	1	<2.0	<1	<1	<1	<2.0	1	<1	<1	<2.0	1	<2.0	10	7	61	80	<2.0	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00677	<2.0	0.00978	0.00372	0.00309	<2.0	0.0118	0.00693	0.00447	<2.0	0.00693	<2.0	0.107	0.0759	1.45	1.7	<2.0	0.00468	0.00363	0.00759
Alkalinity, Total (as CaCO3)	mg/L	n/v	353	287	189	185	188	147	206	198	204	161	363	306	209	184	176	141	170	268	243	255	199
Ammonia (as N)	mg/L	n/v	<0.0050	<0.01	0.0840	0.14	0.06	0.03	<0.0050	0.04	<0.01	<0.01	0.0360	<0.01	0.456	0.07	0.12	0.04	0.06	0.742	0.61	0.61	0.5
Chloride	mg/L	180[A]	0.32	0.9	0.24	0.6	0.5	0.6	0.26	0.7	0.5	0.7	**433[A]**	**281[A]**	2.27	3.6	4.5	4	4.2	124	147	136	114
Cyanide	mg/L	0.0052[A]	<0.0020	<0.002	<0.0020	**0.033[A]**	<0.002	**0.015[A]**	<0.0020	**0.01[A]**	<0.002	<0.002	<0.0020	0.004	<0.0020	**0.068[A]**	<0.002	**0.011[A]**	**0.009[A]**	<0.0020	0.002	<0.002	0.004
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.0020	<0.001	<0.001	0.01	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.0020	0.012	<0.001	0.002	<0.001	<0.0020	<0.001	<0.001	0.002
Electrical Conductivity, Lab	µS/cm	n/v	603	584	355	329	340	344	351	340	350	360	1,960	1,570	432	369	320	436	423	906	917	898	924
Fluoride	mg/L	n/v	0.545	0.49	0.155	0.1	0.11	0.13	0.045	<0.05	<0.05	<0.05	<0.10 DLDS	<0.1	0.165	0.16	0.16	0.3	0.35	0.144	0.21	0.2	0.2
Hardness (as CaCO3)	mg/L	n/v	270	319	169	172	187	201	178	253	206	414	292	363	160	143	102	115	122	386	465	471	434
Nitrate (as N)	mg/L	n/v	0.410	0.4	<0.020	<0.02	<0.02	<0.02	0.026	<0.02	<0.02	<0.02	<0.10 DLDS	0.38	<0.020	<0.02	<0.02	<0.04	<0.02	<0.040 DLDS	<0.02	<0.02	<0.04
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.050 DLDS	<0.02	<0.010	<0.01	<0.01	<0.02	<0.01	<0.020 DLDS	1.51	<0.01	<0.02
pH, lab	S.U.	n/v	7.62	7.6	8.09	7.76	7.34	7.26	8.07	7.84	7.61	7.42	8.00	7.61	8.25	8.8	8.65	9.93	10	8.08	7.44	7.33	7.65
Phosphorus, Total	mg/L	n/v	0.170	0.015	0.0063	<0.001	0.008	0.003	0.374	0.104	0.017	0.16	0.101	0.01	0.0318	0.075	0.076	0.047	0.048	0.181	0.423	0.361	0.072
Sulfate	mg/L	n/v	6.02	5.5	13.0	13.9	14	12	3.83	5.2	4	3.8	18.7	14.8	31.8	22.7	9.9	27.1	29.4	31.6	41.7	34	28.4
Total Dissolved Solids	mg/L	n/v	330	340	203	160	215	240	204	130	200	220	1,050	770	283	270	245	305	330	570	815	765	590
Total Kjeldahl Nitrogen	mg/L	n/v	0.158	<1	0.131	0.14	1.43	<1	<0.050	0.08	0.88	<1	0.266	<1	0.659	0.22	2.78	<1	<1	0.790	<0.04	1.83	<1
Total Suspended Solids	mg/L	n/v	443	186	<3.0	2	2	5	185	249	82.3	936	460	171	16.1	152	39.3	46.5	56	165	104	144	86
Turbidity, Lab	NTU	n/v	212	3.1	1.53	2.8	1.9	2.3	123	135	8.4	471	258	2.1	9.83	118	213	157	128	110	78.3	270	83
Metals																							
Aluminum	µg/L	n/v	28.7	4	4.6	4	4	5	6.2	2	6	5	5.6	4	373	38	70	117	116	12	5	5	5
Antimony	µg/L	1,600[A]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	0.82	0.7	1.9	1.1	1.1	4.75	0.5	0.6	0.5
Arsenic	µg/L	150[A]	0.28	0.6	1.07	0.6	0.6	0.5	0.56	0.6	0.7	0.7	0.49	4.8	**164[A]**	32.3	128	61.8	61.9	14.8	63.4	39	50.3
Barium	µg/L	2,300[A]	37.9	36.7	17.7	22.4	8.2	9.6	27.2	23.8	22.9	24.3	29.9	43.2	34.5	23.4	9.4	7.5	6.9	106	117	113	141
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	19	<2	11	<2	<2	<2	<10	<2	<2	<2	<10	<2	14	<2	<2	<2	<2	33	21	12	11
Cadmium	µg/L	0.21[A]	<0.005	0.01	<0.005	0.008	0.02	0.01	0.0052	0.007	0.009	0.01	<0.005	0.03	0.0308	0.01	0.05	0.009	0.01	0.0083	0.01	0.005	0.01
Calcium	mg/L	n/v	74.8	88.9	51.1	49.2	54	58.9	54.2	53.6	54.6	63.9	91.5	144	46.8	33.7	10.7	8.59	8.33	94.9	103	92	104
Cesium	µg/L	n/v	<0.01	<0.01	0.038	0.09	0.11	0.1	<0.01	<0.01	<0.01	<0.01	0.011	0.02	0.147	0.05	0.12	0.04	0.04	0.954	0.85	1.1	0.94
Chromium	µg/L	64[A]	1.58	1.7	<0.1	<0.1	<0.1	0.2	0.29	0.2	0.4	0.6	0.15	4.5	0.55	0.3	0.4	0.5	0.3	0.15	0.1	0.2	0.5
Cobalt	µg/L	5.2[A]	<0.1	0.3	0.16	0.2	0.3	0.3	<0.1	0.1	0.1	0.2	0.66	0.7	1.31	0.3	1	0.1	0.1	3.52	2.3	2.6	1.9
Copper	µg/L	6.9[A]	2.08	2.4	<0.2	1	0.3	3.6	0.3	0.3	0.3	0.8	0.98	2.9	5.72	1.7	4.6	4.1	2.8	0.41	0.9	0.2	2.4
Iron	µg/L	n/v	24	40	416	250	260	340	<10	<10	<10	40	21	100	966	<10	10	30	30	144	4,700	630	4,500
Lead	µg/L	2[A]	0.119	0.08	<0.05	<0.05	<0.05	0.15	0.069	<0.05	<0.05	0.05	<0.05	0.08	**4.81[A]**	0.58	1.55	0.45	0.44	<0.05	0.06	0.08	0.08
Lithium	µg/L	n/v	4.7	7	1.1	2	2	2	1.2	2	1	1	1.1	4	1.8	3	5	7	7	8.6	12	8	7
Magnesium	mg/L	n/v	20.2	25.6	10.2	9.77	11.7	12.2	10.3	9.42	9.39	12.2	15.4	25.8	10.5	7.4	4.53	2.24	2.17	36.1	36.3	37.5	40.3
Manganese	µg/L	n/v	1.67	1.2	67	58.1	67.5	68.2	1.07	2.4	0.3	0.4	588	136	177	104	1.9	0.8	0.9	308	638	427	464
Mercury	µg/L	0.77[A]	<0.005	0.0003	<0.005	0.00006	0.0007	0.0003	<0.005	0.0002	0.001	0.0004	<0.005	0.0005	<0.005	0.0002	0.001	0.0009	0.0009	<0.005	0.00003	0.002	0.0006
Molybdenum	µg/L	730[A]	1.98	1.92	0.586	0.58	0.66	0.7	0.724	0.57	0.46	0.68	0.625	1.58	8.72	4.8	6.45	6.02	5.69	2.31	2.44	2.25	2.84
Nickel	µg/L	39[A]	<0.5	1.1	<0.5	0.6	0.9	1	<0.5	<0.5	0.8	0.7	1.68	2.6	1.65	<0.5	2.4	0.9	0.8	13.8	7.4	7.9	3.7
Phosphorus	µg/L	n/v	<30	<50	<30	<50	<50	<50	<30	<50	<50	<50	<30	<50	<30	<50	<50	<50	<50	<30	<50	<50	<50
Potassium	mg/L	n/v	3.29	3.31	1.82	1.55	1.66	1.75	1.71	1.4	1.36	1.75	0.568	0.61	1.86	2.31	5.83	13.8	13.6	5.39	5.06	5.46	5.68
Rubidium	µg/L	n/v	2.05	1.7	3.76	3.1	3.1	3.2	2.98	2.4	2.7	2.5	1.29	1.9	1.87	1.8	2.3	3.6	3.5	5.55	4.9	4.8	4.4
Selenium	µg/L	5[A]	0.266	0.13	<0.05	0.08	<0.05	<0.05	0.089	<0.05	<0.05	0.07	0.06	0.53	0.158	0.17	0.17	0.08	0.15	0.073	0.36	0.39	0.17
Silicon	µg/L	n/v	7,910	7,670	7,330	5,850	6,610	6,870	4,710	3,660	4,050	4,530	5,000	6,400	9,040	3,920	6,800	4,700	4,620	7,550	6,520	6,530	7,740
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.024	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	10.2	11.4	3.23	2.62	2.88	2.96	1.71	1.39	1.34	1.6	**277[A]**	**284[A]**	49.8	36.2	46.3	53.2	55.1	16.1	12.5	12.4	15.6
Strontium	µg/L	n/v	219	192	152	140	153	143	53.1	50.7	48.4	48.9	158	174	432	278	211	299	295	947	897	1,090	930
Sulfur	µg/L	n/v	1,670	3,100	3,860	4,000	4,600	4,300	750	1,400	700	1,800	6,450	5,400	15,100	7,700	6,000	10,900	11,200	12,800	10,900	12,000	17,100
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	0.4	<0.1	<0.1	<0.1	0.6	<0.1	<0.1	0.4	0.4	<0.1	0.3	<0.1	0.2	<0.1	0.4	0.1	0.16	0.2	0.1	0.6
Titanium	µg/L	n/v	1.14	2.1	<0.3	1.6	1.9	1.9	<0.3	1.1	1.1	1.4	<0.3	2	2.08	1.2	1.8	0.6	0.7	<0.3	1.6	1.9	1.2
Tungsten	µg/L	n/v	0.12	<0.1	0.89	0.5	0.5	0.5	1.29 DTC	0.3	0.4	0.8	<0.1	<0.1	24.5	13.8	10.6	9.3	9.1	15.7	7.2	7.6	6.3
Uranium	µg/L	33[A]	1.07	1.11	0.312	0.26	0.25	0.23	0.54	0.52	0.42	0.54	0.396	0.71	0.954	0.32	0.92	0.11	0.12	2.17	1.45	1.66	1.16
Vanadium	µg/L	20[A]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	2.81	1	2.5	8.1	8	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	1.9	3	<1	1	2	3	3.3	4	22	7	<1	1	**181[A]**	**458[A]**	22	**231[A]**	**474[A]**	**2,620[A]**	**700[A]**	**583[A]**	**249[A]**
Zirconium	µg/L	n/v	<0.2	<0.2	<0.2	0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	0.29	0.2	0.6	0.3	0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MW19-OB-21				MW20-BR-21					MW20-OB-21		MW21-BR-21				MW22-OB-21				
Sample Date			20-Oct-21	2-Jun-22	11-Jul-22	11-Oct-22	21-Sep-21	8-Jun-22	7-Jul-22	7-Jul-22	11-Oct-22	8-Jun-22	7-Jul-22	5-Oct-21	15-Jun-22	12-Jul-22	22-Sep-22	15-Nov-21	6-Jun-22	7-Jul-22	12-Jul-22	11-Oct-22
Sample ID			MW19-OB-21	MW19-OB-21	MW19-OB-21	MW19-OB-21	MW20-BR-21	MW20-BR-21	MW20-BR-21	Duplicate 3	MW20-BR-21	MW20-OB-21	MW20-OB-21	MW21-BR-21	MW21-BR-21	MW21-BR-21	MW21-BR-21	MW22-OB-21	MW22-OB-21	MW22-OB-21	MW22-OB-21	MW22-OB-21
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			L2654089	465080	469178	479641	L2642733	465781	468876	468876	479641	465781	468876	L2648196	466597	469367	478031	L2663314	465320	468876	469367	479641
Laboratory Sample ID			L2654089-7	1761892	1775882	1811006	L2642733-5	1764335	1774780	1774785	1811012	1764336	1774781	L2648196-2	1767099	1776557	1804288	L2663314-1	1762826	1774784	1776556	1811007
Sample Type	Units	MOE APV								Field Duplicate												
General Chemistry																						
Acidity as CaCO3	mg/L	n/v	9.7	31	20	42	<2.0	<2	<2	<2	<5	6	4	24.5	36	50	37	6.2	11	6	18	12
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	422	359	352	352	<2.0	19	19	14	21	187	203	293	231	287	295	352	218	272	245	214
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	1	<1	328	900	890	842	624	2	2	<2.0	<1	<1	<1	<2.0	1	2	<1	2
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00324	0.00538	0.00372	104	85.2	85.2	107	53.8	0.0148	0.0195	<2.0	0.00112	0.00091	0.00295	<2.0	0.00978	0.0152	0.00468	0.0123
Alkalinity, Total (as CaCO3)	mg/L	n/v	422	360	353	353	432	1,170	1,160	1,170	804	189	205	293	231	287	295	352	219	274	246	215
Ammonia (as N)	mg/L	n/v	0.599	0.32	0.12	0.42	1.15	1.36	1.23	1.81	1.01	<0.01	<0.01	0.0086	0.04	0.03	0.1	0.227	0.08	0.07	0.14	0.07
Chloride	mg/L	180[A]	**665[A]**	**308[A]**	98.7	**883[A]**	2.3	0.5	1.7	1.7	<4	2.2	3.7	3.10	52.6	110	47.5	3.42	5.5	3.5	4.6	2.2
Cyanide	mg/L	0.0052[A]	**0.0087 PEHR[A]**	**0.008[A]**	<0.002	0.005	<0.0020	**0.018[A]**	0.004	**0.006[A]**	<0.002	<0.002	0.003	0.0029	0.003	<0.002	<0.002	<0.0020	**0.009[A]**	0.003	<0.002	0.002
Cyanide (Free)	mg/L	n/v	<0.0020 PEHR	0.007	<0.001	0.002	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0020	0.002	<0.001	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	4,470	2,160	1,040	652	2,700	4,340	4,270	4,400	5,040	336	382	517	598	827	813	562	413	462	432	491
Fluoride	mg/L	n/v	<0.40 DLDS	0.27	0.15	<1	<0.40 DLDS	0.3	0.36	0.21	<1	0.07	0.2	0.039	<0.05	<0.05	0.07	0.330	0.62	0.6	0.53	0.4
Hardness (as CaCO3)	mg/L	n/v	1,420	760	341	1,930	440	762	887	1,070	905	251	1,430	268	272	374	372	265	259	314	264	265
Nitrate (as N)	mg/L	n/v	<0.40 DLDS	<0.02	<0.02	<0.4	<0.40 DLDS	0.1	<0.02	<0.02	<0.4	0.15	0.81	<0.020	<0.02	<0.02	0.94	<0.020	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	n/v	<0.20 DLDS	2.55	<0.01	<0.2	<0.20 DLDS	<0.01	<0.01	<0.01	<0.2	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01
pH, lab	S.U.	n/v	7.90	7.28	7.5	7.34	11.94	11.7	11.7	11.8	11.5	7.94	8.06	7.37	6.82	6.73	7.24	8.04	7.76	7.95	7.44	7.86
Phosphorus, Total	mg/L	n/v	0.336	0.67	0.427	0.76	0.0040	0.01	0.038	0.177	0.009	0.207	1.87	0.0356	0.03	0.022	0.003	0.972	0.054	0.068	0.04	0.044
Sulfate	mg/L	n/v	1,160	326	80.7	731	15.4	7.9	8.6	6.3	<6	4.1	14.4	3.40	4.7	5.7	16.8	1.81	0.8	<0.3	0.7	<0.3
Total Dissolved Solids	mg/L	n/v	3,140	1,480	685	1,800	810	365	1,230	1,240	1,200	180	225	295	410	690	555	331	255	295	290	290
Total Kjeldahl Nitrogen	mg/L	n/v	0.792	<0.04	1.58	<1	1.28	0.99	11.8	6.78	<1	<0.04	<0.04	0.338	0.56	3.41	<1	0.551	0.05	0.41	2.59	<1
Total Suspended Solids	mg/L	n/v	149	374	449	466	9.5	7.67	177	57	68	352	2,110	12.6	41.5	70	59.3	241	250	161	39.3	102
Turbidity, Lab	NTU	n/v	73.8	91.9	369	169	1.50	13.9	14	23.5	13	262	>1000	11.6	37.7	64.5	23.8	119	39	68.2	91	68.3
Metals																						
Aluminum	µg/L	n/v	6	5	5	6	28.7 DTC	188	1,260	3	184	8	16	69.2	90	19	57	54.8	2	4	2	3
Antimony	µg/L	1,600[A]	0.13	0.1	0.3	0.1	0.18	0.5	2	3.7	0.5	0.1	0.2	0.68	0.3	0.6	0.5	0.34	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	**591[A]**	**993[A]**	**307[A]**	**706[A]**	0.46	1.1	4.3	1.3	2.4	0.5	0.6	8.03	16	10.2	15.1	0.6	1.8	2	1.1	2.9
Barium	µg/L	2,300[A]	165	57.7	25.9	171	865	946	1,090	1,200	902	12.3	25.5	12.8	17.8	15.8	17	53.7	45.7	54.6	38	40.9
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	0.022	0.04	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	60	26	3	29	29	<2	<2	<2	<2	<2	<2	<10	<2	<2	<2	32	18	13	14	4
Cadmium	µg/L	0.21[A]	0.0751	0.07	0.05	0.08	<0.017 DLM	0.02	0.119	0.123	0.03	0.01	0.01	0.0445	0.06	0.05	0.06	<0.005	0.008	0.02	0.02	0.009
Calcium	mg/L	n/v	377	167	66	431	176	286	454	662	372	46.4	50.8	83.10	86.2	110	124	62.2	45.7	51.9	48.9	56.6
Cesium	µg/L	n/v	<0.01	<0.01	<0.01	<0.01	0.507	0.24	0.3	0.33	0.18	<0.01	<0.01	<0.01	0.02	0.05	0.07	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	0.43	0.8	0.3	1.9	3.92	0.4	9	4.8	0.4	0.9	1.1	0.5	1.4	0.8	8.3	0.34	<0.1	0.3	0.4	0.3
Cobalt	µg/L	5.2[A]	**23.9[A]**	**6[A]**	4.7	**20.8[A]**	<0.1	0.7	2.3	2.9	0.4	0.2	0.2	5.17	**73.1[A]**	**102[A]**	**127[A]**	0.81	0.4	0.3	0.6	0.2
Copper	µg/L	6.9[A]	4.25	**9[A]**	6.4	**46.6[A]**	1.68 DTC	6.1	**9[A]**	**7[A]**	5.5	1.1	**8.5[A]**	**8.86[A]**	5.6	5.2	3.3	0.71	1.1	1	2.2	3.2
Iron	µg/L	n/v	2,000	1,950	120	3,000	<10	290	1,170	300	190	<10	70	200	5,800	90	3,400	164	3,800	3,500	40	3,900
Lead	µg/L	2[A]	<0.05	<0.05	<0.05	0.06	0.066	0.14	**2.51[A]**	<0.05	1.1	<0.05	0.05	0.055	0.46	0.08	0.2	0.051	<0.05	<0.05	0.12	<0.05
Lithium	µg/L	n/v	5.7	6	2	10	15.4	14	18	18	18	<1	<1	1.2	<1	<1	<1	17.4	17	12	14	10
Magnesium	mg/L	n/v	117	48.7	21.5	114	0.0180	0.021	13.5	29	0.017	11.4	11.8	14.70	14.5	18.9	21.8	26.6	18	21	20.1	22.1
Manganese	µg/L	n/v	4,810	1,850	873	4,710	0.23	0.3	110	214	0.3	4.5	6.2	219	3,640	6,100	11,400	81.4	76.7	81.5	70.3	81.6
Mercury	µg/L	0.77[A]	0.0433	0.04	0.03	0.009	<0.005	0.0003	0.0002	0.001	0.0003	0.0001	0.0006	0.0065	0.005	0.002	<0.1	<0.005	-	0.006	0.001	0.0007
Molybdenum	µg/L	730[A]	1.28	2.09	2.52	1.41	38.6	32.4	18.3	37.9	34.8	2.14	3.23	0.764	0.72	1.02	2.12	23.4	22.7	17.2	20.2	16.4
Nickel	µg/L	39[A]	10.8	4.7	3.8	8	<0.5	5.3	10	11.1	8.5	0.6	1	11.7	23.7	24.5	31.1	11	3.8	2.9	3.4	0.7
Phosphorus	µg/L	n/v	<30	<50	<50	<50	<30	<50	130	<50	<50	<50	<50	<30	<50	<50	<50	<30	<50	<50	<50	<50
Potassium	mg/L	n/v	19.2	12.2	7.66	19.9	38.0	31.9	29.6	29.3	28	1.84	2.18	0.54	0.42	0.49	0.59	7.33	4.99	5.19	5.17	5.32
Rubidium	µg/L	n/v	0.35	0.2	<0.2	0.4	81.6	67.4	61.4	62.7	56.1	1	1.2	0.68	0.9	1.2	1.6	3.62	1.7	1.7	1.9	1.5
Selenium	µg/L	5[A]	0.096	0.41	0.36	<0.05	0.358	0.08	1.3	1.72	0.59	0.13	0.89	0.15	0.45	0.73	0.71	<0.05	0.15	0.18	<0.05	0.09
Silicon	µg/L	n/v	8,420	6,160	5,330	8,030	945	430	5,960	9,980	270	3,920	4,570	6,460	5,970	6,610	8,130	7,410	5,370	7,330	6,670	6,890
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.034	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	**509[A]**	**241[A]**	108	**661[A]**	**187[A]**	149	137	134	130	4.9	6.24	2.12	12.9	16.7	15.4	9.72	8.76	7.55	7.88	8.36
Strontium	µg/L	n/v	1,920	696	324	1,480	2,660	2,400	2,750	3,110	1,800	61.1	65.7	108	102	135	129	251	148	208	194	171
Sulfur	µg/L	n/v	440,000	114,000	31,900	383,000	5,980	4,600	4,300	5,000	3,200	1,100	3,600	750	<500	2,600	5,400	<500	<500	<500	<500	<500
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	0.047	0.02	0.02	0.01	<0.01	<0.01	0.03	0.04	<0.01	<0.01	0.01	0.011	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<0.1	<0.1	0.4	0.13	0.3	0.2	<0.1	0.3	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.19	0.1	0.1	<0.1	0.2
Titanium	µg/L	n/v	<0.3	1.6	1.8	1.6	<0.3	0.4	6	3.2	<0.3	1.6	1.9	0.58	2.4	2.4	2.8	4.11	1.1	2.2	1.8	1.1
Tungsten	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	10.6	11.9	3.9	12.3	8.6	0.5	0.4	4.99	0.8	0.2	1.1	0.61	0.5	1.7	0.4	0.3
Uranium	µg/L	33[A]	0.686	0.27	0.24	0.63	<0.01	<0.01	0.23	0.56	<0.01	0.45	0.5	0.748	0.44	0.78	1.5	0.607	0.22	0.31	0.36	0.13
Vanadium	µg/L	20[A]	<0.5	0.6	<0.5	0.9	<0.5	<0.5	2	1.7	<0.5	<0.5	0.6	<0.5	1	<0.5	2.7	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	12.6	2	3	8	**177 DTC[A]**	**1,130[A]**	**15,500[A]**	**33,700[A]**	**1,180[A]**	**731[A]**	**790[A]**	**159[A]**	**197[A]**	**159[A]**	43	**373[A]**	3	7	3	5
Zirconium	µg/L	n/v	2.03	2.2	1.4	2.2	<0.2	<0.2	0.9	<0.2	<0.2	<0.2	<0.2	0.69	1.5	0.8	2.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			MW23-OB-21				MW24-BR-21				MW24-OB-21				MW25-BR-21					MW25-OB-21			
Sample Date			5-Oct-21	15-Jun-22	11-Jul-22	22-Sep-22	21-Sep-21	7-Jun-22	7-Jul-22	26-Sep-22	21-Sep-21	7-Jun-22	7-Jul-22	26-Sep-22	21-Sep-21	9-Jun-22	9-Jun-22	12-Jul-22	26-Sep-22	21-Sep-21	9-Jun-22	12-Jul-22	26-Sep-22
Sample ID			MW23-OB-21	MW23-OB-21	MW23-OB-21	MW23-OB-21	MW24-BR-21	MW24-BR-21	MW24-BR-21	MW24-BR-21	MW24-OB-21	MW24-OB-21	MW24-OB-21	MW24-OB-21	MW25-BR-21	MW25-BR-21	MW25-BR-21	MW25-BR-21	MW25-BR-21	MW25-OB-21	MW25-OB-21	MW25-OB-21	MW25-OB-21
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			L2648196	466597	469178	478031	L2642733	465562	468876	478164	L2642733	465562	468876	478164	L2642733	465899	465899	469367	478164	L2642733	465899	469367	478164
Laboratory Sample ID			L2648196-1	1767100	1775883	1804287	L2642733-1	1763650	1774783	1804838	L2642733-2	1763649	1774782	1804839	L2642733-3	1764670	1764672	1776559	1804841	L2642733-4	1764671	1776558	1804840
Sample Type																	Field Duplicate							
General Chemistry																							
Acidity as CaCO3	mg/L	n/v	7.8	16	15	16	<2.0	6	3	-	<2.0	6	6	12	2.9	7	9	7	13	3.2	9	25	14
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	279	250	258	205	188	191	194	149	225	182	188	156	256	240	237	246	203	261	234	235	194
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	<1	<1	<2.0	2	3	2	<2.0	2	2	<1	<2.0	2	2	2	1	<2.0	2	<1	1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00603	0.00632	0.00759	<2.0	0.02	0.0269	0.0229	<2.0	0.0152	0.0186	0.01	<2.0	0.0155	0.0141	0.0138	0.0115	<2.0	0.0118	0.00317	0.0107
Alkalinity, Total (as CaCO3)	mg/L	n/v	279	251	259	206	188	193	197	151	225	184	190	157	256	242	239	248	204	261	236	235	195
Ammonia (as N)	mg/L	n/v	0.512	0.39	0.37	0.33	0.269	0.39	0.32	0.15	0.219	0.1	0.08	0.46	0.0552	0.02	0.03	0.07	0.07	0.0428	<0.01	0.01	0.02
Chloride	mg/L	180[A]	2.78	5.8	3	2.7	6.11	4.3	3.5	4	3.74	1	0.8	0.8	0.33	0.8	0.6	0.6	0.8	11.2	1.1	1	0.9
Cyanide	mg/L	0.0052[A]	0.0035	**0.008[A]**	<0.002	**0.012[A]**	<0.0020	**0.014[A]**	<0.002	<0.002	<0.0020	**0.022[A]**	0.003	<0.002	<0.0020	<0.002	<0.002	<0.002	**0.026[A]**	<0.0020	0.003	<0.002	**0.012[A]**
Cyanide (Free)	mg/L	n/v	<0.0020	0.004	<0.001	0.002	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	0.003	<0.0020	0.002	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	0.039
Electrical Conductivity, Lab	µS/cm	n/v	475	456	441	462	366	399	428	380	401	314	321	325	435	411	400	421	417	480	397	403	408
Fluoride	mg/L	n/v	0.137	0.21	0.12	0.12	0.264	0.42	0.39	0.34	0.273	0.28	0.4	0.28	0.200	0.17	0.14	0.18	0.17	0.153	0.08	0.1	0.1
Hardness (as CaCO3)	mg/L	n/v	225	294	272	251	147	193	163	127	323	174	440	335	200	207	201	221	216	220	224	1,200	1,250
Nitrate (as N)	mg/L	n/v	0.031	0.04	<0.02	<0.02	0.140	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	n/v	<0.010	0.05	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01
pH, lab	S.U.	n/v	7.92	7.55	7.57	7.65	8.18	8.07	8.2	8.13	8.17	7.95	8.04	7.77	8.13	7.96	7.92	7.91	7.83	8.13	7.84	7.27	7.8
Phosphorus, Total	mg/L	n/v	0.0162	0.262	0.034	0.03	0.476	0.314	0.075	0.035	1.51	0.443	0.634	0.35	0.0423	0.003	0.002	0.01	0.013	0.0376	0.03	3.29	0.73
Sulfate	mg/L	n/v	6.59	9.2	6.8	4.3	10.5	42.6	41.2	35.2	6.83	5.3	4.4	3.9	4.96	2.5	1.9	2.4	<0.3	3.92	4.8	5.4	3.8
Total Dissolved Solids	mg/L	n/v	264	220	310	300	259	180	270	230	264	150	195	200	232	245	230	245	245	260	235	250	300
Total Kjeldahl Nitrogen	mg/L	n/v	0.659	0.68	10.1	<1	0.81	<0.04	1.48	<1	0.51	<0.04	0.71	<1	0.124	0.2	0.32	1.22	<1	0.138	0.3	<0.04	<1
Total Suspended Solids	mg/L	n/v	19.4	271	94	143	2,690	375	348	76.5	540	447	993	539	21.7	22.5	18	14.3	118	148	107	8,440	2,880
Turbidity, Lab	NTU	n/v	16.9	339	122	376	311	256	60.7	26.4	220	38.3	86.4	292	10.2	21.8	20.2	17.6	27.7	68.1	82	1,000	347
Metals																							
Aluminum	µg/L	n/v	4.6	4	4	5	1,320	9	24	10	446	<1	5	3	43.9	<1	1	1	3	1.8	<1	9	2
Antimony	µg/L	1,600[A]	<0.1	0.2	0.2	<0.1	0.6	0.4	0.3	0.3	<0.1	<0.1	<0.1	<0.1	0.44	0.3	0.3	0.2	<0.1	<0.1	<0.1	0.1	<0.1
Arsenic	µg/L	150[A]	2.33	1.2	0.9	1.3	1.73	<0.1	1.3	0.4	2.18	0.5	0.9	0.8	1.14	0.8	0.9	0.8	0.6	1.86	0.9	1.3	1.6
Barium	µg/L	2,300[A]	60.9	57.6	56.5	54.8	39.6	16.6	31.9	11.8	42.7	21.7	33.6	24.6	32.9	47.3	43.8	38.9	44.4	37.1	29.4	36.2	35
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	20	<2	<2	<2	44	31	33	25	22	<2	<2	<2	35	15	16	13	12	15	<2	<2	<2
Cadmium	µg/L	0.21[A]	<0.005	0.03	0.04	0.01	0.009	0.01	0.02	0.02	0.012	0.005	0.008	<0.005	0.007	0.009	0.007	0.008	0.01	<0.005	<0.005	0.01	0.01
Calcium	mg/L	n/v	65.40	66.1	65.7	74.9	36.2	34.9	31.4	27.6	87.9	44.9	45.5	50.3	53.2	53.4	54	52.9	52.7	63.9	60	61.4	66.9
Cesium	µg/L	n/v	0.045	0.11	0.12	0.1	0.201	0.02	0.02	0.01	0.066	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	<0.1	0.3	0.2	3.4	4.65	0.1	0.3	0.8	1.94	<0.1	<0.1	0.6	0.3	0.3	0.4	0.1	0.7	0.11	0.3	0.3	0.7
Cobalt	µg/L	5.2[A]	1.23	0.3	0.3	0.4	0.98	<0.1	0.2	0.1	0.71	<0.1	0.1	0.2	0.59	0.2	0.3	0.1	0.2	0.53	0.4	0.6	0.4
Copper	µg/L	6.9[A]	0.45	0.3	1.5	0.3	**8.35[A]**	0.8	2.6	2.1	3.26	0.2	1.9	0.2	2.08	0.8	0.6	2.3	1.3	0.85	0.5	4.1	<0.2
Iron	µg/L	n/v	677	<10	60	4,100	1,810	730	640	360	1,330	130	130	1,200	65	2,000	2,000	390	3,000	28	890	40	2,400
Lead	µg/L	2[A]	<0.05	<0.05	<0.05	<0.05	0.459	0.06	0.26	0.08	0.958	<0.05	0.07	0.07	<0.05	<0.05	0.07	<0.05	0.06	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	3.7	3	3	2	9.1	9	8	8	4.9	3	2	3	5.2	4	4	5	5	1.8	1	1	1
Magnesium	mg/L	n/v	15.00	13	12.7	14	13.8	11.2	11.2	12.3	25.1 DTC	10.3	10.3	12.9	16.2	15.3	15.1	15	18.4	14.8	13.3	13	15.1
Manganese	µg/L	n/v	630	200	169	268	161	142	214	126	107	32.1	36.1	42.5	170	490	503	473	434	229	146	153	143
Mercury	µg/L	0.77[A]	<0.005	0.00002	0.0008	<0.1	<0.005	0.0002	0.0002	0.0003	<0.005 PDM	0.0002	0.0003	0.0002	<0.005	0.0001	0.00007	0.0008	0.0003	<0.005	0.00002	0.0009	0.0003
Molybdenum	µg/L	730[A]	1.59 DTC	0.98	0.28	0.64	15.4	22.9	31.2	21.7	1.51	1.03	0.61	0.73	1.04	1.08	1.16	0.91	1.21	2.39	1.35	1.03	1.45
Nickel	µg/L	39[A]	1.61	1.4	1.3	4	3.57	1.1	1.2	1.2	1.55	<0.5	<0.5	2.5	2.63	1.5	1.4	1	3.6	0.53	1	1.2	4.5
Phosphorus	µg/L	n/v	<30	<50	<50	<50	57	<50	<50	<50	183 DTC	<50	<50	<50	<30	<50	<50	<50	<50	<30	<50	<50	<50
Potassium	mg/L	n/v	1.41	1.38	1	1.02	7.79	5.3	4.84	6.08	2.34	1.42	1.42	1.75	3.83	3.21	3.16	2.82	3.21	2.18	1.54	1.53	1.81
Rubidium	µg/L	n/v	1.5	1.2	0.9	0.8	9.67	5.7	5.5	6	2.7	1.1	1.2	1.4	4.1	3.9	3.9	3.6	3.7	3.06	2.3	2.8	2.9
Selenium	µg/L	5[A]	<0.05	<0.05	<0.05	<0.05	0.917 DTSE	2.66	2.79	2.13	<0.05	<0.05	0.09	<0.05	0.075	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Silicon	µg/L	n/v	7,550	6,170	6,880	6,800	6,570	1,920	3,150	1,140	9,550	6,160	7,290	8,570	7,100	4,910	4,800	6,130	5,960	6,690	4,650	5,590	5,750
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	**0.226[A]**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	8.16	7.54	6.41	5.49	20.3	27.9	35.3	35.5	7.07	3.69	3.71	4.54	9.70	7.59	7.54	6.82	9.16	9.79	3.67	4.03	4.6
Strontium	µg/L	n/v	336	291	296	253	185	169	160	117	162	131	127	141	503	436	437	454	464	75.5	58.3	60	56.2
Sulfur	µg/L	n/v	1,710	1,800	2,400	1,600	4,310	11,900	15,100	13,000	1,180	1,200	<500	2,900	860	<500	<500	1,000	1,700	720	900	2,500	2,700
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.01	<0.01	0.031	0.01	0.02	0.03	0.014	<0.01	<0.01	0.03	<0.01	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	0.45	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<0.1	0.5	<0.1	0.24	<0.1	0.2	0.3	<0.1	<0.1	0.1	<0.1	0.18	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1
Titanium	µg/L	n/v	<0.3	1.7	1.8	2.1	71.5	0.8	1.9	0.4	34.2	1.8	2	2.3	2.55	1.4	1.5	1.7	1.7	<0.3	1.4	1.9	1.5
Tungsten	µg/L	n/v	4.72	3.3	0.8	1.2	370	122	114	70.8	0.45	0.3	0.2	0.4	13.1	6.4	6.5	3.9	4.5	0.15	0.2	<0.1	0.1
Uranium	µg/L	33[A]	0.319	0.1	0.09	0.25	2.74	0.61	4.08	0.57	0.388	0.06	0.05	0.04	1.02	0.12	0.12	0.2	0.36	0.329	0.2	0.21	0.25
Vanadium	µg/L	20[A]	<0.5	<0.5	<0.5	1.1	3.52	<0.5	<0.5	<0.5	2.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	**1,980[A]**	**110[A]**	**156[A]**	3	**332[A]**	**96[A]**	**259[A]**	32	**249 DTC[A]**	**1,740[A]**	**1,440[A]**	**720[A]**	**4,320[A]**	**890[A]**	**890[A]**	**383[A]**	4	**1,970[A]**	**1,320[A]**	87	25
Zirconium	µg/L	n/v	0.61	1	1.1	1.2	0.34	<0.2	<0.2	<0.2	0.58	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
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Sample Location			MWS-14-01			MWS-14-02 (BR)					MWS-14-02 (OB)					MWS-14-03 OB1				
Sample Date			23-Sep-21	22-Sep-22	22-Sep-22	19-Oct-21	19-Oct-21	1-Jun-22	11-Jul-22	30-Sep-22	19-Oct-21	1-Jun-22	11-Jul-22	11-Jul-22	30-Sep-22	19-Oct-21	7-Jun-22	7-Jun-22	6-Jul-22	12-Oct-22
Sample ID			MWS-14-01	MWS-14-01	Duplicate 2	MWS-14-02-BR	DUPLICATE 7	MWS-14-02BR	MWS-14-02-BR	MWS-14-02-BR	MWS-14-02-OB	MWS-14-02OB	MWS-14-02-OB	Duplicate 4	MWS-14-02-OB	MWS-14-03 OB1	MWS-14-03-OB1	Duplicate2	MWS-14-03-OB1	MWS-14-03OB
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			L2643174	477858	477858	L2653716	L2653716	464944	469178	478584	L2653716	464944	469178	1775880	478584	L2653716	465562	465562	468759	479827
Laboratory Sample ID			L2643174-3	1803561	1803567	L2653716-1	L2653716-8	1761387	1775879	1806567	L2653716-2	1761386	1775878		1806566	L2653716-7	1763648	1763651	1774486	1811735
Sample Type	Units	MOE APV			Field Duplicate		Field Duplicate							Field Duplicate				Field Duplicate		
General Chemistry																				
Acidity as CaCO3	mg/L	n/v	9.1	23	25	<2.0	<2.0	12	20	10	6.3	11	24	33	12	<2.0	4	4	<2	11
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	410	275	270	303	312	302	311	252	285	284	290	296	246	161	156	156	174	158
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	1	1	<2.0	<2.0	2	<1	2	<2.0	2	<1	<1	2	<2.0	2	1	2	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00852	0.00852	<2.0	<2.0	0.00892	0.00513	0.0112	<2.0	0.0105	0.00381	0.00229	0.0112	<2.0	0.017	0.0152	0.024	0.0107
Alkalinity, Total (as CaCO3)	mg/L	n/v	410	276	271	303	312	304	312	254	285	286	291	296	248	161	158	157	176	159
Ammonia (as N)	mg/L	n/v	0.133	<0.01	<0.01	0.157	0.155	0.18	0.09	0.09	0.0532	<0.01	0.02	<0.01	0.01	0.0500	0.06	0.07	0.02	0.04
Chloride	mg/L	180[A]	0.17	5.1	0.8	0.72	0.69	2	0.7	0.9	0.25	0.9	0.7	0.5	0.6	1.72	2.1	0.6	1.6	1.5
Cyanide	mg/L	0.0052[A]	<0.0020	<0.002	<0.002	<0.0020	<0.0020	**0.009[A]**	<0.002	**0.017[A]**	<0.0020	<0.002	0.004	0.003	<0.002	<0.0020	0.002	0.005	<0.002	**0.008[A]**
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.0020	0.002	<0.001	<0.001	0.003	<0.0020	<0.001	<0.001	<0.001	0.006
Electrical Conductivity, Lab	µS/cm	n/v	672	655	625	527	538	505	523	537	478	481	500	503	535	282	277	269	299	314
Fluoride	mg/L	n/v	0.591	0.4	0.38	0.324	0.323	0.34	0.3	0.23	0.326	0.25	0.27	0.27	0.22	0.550	0.56	0.07	0.65	0.5
Hardness (as CaCO3)	mg/L	n/v	300	329	324	272	276	307	285	296	271	358	344	364	314	118	124	191	136	126
Nitrate (as N)	mg/L	n/v	<0.020	0.05	0.18	<0.020	<0.020	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.01	<0.010	<0.010	<0.01	<0.01	0.05	<0.010	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01
pH, lab	S.U.	n/v	7.60	7.7	7.7	8.27	8.22	7.72	7.48	7.82	7.86	7.79	7.35	7.13	7.82	8.18	8	7.95	8.15	7.8
Phosphorus, Total	mg/L	n/v	0.146	0.04	0.008	0.0314	0.0358	0.014	0.019	0.014	0.199	0.022	0.064	0.07	0.028	0.0271	0.046	0.015	0.128	0.02
Sulfate	mg/L	n/v	2.06	1.7	1.8	5.70	5.77	7.2	8.1	5.9	8.33	12.8	13.3	10.9	6.5	<0.30	<0.3	<0.3	<0.3	<0.3
Total Dissolved Solids	mg/L	n/v	388	325	325	323	311	527	330	330	310	355	290	305	385	174	115	120	190	225
Total Kjeldahl Nitrogen	mg/L	n/v	0.181	<1	<1	0.178	0.164	<0.04	1.73	<1	0.111	<0.04	1.11	1	<1	0.108	0.18	<0.04	0.52	<1
Total Suspended Solids	mg/L	n/v	720	331	48	19.6	18.6	16	50	14.3	412	63	319	101	128	28.8	84	45.5	58.7	45.7
Turbidity, Lab	NTU	n/v	247	1	0.5	16.3	16.3	9.1	8.6	5	228	25.2	97	49	4.2	21.8	15.2	77.3	25.2	28.5
Metals																				
Aluminum	µg/L	n/v	1.3	2	3	3.1	3.2	2	2	3	1.4	1	1	<1	2	1.8	2	17	<1	1
Antimony	µg/L	1,600[A]	<0.1	1.1	1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	0.65	3	2.6	9.96	7.16	1.6	0.9	2.2	5.66	0.4	0.4	0.3	0.5	2.78	0.6	0.6	0.4	0.4
Barium	µg/L	2,300[A]	47.4	48.6	51.3	32.3	32.3	34.8	37.1	34.2	33.2	35.2	35.8	35	36.1	16.9	32.6	27	27.3	25
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	25	24	24	20	21	2	<2	3	11	<2	<2	<2	<2	30	15	14	13	3
Cadmium	µg/L	0.21[A]	<0.005	0.04	0.04	<0.005	<0.005	0.009	0.02	0.01	<0.005	0.008	<0.005	0.01	0.02	<0.005	0.009	0.01	0.02	0.006
Calcium	mg/L	n/v	81.8	74.5	75.2	74.7	75.5	78.1	78.9	85.5	75.6	82.2	80.4	80	87.2	24.7	22.7	22.1	24.2	24.3
Cesium	µg/L	n/v	<0.01	0.01	0.01	0.018	0.018	0.03	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	0.1	5.6	5.2	0.15	0.13	4	0.1	3.7	<0.1	4.1	0.1	<0.1	4.7	<0.1	0.3	0.3	0.7	0.3
Cobalt	µg/L	5.2[A]	0.6	0.3	0.3	<0.1	<0.1	0.3	0.3	0.3	<0.1	0.3	0.3	0.3	0.3	0.26	0.3	0.3	0.1	0.1
Copper	µg/L	6.9[A]	0.49	3.8	5.1	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	0.22	1.2	0.8	0.7	1.5
Iron	µg/L	n/v	120	50	60	1,830	1,750	1,180	840	1,490	491	460	370	430	550	507	80	110	490	490
Lead	µg/L	2[A]	<0.05	0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	7.1	8	8	6.3	6.4	6	7	8	6.7	5	6	6	8	3.4	4	4	4	3
Magnesium	mg/L	n/v	23.3	28.6	28	20.7	21.1	21.5	21.1	23.2	20.0	21.3	20.2	19.6	22	13.6	11.9	11.2	11.2	12.7
Manganese	µg/L	n/v	196	19	12.8	142	144	97.9	73.3	110	54.4	38	35.5	36.6	44	38.9	31.6	36.5	44.1	42.7
Mercury	µg/L	0.77[A]	<0.005	0.0004	0.0003	<0.005	<0.005	-	0.001	0.0003	<0.005	-	0.0007	0.002	0.0002	<0.005	0.0005	0.005	0.0009	0.0007
Molybdenum	µg/L	730[A]	3.05	3.91	4.15	1.07	1.07	1.27	1.01	0.95	1.38	1.28	1.28	1.12	1.02	26.1	23.2	24.3	25.3	27.2
Nickel	µg/L	39[A]	1.2	1.9	1.9	<0.5	<0.5	2.6	2.1	3.3	<0.5	1.5	1.5	1.5	2.2	<0.5	1	0.9	1.4	0.8
Phosphorus	µg/L	n/v	<30	<50	<50	<30	<30	<50	<50	<50	<30	<50	<50	<50	<50	<30	<50	<50	<50	<50
Potassium	mg/L	n/v	3.27	3.61	3.65	2.53	2.56	2.16	2.09	2.46	2.35	2.2	2.21	2.08	2.4	2.26	2.05	1.95	1.98	1.8
Rubidium	µg/L	n/v	1.53	1.9	1.8	0.96	0.94	1.1	1.1	1	1.36	1.2	1.3	1.2	1.3	0.59	0.9	1	0.9	0.8
Selenium	µg/L	5[A]	<0.05	0.13	<0.05	0.089	0.078	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	n/v	6,990	7,700	8,020	8,310	8,110	7,590	6,820	8,210	7,350	6,840	5,800	5,700	7,470	2,590	1,870	1,820	2,430	1,950
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	20.3	21.2	21	7.35	7.25	7.01	5.2	6.39	4.38	3.88	4.23	3.17	4.26	16.9	17	20.3	24.9	25.9
Strontium	µg/L	n/v	231	188	190	150	155	158	160	142	129	123	116	116	113	159	140	133	129	119
Sulfur	µg/L	n/v	<500	<500	<500	1,920	1,680	4,500	2,800	1,800	2,870	5,400	3,700	3,000	1,900	<500	600	700	1,800	500
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	0.1	0.1
Titanium	µg/L	n/v	<0.3	1.8	2	<0.3	<0.3	1.9	2.4	2.3	<0.3	1.5	1.9	1.7	1.9	<0.3	0.6	1.1	0.7	0.4
Tungsten	µg/L	n/v	<0.1	<0.1	<0.1	0.42	0.42	0.4	0.4	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	10.2	6.3	6.5	5.5	4.8
Uranium	µg/L	33[A]	1.06	1	1.04	0.238	0.226	0.23	0.25	0.22	0.477	0.53	0.85	0.29	0.17	0.085	0.11	0.12	0.07	0.06
Vanadium	µg/L	20[A]	<0.5	0.9	0.8	<0.5	<0.5	1.3	<0.5	1.1	<0.5	1.1	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	<1	4	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
Zirconium	µg/L	n/v	<0.2	<0.2	<0.2	0.41	0.43	0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
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Sample Location			MWS-14-03 OB2					MWS-14-04				MWS-14-06		MWS-14-07 BR				MWS-14-07 OB				SEEP 1
Sample Date			19-Oct-21	7-Jun-22	6-Jul-22	6-Jul-22	12-Oct-22	21-Oct-21	7-Jun-22	6-Jul-22	11-Oct-22	25-Oct-21	28-Sep-22	12-Oct-21	1-Jun-22	6-Jul-22	11-Oct-22	12-Oct-21	1-Jun-22	6-Jul-22	11-Oct-22	1-Nov-21
Sample ID			MWS-14-03 OB2	MWS-14-03-OB2	MWS-14-03-OB2	Duplicate 2	MWS-14-03OB2	MWS-14-04	MWS-14-04	MWS-14-04	MWS-14-04	MWS14-06	MWS-14-06	MWS-14-07 BR	MWS-14-07BR	MWS-14-07-BR	MWS-14-07-BR	MWS-14-07 OB	MWS-14-07OB	MWS-14-07-OB	MWS-14-07-OB	SEEP 1
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS	TESTMARK	TESTMARK	TESTMARK	ALS
Laboratory Work Order			L2653716	465562	468759	468759	479827	L2654719	465562	468759	479641	L2655596	478408	L2650748	464944	468759	479641	L2650748	464944	468759	479641	L2658301
Laboratory Sample ID			L2653716-6	1763647	1774487	1774492	1811736	L2654719-1	1763646	1774485	1811008	L2655596-1	1805782	L2650748-2	1761389	1774488	1811010	L2650748-1	1761388	1774489	1811009	L2658301-2
Sample Type	Units	MOE APV				Field Duplicate																
General Chemistry																						
Acidity as CaCO3	mg/L	n/v	3.1	12	9	9	20	4.9	13	13	16	<2.0	52	10.3	19	13	16	10.8	16	11	15	4.1
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	309	264	282	282	240	342	339	355	227	324	229	449	446	464	328	274	299	309	233	335
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	2	2	2	<1	<2.0	2	2	<1	<2.0	<1	27.4	2	3	1	<2.0	<1	2	<1	<2.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.0102	0.0141	0.0145	0.00538	<2.0	0.011	0.00913	0.00725	<2.0	0.00051	<2.0	0.00742	0.0107	0.00742	<2.0	0.00603	0.0102	0.00693	<2.0
Alkalinity, Total (as CaCO3)	mg/L	n/v	309	266	284	284	241	342	341	357	228	324	229	477	448	467	329	274	300	311	234	335
Ammonia (as N)	mg/L	n/v	0.144	<0.01	0.03	<0.01	0.1	0.134	0.1	0.04	0.09	0.0589	0.09	0.297	0.16	0.15	0.14	0.0115	<0.01	<0.01	<0.01	0.0090
Chloride	mg/L	180[A]	0.24	0.9	0.4	0.8	0.6	1.17	2.1	2.2	1.6	10.2	28.7	0.43	1.8	1.3	1.2	0.50	1.1	1	1	**213[A]**
Cyanide	mg/L	0.0052[A]	<0.0020	<0.002	<0.002	<0.002	**0.01[A]**	<0.0020	0.002	<0.002	<0.002	<0.0020	<0.002	<0.0020	0.004	<0.002	0.002	<0.0020	<0.002	0.002	<0.002	0.0039
Cyanide (Free)	mg/L	n/v	<0.0020	<0.001	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.0020	<0.001	<0.001	<0.001	<0.0020	<0.001	<0.001	<0.001	0.0025
Electrical Conductivity, Lab	µS/cm	n/v	467	434	472	470	487	611	595	609	628	594	1,120	850	690	799	695	550	487	533	528	3,030
Fluoride	mg/L	n/v	0.470	0.38	0.38	0.57	0.35	0.139	0.12	0.22	0.12	0.073	0.09	0.091	0.13	0.18	0.09	0.061	0.05	0.15	<0.05	<0.40 DLDS
Hardness (as CaCO3)	mg/L	n/v	211	168	312	549	282	323	318	354	351	307	654	178	248	260	244	284	342	302	345	1,620
Nitrate (as N)	mg/L	n/v	<0.020	0.23	0.04	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.020	<0.02	<0.020	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.40 DLDS
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.20 DLDS
pH, lab	S.U.	n/v	8.05	7.78	7.92	7.93	7.5	7.98	7.81	7.73	7.63	7.80	6.48	7.94	7.64	7.8	7.64	7.81	7.55	7.78	7.61	8.05
Phosphorus, Total	mg/L	n/v	0.415	0.097	0.202	0.449	0.13	0.0026	0.011	0.017	0.006	<0.0010	0.048	0.0787	0.008	0.077	0.006	0.174	<0.001	0.017	0.043	0.0368
Sulfate	mg/L	n/v	1.20	1.7	1.2	2.2	1	16.2	19.2	18.7	15.5	4.87	337	15.7	20.8	18.9	13.4	4.84	6.3	5.7	4.6	1,300
Total Dissolved Solids	mg/L	n/v	292	225	280	270	310	342	295	365	365	353	870	569	682	460	390	328	409	320	290	2,530
Total Kjeldahl Nitrogen	mg/L	n/v	0.236	<0.04	0.38	0.42	<1	0.494	<0.04	0.52	<1	0.305	<1	0.774	0.21	2.29	<1	0.373	<0.04	0.41	<1	0.331
Total Suspended Solids	mg/L	n/v	676	75.7	115	390	1,220	5.5	5.3	4.7	7.67	5.5	75.3	155	44	204	47	119	27	67	66	5.6
Turbidity, Lab	NTU	n/v	464	29.2	153	223	420	2.94	37.3	3.4	3.9	1.42	1.6	51.8	10.6	72.5	11.4	64.4	3.9	1.4	67.3	11.5
Metals																						
Aluminum	µg/L	n/v	5.4	1	125	98	2	1.3	1	<1	2	8.3	4	35.6	10	6	7	16	2	1	2	<1
Antimony	µg/L	1,600[A]	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	7.7	6.5	5.2	5.5	30	1.41	1	1.3	1.5	17.3	14	5.03	3.3	3.5	3	1.66	1.5	1.4	2	**174[A]**
Barium	µg/L	2,300[A]	29.4	29.6	32.3	32.8	27.7	157	151	147	145	36.9	93.3	26.3	24.5	26.8	25.2	20	16.3	18	21.9	35.1
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	19	9	4	<2	<2	15	4	4	<2	11	19	64	19	21	10	<10	<2	<2	<2	67
Cadmium	µg/L	0.21[A]	<0.005	<0.005	0.02	0.02	<0.005	<0.005	0.02	0.02	0.02	<0.005	0.04	<0.005	0.08	0.05	0.05	0.0079	0.02	0.02	0.01	<0.005
Calcium	mg/L	n/v	54.3	38.1	69.5	67.1	56	91.5	91.7	99.3	101	94.6	208	52.1	55	78.7	73.8	84.0	87.3	92.5	88.6	372
Cesium	µg/L	n/v	<0.01	0.01	0.02	0.02	0.01	0.299	0.23	0.27	0.23	0.112	0.19	0.101	0.12	0.13	0.13	0.044	0.05	0.05	0.04	0.015
Chromium	µg/L	64[A]	<0.1	0.2	1.3	1.2	0.1	<0.1	0.3	1.1	0.2	0.23	0.4	1.94	7.1	2	0.8	0.21	4.1	1.1	0.2	0.12
Cobalt	µg/L	5.2[A]	<0.1	0.1	0.3	0.3	0.2	0.9	0.7	0.4	0.3	**7.35[A]**	**8.6[A]**	0.7	1.4	1.2	0.9	0.28	0.4	0.2	0.2	1.51
Copper	µg/L	6.9[A]	0.28	2.7	1.2	0.9	2.8	0.35	1.8	0.7	2.4	1.02	4.3	0.24	1.4	2.1	2.9	1.88	1.7	2.3	3.8	0.3
Iron	µg/L	n/v	170	10	500	470	840	128	220	180	300	619	1,650	4,290	1,910	1,780	1,220	51	140	90	60	23
Lead	µg/L	2[A]	<0.05	0.13	0.23	0.15	0.06	<0.05	0.06	<0.05	0.08	<0.05	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05
Lithium	µg/L	n/v	7.3	9	6	6	6	3	4	3	3	2.4	3	1.8	2	2	2	1.7	<1	<1	<1	9.6
Magnesium	mg/L	n/v	18.3	11	17.3	16.1	16.4	22.9	20.3	21	22.1	17.2	38.4	11.6	15.9	13.2	14.2	18.0	18.4	15	16.3	167
Manganese	µg/L	n/v	67.3	4.4	76.4	72.6	51.8	133	121	91.4	117	1,220	2,080	458	275	277	252	116	30.2	0.9	26.7	204
Mercury	µg/L	0.77[A]	0.0067	0.001	0.0005	0.0004	0.0007	<0.005	-	0.001	0.0008	<0.005	0.001	<0.005	-	0.0006	0.0009	<0.005	-	0.0008	0.0008	<0.005
Molybdenum	µg/L	730[A]	2.44	3.61	2.28	2.09	2.9	1.78	1.53	2.28	2.06	1.29	2.93	4.02	3.43	4.29	5.22	0.722	0.66	0.41	0.65	0.287
Nickel	µg/L	39[A]	<0.5	0.8	1.6	1.5	1.9	1.4	1.6	1.9	1.4	3.42	7.7	1.06	4.7	4.4	3.4	2.1	3.1	3.4	2.2	0.89
Phosphorus	µg/L	n/v	<30	<50	<50	<50	50	<30	<50	<50	<50	<30	<50	<30	<50	<50	<50	<30	<50	<50	<50	<30
Potassium	mg/L	n/v	1.56	1.32	1.5	1.5	1.49	0.961	0.87	0.98	0.9	0.936	1.74	1.62	1.78	1.84	1.82	1.50	1.07	1.16	1.52	22.4
Rubidium	µg/L	n/v	1	1.3	1.2	1.1	1.2	1.55	1.6	1.6	1.7	1.54	2.8	2.85	3.1	3.1	3.3	3.01	2.6	2.8	3.3	5.2
Selenium	µg/L	5[A]	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	0.05	0.07	0.072	1.35	0.569 DTSE	0.3	<0.05	0.24	0.091	0.16	<0.05	0.1	<0.05
Silicon	µg/L	n/v	9,370	7,180	8,380	7,970	8,810	7,500	6,290	7,240	7,100	7,080	6,730	6,520	6,360	5,750	5,570	5,490	5,310	5,010	4,810	7,530
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	23.9	48.2	20.3	20.6	28.5	5.66	4.64	5.24	5.32	4.30	22.4	166	50	72.7	81.9	4.37	2.1	1.86	3.99	136
Strontium	µg/L	n/v	206	135	169	163	148	271	234	228	205	181	376	107	104	92.7	84.3	77	71.1	64.2	59.6	2,070
Sulfur	µg/L	n/v	<500	<500	1,800	1,700	<500	5,240	5,700	8,300	6,400	1,920	132,000	6,700	7,800	7,200	6,200	1,510	3,900	3,500	1,900	471,000
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	n/v	<0.3	2	12.5	10.4	1.4	<0.3	1.7	1.9	1	<0.3	1.9	2.17	1.8	1.8	1.1	1.24	1.2	1.5	0.8	<0.3
Tungsten	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	0.1	0.71	0.6	0.6	0.6	<0.1	0.7	4.51	4.4	3.2	3	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	33[A]	0.265	1.19	0.32	0.34	0.47	1.77	1.71	2.03	1.68	1.31	2.63	1.25	1.18	1.24	1.77	0.438	0.39	0.37	0.37	0.506
Vanadium	µg/L	20[A]	<0.5	<0.5	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	3.76	2.7	1.2	0.7	<0.5	1.2	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	<1	3	3	1	3	3.6	4	3	5	1.1	**700[A]**	<1	<1	1	2	1.5	1	2	3	47
Zirconium	µg/L	n/v	<0.2	<0.2	0.3	0.3	<0.2	0.45	0.4	0.5	0.4	1.89	1.1	6.4	2.6	2.3	1.8	<0.2	<0.2	0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Sample Location			SEEP 3		SEEP 5		SEEP 6	SEEP 7	SEEP 8	SEEP 9		SEEP 10	SEEP 11	Field Blank			Trip Blank					
Sample Date			1-Nov-21	13-Oct-22	1-Nov-21	13-Oct-22	27-Oct-21	27-Oct-21	27-Oct-21	27-Oct-21	13-Oct-22	27-Oct-21	27-Oct-21	23-Sep-21	4-Oct-21	28-Sep-22	21-Sep-21	23-Sep-21	6-Jun-22	26-Sep-22	27-Sep-22	12-Oct-22
Sample ID			SEEP 3	Seep3	SEEP 5	Seep5	SEEP 6	SEEP 7	SEEP 8	SEEP 9	Seep9	SEEP 10	SEEP 11	FIELD BLANK	FIELD BLANK	Field Blank	TRAVEL BLANK	TRAVEL BLANK	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sampling Company			GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM	GGM
Laboratory			ALS	TESTMARK	ALS	TESTMARK	ALS	ALS	ALS	ALS	TESTMARK	ALS	ALS	ALS	ALS	TESTMARK	ALS	ALS	TESTMARK	TESTMARK	TESTMARK	TESTMARK
Laboratory Work Order			L2658301	479977	L2658301	479977	L2656609	L2656609	L2656609	L2656609	479977	L2656609	L2656609	L2643916	L2647728	478408	L2642733	L2643916	465320	478164	478277	479283
Laboratory Sample ID			L2658301-1	1812548	L2658301-3	1812550	L2656609-1	L2656609-2	L2656609-3	L2656609-5	1812549	L2656609-4	L2656609-6	L2643916-2	L2647728-5	1805784	L2642733-9	L2643916-6	1762830	1804848	1805251	1809790
Sample Type	Units	MOE APV												Field Blank	Field Blank	Field Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
General Chemistry																						
Acidity as CaCO3	mg/L	n/v	3.9	15	<2.0	10	11.4	32.2	16.0	7.0	32	5.0	7.0	<2.0	<2.0	12	<2.0	<2.0	<2	11	12	11
Alkalinity, Bicarbonate (as CaCO3)	mg/L	n/v	174	176	225	148	366	408	397	336	272	328	271	<2.0	<2.0	5	<2.0	<2.0	<1	6	5	4
Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	<2.0	<1	<2.0	<1	<2.0	<2.0	<2.0	<2.0	<1	<2.0	<2.0	<2.0	<2.0	<1	<2.0	<2.0	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	n/v	<2.0	0.00317	<2.0	0.0112	<2.0	<2.0	<2.0	<2.0	0.00502	<2.0	<2.0	<2.0	<2.0	0.00003	<2.0	<2.0	0.00005	0.00012	0.00003	0.00003
Alkalinity, Total (as CaCO3)	mg/L	n/v	174	176	225	149	366	408	397	336	273	328	271	<2.0	<2.0	5	<2.0	<2.0	<2	6	5	4
Ammonia (as N)	mg/L	n/v	0.0562	<0.01	0.0109	<0.01	0.451	0.914	0.592	0.370	<0.01	0.0058	0.0086	<0.0050	<0.0050	<0.01	<0.0050	<0.0050	<0.01	0.66	<0.01	<0.01
Chloride	mg/L	180[A]	1.63	8.7	7.35	8.8	4.9	5.4	4.6	58.5	8	**263[A]**	11.4	<0.10	<0.10	<0.2	<0.10	<0.10	<0.2	<0.2	<0.2	<0.2
Cyanide	mg/L	0.0052[A]	<0.0020	**0.007[A]**	<0.0020	0.005	***<0.020 DLM***	**0.0291[A]**	**0.0215[A]**	**0.0094[A]**	**0.009[A]**	**0.0371[A]**	**0.0073[A]**	<0.0020	<0.0020	<0.002	<0.0020	<0.0020	<0.002	<0.002	0.002	<0.002
Cyanide (Free)	mg/L	n/v	<0.0020	0.004	<0.0020	<0.001	<0.0020	<0.0020	<0.0020	0.0021	0.004	<0.0020	<0.0020	<0.0020	<0.0020	<0.001	<0.0020	<0.0020	<0.001	<0.001	<0.001	<0.001
Electrical Conductivity, Lab	µS/cm	n/v	376	437	413	349	3,110	3,240	3,130	3,120	3,400	3,260	3,370	1.1	2.6	2	1.1	1.2	2	2	1	7
Fluoride	mg/L	n/v	0.027	<0.05	0.029	<0.05	<0.40 DLDS	<0.40 DLDS	<0.40 DLDS	<0.40 DLDS	<0.5	<0.40 DLDS	<0.40 DLDS	<0.020	0.025	<0.05	<0.020	0.030	<0.05	<0.05	<0.05	<0.05
Hardness (as CaCO3)	mg/L	n/v	208	194	220	152	2,120	2,240	2,290	2,080	2,430	1,720	2,470	<0.50	0.57	<0.1	<0.50	<0.50	<0.1	<0.1	<0.1	<0.1
Nitrate (as N)	mg/L	n/v	0.033	<0.02	<0.020	<0.02	<0.40 DLDS	<0.40 DLDS	<0.40 DLDS	<0.40 DLDS	<0.2	<0.40 DLDS	<0.40 DLDS	<0.020	<0.020	0.04	<0.020	<0.020	<0.02	<0.02	<0.02	0.09
Nitrite (as N)	mg/L	n/v	<0.010	<0.01	<0.010	<0.01	<0.20 DLDS	<0.20 DLDS	<0.20 DLDS	<0.20 DLDS	<0.1	<0.20 DLDS	<0.20 DLDS	<0.010	<0.010	<0.01	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
pH, lab	S.U.	n/v	7.60	7.27	8.06	7.82	7.80	7.25	7.69	7.99	7.47	7.96	7.94	5.52	6.14	5.29	7.74	5.62	5.43	5.85	5.22	5.26
Phosphorus, Total	mg/L	n/v	0.0785	0.052	0.0101	0.011	0.194	0.554	0.216	0.0259	0.23	0.0263	0.0084	<0.0010	<0.0010	0.005	<0.0010	0.0021	<0.001	<0.001	<0.001	0.003
Sulfate	mg/L	n/v	32.3	19.9	2.43	2.1	1,930	2,010	1,970	1,840	2,170	1,460	2,250	<0.30	<0.30	<0.3	<0.30	<0.30	<0.3	<0.3	<0.3	<0.3
Total Dissolved Solids	mg/L	n/v	261	345	236	305	3,150	3,410	3,200	3,130	3,170	2,850	3,570	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total Kjeldahl Nitrogen	mg/L	n/v	0.969	<1	0.306	<1	0.591	0.986	0.698	0.466	<1	0.195	0.215	<0.050	<0.050	<1	<0.050	<0.050	0.1	<1	<1	<1
Total Suspended Solids	mg/L	n/v	<3.0	12	<3.0	22.3	27.0	46.4	87.6	10.6	16.3	9.6	9.0	<3.0	<3.0	<0.67	<3.0	<3.0	1.3	<0.67	<0.67	<1
Turbidity, Lab	NTU	n/v	4.78	5.8	1.04	1.5	103	199	421	34.3	56.7	15.8	27.2	0.11	0.11	0.3	<0.10	0.12	0.3	0.3	0.3	0.2
Metals																						
Aluminum	µg/L	n/v	6.8	4	<1	1	<5	5.1	<10	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1
Antimony	µg/L	1,600[A]	0.32	0.4	<0.1	<0.1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	150[A]	**454[A]**	123	3.67 DTC	1.7	**3,270[A]**	**7,710[A]**	**3,880[A]**	**716[A]**	134	**319[A]**	84.6	<0.1	0.18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	µg/L	2,300[A]	14.1	19.1	12.2	13.6	14.6	18.3	12.3	8.9	23	28.5	15.7	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beryllium	µg/L	5.3[A]	<0.02	<0.02	<0.02	<0.02	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bismuth	µg/L	n/v	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	3,550[A]	<10	<2	<10	<2	120	109	<100	<100	<20	<100	<100	<10	<10	<2	<10	<10	<2	<2	<2	<2
Cadmium	µg/L	0.21[A]	<0.005	0.01	<0.005	<0.005	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	mg/L	n/v	62.7	70.3	69.9	53.6	473	504	543	450	526	395	495	<0.050	0.183	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Cesium	µg/L	n/v	0.016	0.02	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	64[A]	0.17	<0.1	0.11	<0.1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.1	0.27	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt	µg/L	5.2[A]	0.36	0.1	<0.1	<0.1	**5.27[A]**	**5.86[A]**	**7.1[A]**	3.2	4	1.2	2.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	6.9[A]	0.57	0.9	1.24	0.4	<1	<1	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Iron	µg/L	n/v	4,110	830	28	40	5,500	21,600	19,200	240	<100	800	530	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead	µg/L	2[A]	0.056	<0.05	0.059	<0.05	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	n/v	1.2	1	<1	<1	21.1	17.2	<10	<10	10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	n/v	12.4	12.9	11.0	8.76	229	237	226	234	271	179	299	<0.0050	0.0270	<0.004	<0.0050	<0.0050	<0.004	<0.004	<0.004	<0.004
Manganese	µg/L	n/v	105	1.2	22.6	<0.1	248	393	796	320	345	150	84.1	<0.1	0.33	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	µg/L	0.77[A]	<0.005	0.001	<0.005	0.001	<0.005	<0.005	<0.005	<0.005	0.001	<0.005	<0.005	<0.005	<0.005	0.0003	<0.005	<0.005	-	0.0003	0.0002	-
Molybdenum	µg/L	730[A]	0.254	0.18	0.158	0.13	4.22	2.99	3.27	0.63	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	39[A]	1.13	1.9	<0.5	<0.5	6.1	5.1	8.4	<5	7	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus	µg/L	n/v	<30	<50	<30	<50	<150	<150	<300	<300	<500	<300	<300	<30	<30	<50	<30	<30	<50	<50	<50	<50
Potassium	mg/L	n/v	1.19	1.64	1.29	1.17	42.4	39.6	34.0	35.1	33.9	27.6	42.5	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Rubidium	µg/L	n/v	2.68	3.2	2.06	2.2	5.6	5.2	4.2	7.1	8	5.8	9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Selenium	µg/L	5[A]	0.06	0.37	<0.05	0.1	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	n/v	3,010	3,560	731	1,110	8,390	9,690	9,880	7,860	5,900	7,570	6,530	<50	426	<50	<50	<50	<50	<50	<50	<50
Silver	µg/L	0.12[A]	<0.01	<0.01	<0.01	0.03	<0.05	<0.05	<0.1	<0.1	**0.3[A]**	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	180[A]	1.40	3.05	6.70	4.59	10.6	9.65	7.74	49.1	7.6	157	9.91	<0.050	0.399	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Strontium	µg/L	n/v	69.9	73.9	74.1	50.3	3,260	3,390	2,960	2,860	3,360	2,180	3,900	<0.2	1.26	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfur	µg/L	n/v	11,200	5,700	4,220	700	672,000	695,000	676,000	634,000	721,000	508,000	806,000	<500	<500	<500	<500	<500	<500	<500	<500	<500
Tellurium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<1	<1	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	40[A]	<0.01	<0.01	<0.01	0.01	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	n/v	<0.3	0.7	<0.3	<0.3	<1.5	<1.5	<3	<3	<3	<3	<3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Tungsten	µg/L	n/v	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	33[A]	0.119	0.21	0.136	0.08	1.33	1.05	0.8	0.56	0.7	0.14	0.93	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	20[A]	<0.5	1.6	<0.5	1.2	<2.5	<2.5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	89[A]	2	2	1	<1	<5	<5	<10	<10	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zirconium	µg/L	n/v	<0.2	<0.2	<0.2	<0.2	<1	<1	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Table B-4-1
Summary of Groundwater Analytical Results - Groundwater
2022 Fish and Fish Habitat Federal EIS Follow-Up Monitoring Report
Greenstone Project

Notes:

MOE APV [A]	MOE - Aquatic Protection Values (APV) to Protect Aquatic Biota Exposed to Contaminants from Migration of Contaminated Groundwater to Surface Water. Aquatic Toxicity Data Screening - Table 3.1 - Aquatic Protection Values
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
D	Result was obtained from the analysis of a dilution
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids/Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTSE	Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species. Contact ALS if an alternative test to address this interference is needed.
PDM	Particulate was observed in preserved sample. Associated results may be biased low.
TMV	Turbidity exceeded upper limit of the nephelometric method. Minimum value reproted.