Hydrogeological Investigation

Nictaux Sand Pit Expansion Project

Shaw Group Limited

2 May 2025

The Power of Commitment

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GHD Limited
Contact: Glen Merkley, Team Leader (Interim) - NRIA | GHD
110, 120 Western Parkway,
Bedford, Nova Scotia B4B 0V2, Canada
T +1 902 468 1248 | **F** +1 902 468 2207 | **E** info-northamerica@ghd.com | **ghd.com**

Contents

Table index

Figure index

Appendices

1. Introduction

GHD Limited (GHD) was retained by the Shaw Group Limited (Shaw) to complete a hydrogeological investigation of the proposed Nictaux Sand Pit Expansion Project (the Project), an expansion of the existing Trimper Sand and Gravel Pit located near Nictaux, Annapolis County, Nova Scotia (NS). The Minister of Environment and Climate Change has granted consent to transfer the existing environmental assessment (EA) approval dated April 20, 2012 for the Trimper Sand and Gravel Pit Expansion Project originally issued to Ivan H. Trimper Construction Ltd. to 4389818 Nova Scotia Limited, a numbered company wholly owned by Shaw. Shaw intends to expand the Project Area (PA) authorized by this EA approval to include extraction of a sand resource located on parcels with the following premises identification numbers (PIDs): 05291448, 05291455, 05286976, 05286984, 05310834, 05286968, 05194030, 05313853, 05059688, and 05058334.

Shaw intends to operate the Project for the purpose of extracting commercial sand at a rate of approximately 475,000 tonnes per year. The proposed area of land disturbance, shown on Figure 1, is approximately 125 hectares (ha) in area. All sand extracted for the Project will be processed on-site via screening, washing, and classifying for commercial sale. Processing equipment will include screens, conveyors, and crushers. All on site equipment will be operated using electricity except mobile equipment (i.e., excavators, dozers, haul trucks), which will be diesel-fuelled. Shaw intend to extract sand from beneath the current water table as determined through baseline groundwater elevation monitoring.

1.1 Purpose of this Report

This hydrogeological investigation was completed in support of the environmental assessment registration document (EARD) prepared for the Project. The objective of this report is to provide an understanding of the quality and quantity of groundwater in the area and to evaluate the potential impacts of the Project on groundwater resources. The following tasks were undertaken by GHD to establish baseline hydrogeologic conditions for the project:

– Compiled, reviewed, and interpreted available hydrologic, geologic, and hydrogeologic data relevant to Shaw.
– Identified data gaps and designed a field program to address those gaps.
– Estimated overburden hydraulic conductivity values through single well response (slug) tests.
– Compiled groundwater quality data collected from the Project.

1.2 Scope and Limitations

This report: has been prepared by GHD for Shaw Group Limited and may only be used and relied on by Shaw Group Limited for the purpose agreed between GHD and Shaw Group Limited as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Shaw Group Limited arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

2. Method of Investigation

The following section provides an overview of the fieldwork and sampling methodology used as part of the hydrogeological investigation.

2.1 Desktop Review

A desktop review of historical and recent data to develop an understanding of the regional and Project-specific hydrologic, geologic, and hydrogeologic conditions. Reviewed publicly available data included surficial and geologic mapping developed for NS, climate data, and the NS Well Logs Database (NSECC, nd). The Well Logs Database identified water supply wells and private wells located within or in the vicinity of the PA. The NS Well Logs Database also provided information on geologic conditions, groundwater elevations, and well yields.

2.2 Monitoring Well Installation and Surveying

Logan Drilling and Geotechnical (Logan) was retained by GHD to drill and complete four boreholes as monitoring wells using a CME-75 track-mounted drill rig. The field investigation was conducted between March 19 and March 27, 2024, under the supervision of qualified GHD field staff.

Logan advanced four boreholes to depths ranging from 9.10 metres below ground surface (mbgs) at MW-05 to 30.50 mbgs at MW-07, completing each as a monitoring well. Hollow stem and standard augers were used to drill through the overburden, which was characterized using split-spoon samplers. Stratigraphic descriptions are presented on the monitoring well logs in Appendix A.

Each monitoring well was constructed using a 50 mm diameter polyvinyl chloride (PVC) 20-slot screen, connected to a flush-threaded PVC riser. The annular space between the well screen and the borehole wall was backfilled with #2 silica sand to a height of 0.6 m above the well screen. This was followed by a seal of hydrated bentonite pellets measuring approximately 1 m thickness to prevent surface intrusion, and the remaining space was filled with silica sand to the ground surface. The top of each well was secured with a locking J-plug and protected by an above-ground protective cover.

Following installation, each monitoring well was developed and purged of at least three well volumes, or until the well ran dry. Additionally, Levelogger transducers (Solinst™) with built-in dataloggers were installed at a depth of 0.5-1.0 m above the bottom of each well to record water levels automatically at 15-minute intervals. A Barologger (Solinst™), installed near MW-05, was used to compensate for the effects of atmospheric pressure on the water level data.

Well locations and available installation data are provided in Table 1, below. Locations of groundwater wells are additionally provided on Figure 1. Monitoring wells were positioned to provide spatial coverage surrounding the proposed pit areas and to allow monitoring of potential changes to groundwater quality and quantity at locations between the pit and adjacent receptors, including domestic water wells, watercourses, and wetlands.

Table 1 Monitoring Well Installation Details

Monitoring Well ID	Coordinates		Recorded Drilled Depth (mbgs[1])	Screen Interval (mbgs)	Top of Casing Elevation (masl[2])
	Northing (NAD 83 UTM Z20) (m)	Easting (NAD 83 UTM Z20) (m)			
MW-04	4975836	341234	10.70	2.40-10.90	49.224
MW-05	4976847	340796	9.10	2.10-9.10	31.944
MW-06	4976874	341523	9.10	2.10-9.10	36.203
MW-07	4976400	341497	30.50	6.10- 30.50	60.94

Notes:
[1] mbgs – meters below ground surface
[2] masl – meters above sea-level

Initially, the baseline groundwater monitoring program was exclusive to the newly installed monitoring wells, which were initially identified as MW-01 through MW-04. On June 17, 2024, the NS Minister of Environment and Climate Change granted consent to transfer the existing EA approval dated April 20, 2012, for the Trimper Sand and Gravel Pit Expansion Project originally issued to Ivan H. Trimper Construction Ltd. (Trimper) to 4389818 Nova Scotia Limited, a

numbered company wholly owned by Shaw. Monitoring wells MW-01, MW-02, and MW-03 were installed by Trimper in 2014 and were added to this monitoring program following the EA approval transfer. Two additional monitoring wells, MW-08, and MW-09, are located the adjacent property to the west owned by Quality Concrete, and were added to this monitoring program to provide additional spatial coverage west of the PA.

The addition of monitoring wells MW-01, MW-02, and MW-03 necessitated the renaming of the four monitoring wells installed by GHD in 2024 to create a cohesive numbering system for the monitoring program. This change is not reflected in the laboratory certificates of analysis provided in Appendix C.

The original monitoring well identification system compared to the updated identification system is presented in Table 2, below.

Table 2 Monitoring Well Identification System

Original Monitoring Well ID	Updated Monitoring Well ID (as of August 2024)	Coordinates		Top of Casing Elevation (masl)
		Northing (NAD 83 UTM Z20) (m)	Easting (NAD 83 UTM Z20) (m)	
MW-01	MW-01	4976213	342174	52.03
MW-02	MW-02	4976858	341941	30.40
MW-03	MW-03	4976934	341753	31.49
MW-01	MW-04	4975836	341234	50.145
MW-02	MW-05	4976847	340796	32.74
MW-03	MW-06	4976874	341523	37.169
MW-04	MW-07	4976400	341497	61.662
Unidentified Quality Concrete Well	MW-08	4976328	340227	35.81
	MW-09	4975997	340348	35.35

On November 8, 2024, monitoring wells were surveyed relative to local geodetic benchmark elevations. Surveying was conducted using Trimble R12 GNSS survey equipment with 5 centimetre (cm) vertical accuracy and 2 cm horizontal accuracy capability. All monitoring wells were surveyed at ground level directly adjacent to the monitoring well, and at the top of the PVC well casing (top of casing), corresponding to the location where water levels are measured from. The survey was conducted using a data collection package and tied into a geodetic monument in Universal Transverse Mercator (UTM), Zone 20, NAD83. Ground elevations at MW-01, MW-02, and MW-03 were taken from a LiDAR-derived Digital Elevation Model (DEM) (Nova Scotia, 2024). Top of casing elevations for MW-01, MW-02, and MW-03 were calculated by adding the measured stick-up elevations to the ground elevations.

2.3 Groundwater Quality Monitoring

The first set of newly installed monitoring wells (MW-04 and MW-05) was sampled on March 21, 2024, followed by the second set (MW-06 and MW-07) on March 27, 2024. Two subsequent rounds of groundwater monitoring, which included Trimper's existing monitoring wells, were conducted on August 28-29 and October 30-31, 2024. Prior to sampling, static water levels were measured in each monitoring well, and all wells were purged. GHD purged a minimum of three well volumes from each well while monitoring the following parameters: temperature, pH, conductivity, turbidity, and dissolved oxygen. These parameters were measured during purging until stabilization was achieved or until the well ran dry.

Before collecting groundwater samples, the water level in each well was allowed to recover to its approximate static level. Monitoring wells were developed using polyethylene Waterra tubing fitted with foot valves. Groundwater samples were subsequently collected using dedicated disposable bailers to minimize sediment accumulation in the sample bottles. Samples collected for dissolved metals analysis were filtered either in the field, or in the lab. Field

filtering was achieved using a syringe with a 0.45-micrometre (µm) filter or with dedicated Waterra tubing and an in-line filter. Lab filtering was completed for select samples submitted following the August monitoring program.

Groundwater samples were placed directly into new laboratory-supplied sample bottles and immediately transferred into coolers containing ice to maintain a temperature of <10°C. Samples were stored under cool conditions until delivery to Bureau Veritas Laboratory in Bedford, Nova Scotia. The laboratory is accredited by the Standards Council of Canada and the Canadian Association for Laboratory Accreditation Inc. Analytical methods used during testing are referenced in the chain-of-custody records included in Appendix C. Please note that the COCs submitted prior to the August 2024 monitoring event use the outdated well identification system, while those submitted for and following the August event use the updated well identification system. Refer to Table 2 for a summary of changes to monitoring well identifications.

Groundwater samples collected from the monitoring wells were submitted for standard water and dissolved metals analysis. A total of five groundwater samples, including one field duplicate sample (MWDUP) collected at MW-05, were collected during the March 2024 sampling event of the newly installed well, and submitted for analysis. Subsequently, with the addition of Trimper's existing monitoring wells in the monitoring program nine samples were collected during the August 2024 sampling event, including one field duplicate sample at MW-08. MW-07 was not sampled because the well was dry. The last monitoring event in October 2024 resulted in the collection of eight samples, including one field duplicate at MW-03. MW-06 and MW-07 were not sampled because both wells were dry.

2.4 Groundwater Elevation Monitoring

Static water levels were collected manually during each monitoring event using an electric Solinst™, Model 101 P7 water level meter, relative to surveyed reference points (top of polyvinyl chloride [PVC] casing). Pressure transducers (Solinst™ Levelogger) were installed in each monitoring well to continuously monitors water level at an hourly frequency. Continuous water level data was compensated for the effects of atmospheric pressure using a Solinst™ Barologger installed on-site.

2.5 Hydraulic Conductivity Testing

Falling head and rising head slug tests were completed in monitoring well MW-05 on November 8, 2024. Monitoring well MW-05 was selected for testing as the surficial geology in this area is considered representative of the overall PA. Given that MW-05 was installed through both sand and silty sand substrate, being the two most common stratigraphy units observed across the PA, the results of hydraulic conductivity testing are considered to be generally representative of Project conditions.

Hydraulic conductivity testing was completed by inserting a solid slug into the well below the water level, causing an almost instantaneous rise in the water level in the well. The rate of the water level falling back to the static water level was recorded using a pressure transducer. The process was then repeated when the slug was removed, providing an instantaneous drop in the water level followed by a slower recovery period.

Continuous water level measurements, recorded at 1-second intervals using a pressure transducer, were analysed using AQTESOLV[1], an aquifer test analysis software package. Hydraulic conductivity for each test method was determined using the Bouwer-Rice[2] solution method.

2.6 Quality Assurance and Quality Control Results

A Quality Assurance/Quality Control (QA/QC) program was implemented to minimize and quantify potential issues arising during sample collection, handling, shipping, and analysis. Key components of the program included the use of dedicated sampling equipment, sample-specific identification protocols, and detailed chain-of-custody documentation.

[1] Copyright © 2004-2007 Glenn M. Duffield, HydroSOLVE, Inc. All Rights Reserved.

[2] Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Ground Water, vol. 27, no. 3, pp. 304-309.

Laboratory QA/QC analyses are detailed in the certificates of analysis provided in Appendix C. These analyses include method blanks, matrix spikes, and laboratory control samples. No QA/QC issues were identified in the laboratory results that would compromise the reliability of the reported data.

3. Results of Investigation

3.1 Desktop Review

The hydrologic conditions of the PA are influenced by regional physiography, topography, and surface water features. In general, the physiographic area containing the Project is characterized by gentle rolling hills and meandering rivers contained within the wide historic river valley. Regional surface water drainage is predominantly to the northwest towards the Nictaux River and the Annapolis River. The Project is bisected by two unnamed tertiary watersheds (1DC-3-CC and 1DC-3-EE), both of which are contained within the Annapolis River secondary watershed.

Hydrogeologic characterization of NS Groundwater Regions (Kennedy, 2009) provides an indication of the bedrock groundwater regions based on dominant rock types and the chemistry of wells throughout the province. The Project overlies the boundaries of two separate bedrock groundwater regions – a sedimentary and a metamorphic groundwater region. Groundwater moves more readily through the looser sediment of the surficial glacial deposits than through bedrock. As a result, surficial aquifers occasionally form within surficial deposits, constrained by decreased porosity of the bedrock below. According to the provincial groundwater Atlas, the nearest surficial aquifer to the Project (surficial aquifer ID 49) is located approximately 1 km to the east.

The NS Well Logs Database identifies the locations of wells drilled or dug by licensed well drillers or contractors since the mid-1960s. The nearest water well identified in the database is a drilled agricultural well located approximately 850 m northwest of the PA. Six drinking water wells listed in the database are located within 1 km of the PA; five of these wells, however, do not have associated structures visible in satellite imagery. The NS Well Logs Database indicates these five wells were installed between 1979 and 1999, and as such their associated spatial data may not be accurate.

The nearest registered public drinking water supply location is approximately 2.2 km northeast of the PA, and the Middleton Wellfield Protection Area is located approximately 3.8 km northwest of the PA.

3.2 Groundwater Quality Results

GHD collected groundwater samples over three events through 2024. Where the groundwater monitoring program expanded in August to include historic Trimper wells, historic Trimper wells received two rounds of sampling, while the newly installed wells received three. Sampled wells and dates are provided in Table 3, below.

Table 3 2024 Baseline Groundwater Quality Sample Collection Schedule

Date	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06	MW-07	MW-08	MW-09
March 21, 2024	-	-	-	X	X	-	-	-	-
March 27, 2024	-	-	-	-	-	X	X	-	-
August 28-29, 2024	X	X	X	X	X	X	Dry	X	X
October 30-31, 2024	X	X	X	X	X	Insufficient water volume	Dry	X	X

Note: - indicates monitoring well was not sampled as it was not yet added to the monitoring program

The groundwater analytical results at the Site are compared to Health Canada Guidelines for Canadian Drinking Water Quality (GCDWQ) [Maximum Allowable Concentration (MAC) and Aesthetic Objective (AO)], NS Tier I EQS; Potable Groundwater (Industrial, Coarse) and NS Pathway Specific Standards (PSS) for groundwater; groundwater discharge to surface water (0-10 m from a freshwater body).

The following section provides an overview of the groundwater monitoring program analytical results and exceedances. Groundwater exceedances indicated in the analytical results are summarized and are compared to the applicable in Table 4 (general chemistry) and Table 5 (dissolved metals) below.

Relative percent differences (RPDs) calculated for each field duplicate sample were less than 50%, providing additional validation of laboratory precision and confirming the absence of significant cross-contamination associated with sample collection and handling procedures.

Table 4 Groundwater Exceedances – General Chemistry

Monitoring Well ID	Date	GCDWQ; MAC	GCDWQ; AO	NS Tier I EQS; Potable Groundwater (Industrial, Coarse)	NS Tier II PSS; GW > 10m from SW
MW-01	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--
MW-02	August 29, 2024	--	pH	--	--
	October 31, 2024	--	pH	--	--
MW-03	August 29, 2024	--	pH	--	--
	October 31, 2024	--	pH	--	--
DUP-A (FD of MW-03)	October 31, 2024	--	pH	--	--
MW-04	March 21, 2024	--	pH	--	--
	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--
MW-05	March 21, 2024	--	pH	--	--
	August 29, 2024	--	pH	--	--
	October 31, 2024	--	pH	--	--
DUP-A (FD of MW-05)	March 21, 2024	--	pH	--	--
MW-06	March 27, 2024	--	Colour	--	--
	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--
MW-07	March 27, 2024	--	Colour	--	--
MW-08	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--
DUP-A (FD of MW-08)	August 29, 2024	--	--	--	--
MW-09	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--

Note:

-- denotes no exceedance

Table 5 Groundwater Exceedances – Dissolved Metals

Monitoring Well ID	Date	Canadian Drinking Water Quality Guidelines; MAC	Canadian Drinking Water Quality Guidelines; AO	NS Tier I EQS; Potable Groundwater (Industrial, Coarse)	NS Tier II PSS; GW > 10m from SW
MW-01	August 29, 2024	Dissolved Arsenic	--	Dissolved Arsenic	--
	October 31, 2024	Dissolved Arsenic	--	Dissolved Arsenic	--
MW-02	August 29, 2024	--	Dissolved Manganese	--	--
	October 31, 2024	--	Dissolved Manganese	--	--
MW-03	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--
DUP-A (FD of MW-03)	October 31, 2024	--	--	--	--
MW-04	March 21, 2024	--	--	--	--
	August 29, 2024	Dissolved Manganese	Dissolved Manganese	Dissolved Cobalt, Dissolved Manganese	--
	October 31, 2024	Dissolved Manganese	Dissolved Manganese	Dissolved Cobalt, Dissolved Manganese	--
MW-05	March 21, 2024	--	Dissolved Manganese	--	--
	August 29, 2024	--	Dissolved Manganese	--	--
	October 31, 2024	--	--	--	--
DUP-A (FD of MW-05)	March 21, 2024	--	Dissolved Manganese	--	--
MW-06	March 27, 2024	Dissolved Manganese	Dissolved Aluminium, Dissolved Iron	Dissolved Aluminium, Dissolved Manganese	Dissolved Aluminium, Dissolved Copper
	August 29, 2024	Dissolved Manganese	Dissolved Iron	Dissolved Manganese	Dissolved Aluminium, Dissolved Copper
MW-07	March 27, 2024	Dissolved Manganese	Dissolved Aluminium, Dissolved Iron, Dissolved Manganese	Dissolved Aluminium, Dissolved Manganese, Dissolved Molybdenum	Dissolved Aluminium,
MW-08	August 29, 2024	Dissolved Manganese	Dissolved Manganese	Dissolved Manganese	--
	October 31, 2024	--	Dissolved Manganese	--	--

Monitoring Well ID	Date	Canadian Drinking Water Quality Guidelines; MAC	Canadian Drinking Water Quality Guidelines; AO	NS Tier I EQS; Potable Groundwater (Industrial, Coarse)	NS Tier II PSS; GW > 10m from SW
DUP-A (FD of MW-08)	August 29, 2024	Dissolved Manganese	Dissolved Manganese	Dissolved Manganese	--
MW-09	August 29, 2024	--	--	--	--
	October 31, 2024	--	--	--	--

Note:

-- denotes no exceedance

Several monitoring wells, as summarised in Table 3, denote the presence of dissolved aluminum, arsenic, manganese, and iron which indicates that those metals are naturally occurring within overburden in the PA. Aluminum, arsenic, manganese, and iron are known to naturally occur in groundwater in Nova Scotia, as evidenced by groundwater chemistry maps published by the Nova Scotia Department of Natural Resources and Renewables (NSDNRR) (NSDNRR, 2011).

Dissolved molybdenum was identified at MW-07 during the March sampling event at a concentration exceeding the NS Tier 1 EQS criterion. Molybdenum is additionally a common component of drill rod grease, utilized during the drilling process to maintain lubrication of drill rod threads. Molybdenum may have been identified in the MW-07 sample due to residual drill rod grease deposited during the March 2024 drilling program.

All data collected from the groundwater monitoring well network is considered representative of baseline conditions as no extraction activity has occurred to date.

3.3 Groundwater Elevations

Groundwater elevations measured manually within the monitoring well network are presented in Table 6, below. Continuous groundwater elevations recorded via pressure transducer are summarized in the hydrographs provided in Appendix C.

Table 6 2024 Groundwater Elevation Data

Well ID	Date	Top of Casing Elevation (masl)	Static Water Level (mbtr)	Groundwater Elevation (masl)
MW-01	28-Aug-24	52.03	3.732	48.298
	30-Oct-24		3.905	48.125
MW-02	28-Aug-24	30.40	3.691	26.709
	30-Oct-24		3.916	26.484
MW-03	28-Aug-24	31.49	4.269	27.221
	30-Oct-24		4.536	26.954
MW-04	26-Apr-24	50.145	2.334	47.811
	28-Aug-24		3.732	46.413
	30-Oct-24		4.368	45.777
MW-05	26-Apr-24	32.74	4.56	28.18
	28-Aug-24		5.426	27.314

Well ID	Date	Top of Casing Elevation (masl)	Static Water Level (mbtr)	Groundwater Elevation (masl)
	30-Oct-24		5.764	26.976
MW-06	26-Apr-24	37.17	9.26	27.909
	28-Aug-24		9.875	27.294
	30-Oct-24		10.102	27.067
MW-07	27-Mar-24	61.66	25.546	36.116
	28-Aug-24		Dry	Dry
	30-Oct-24		Dry	Dry
MW-08	28-Aug-24	35.81	10.131	25.679
	30-Oct-24		10.566	25.244
MW-09	28-Aug-24	35.35	4.869	30.481
	30-Oct-24		5.427	29.923

Notes:

Groundwater Elevation = Top of Casing Elevation - Static Water Level
masl - metres above sea level
mbtr - metres below top of riser

Based on the findings of the groundwater quality monitoring program, the groundwater table within the PA is influenced by local topography, with the highest groundwater elevation recorded adjacent to the esker in the south of the PA. This indicates that groundwater flows radially off the esker towards areas of lower topography, eventually feeding local surface water bodies and wetlands. The general direction of groundwater flow within the PA is to the northwest, as indicated on Figure 2.

3.4 Hydraulic Conductivity

The results of the single well response tests were used to determine the hydraulic conductivity (K) for monitoring well MW-05. The hydraulic conductivity values, summarized below in Table 7, are consistent with silty sand and clean sand (Freeze and Cherry, 1979), which aligns with both the MW-05 borehole log stratigraphy and the understanding of local surficial geology. The results of the tests are presented in Appendix D.

Table 7 Single Well Response Test Data

Well	Falling Head	Rising Head	Geometric Mean
	(m/sec)	(m/sec)	(m/sec)
MW-05	4.0×10^{-5}	4.2×10^{-5}	4.1×10^{-5}

4. Hydrogeological Cross Sections

Figures 1, 3, and 4 provide a cross-section location map and geologic cross sections through the existing and expanded pit. The cross sections show the monitoring wells, groundwater elevations and expanded pit floor elevation. The elevated topography of the sand esker is shown on Figures 3 and 4 in the vicinity of MW-07. The stratigraphic sequence consists of almost entirely sand. A layer of sand with cobbles is present from approximately 46 to 54 masl at MW7 and cobbles were encountered at approximately 39 masl in both MW7 and MW4.

As shown in the cross sections, the proposed pit floor will be variable and dependant on the thickness of useable sand in each area. The proposed pit floor ranges from approximately 16 m below the observed water table in the southeast corner of the expanded pit, to above the water table in the previously approved pit areas in the eastern portion of the PA.

5. Effects Assessment

Shaw intends to extract sand from beneath the current water table as established through baseline groundwater elevation monitoring. All sand extracted from beneath the water table will be removed via dredge. As such, sand extraction is not anticipated to result in groundwater drawdown as the pit area will not be dewatered. Following extraction, any pit areas extracted beneath the water table will be left as pit lakes into the closure phase, maintaining the adjacent water table elevation.

Freshwater requirements for the wash plant are proposed to be met by withdrawal from an on-site water supply pond. The pond will be constructed by excavating beneath the water table and will be recharged by inflows from the highly permeable sand and gravel aquifer present within the PA. Process water from the wash plant will flow through a water clarifier before being recycled back into the water supply pond.

With the exception of potential losses to evaporation and the water clarifier, all water withdrawn from the supply pond is planned to be recycled within this unconfined closed loop system. Shaw currently employ a similar process water supply system at their Keddy facility. Operations and environmental monitoring completed for the Keddy facility demonstrate consistent water elevations in supply ponds and monitoring wells, confirming the process water supply system is not depleting local groundwater. Considering the similar geological conditions and process proposed for the Project, water withdrawal is not anticipated to affect surrounding water users.

There is potential for the Project to impact groundwater quality through precipitation leaching potential constituents of concern from stockpiles and spills of petroleum products. Leaching of potential constituents of concern is of greatest concern in the context of ML/ARD. Project activities will be limited to the surficial geology and are not anticipated to contact the underlying sulphide-bearing bedrock. Therefore, acid production is not anticipated to occur at the Project and precipitation leaching through the stockpiles and recharging groundwater is anticipated to have similar constituent of concern concentrations to background. Potential petroleum spills will be mitigated through the development handling methods to prevent and control leaks and spills and through the development of a Contingency Plan.

A detailed Groundwater Monitoring Plan will be developed for the Project and submitted as part of the IA application. The plan will include proposed measures to monitor potential changes groundwater quality and quantity as a result of Project activities. The existing monitoring network consists of nine monitoring wells providing spatial coverage in all directions from proposed pit areas. The results of groundwater monitoring will be used to inform adaptive water management practices to mitigate any adverse impacts that may result from the Project.

6. Conclusions

GHD was retained by Shaw to complete a hydrogeological investigation of the proposed Nictaux Sand Pit Expansion Project, an expansion of the existing Trimper Sand and Gravel Pit located near Nictaux, Annapolis County, NS. This hydrogeological investigation was completed in support of the EARD prepared for the Project. The objective of this report is to provide an understanding of the quality and quantity of groundwater in the area and to evaluate the potential impacts of the Project on groundwater resources.

Logan Drilling and Geotechnical (Logan) was retained by GHD to drill and complete four boreholes as monitoring wells using a CME-75 track-mounted drill rig. The field investigation was conducted between March 19 and March 27, 2024, under the supervision of qualified GHD field staff.

Groundwater quality monitoring was conducted on a quarterly basis between March and October 2024. The concentrations of general chemistry parameters in samples collected from the monitoring well network were less than the applied criteria with the exception of pH, which exceeded the GCDWQ AO in monitoring wells MW-02, MW-03, and MW-05, and colour, which exceeded the GCDWQ AO in MW-06 and MW-07. Dissolved arsenic exceeded the GCDWQ MAC in monitoring well MW-01, while dissolved manganese exceeded the GCDWQ MAC in wells MW-04, MW-06, MW-07, and MW-08. Arsenic and manganese are known to naturally occur in groundwater in Nova Scotia as evidenced by groundwater chemistry maps published by NSDNRR.

Dissolved molybdenum was identified at MW-07 during the March sampling event at a concentration exceeding the NS Tier 1 EQS criterion. Molybdenum is additionally a common component of drill rod grease, utilized during the drilling process to maintain lubrication of drill rod threads. Molybdenum may have been identified in the MW-07 sample due to residual drill rod grease deposited during the March 2024 drilling program.

Proposed sand extraction is not anticipated to result in groundwater drawdown as the pit area will not be dewatered. Following extraction, any pit areas extracted beneath the water table will be left as pit lakes into the closure phase, maintaining the adjacent water table elevation. Water withdrawn from the proposed on-site water supply pond will be entered into an unconfined closed loop system, with process water effluent from the wash plant returned to the pond. Shaw currently employ a similar process water supply system at their Keddy facility. Operations and environmental monitoring completed for the Keddy facility demonstrate consistent water elevations in supply ponds and monitoring wells, confirming the process water supply system is not depleting local groundwater. Considering the similar geological conditions and process proposed for the Project, water withdrawal is not anticipated to affect surrounding water users.

7. References

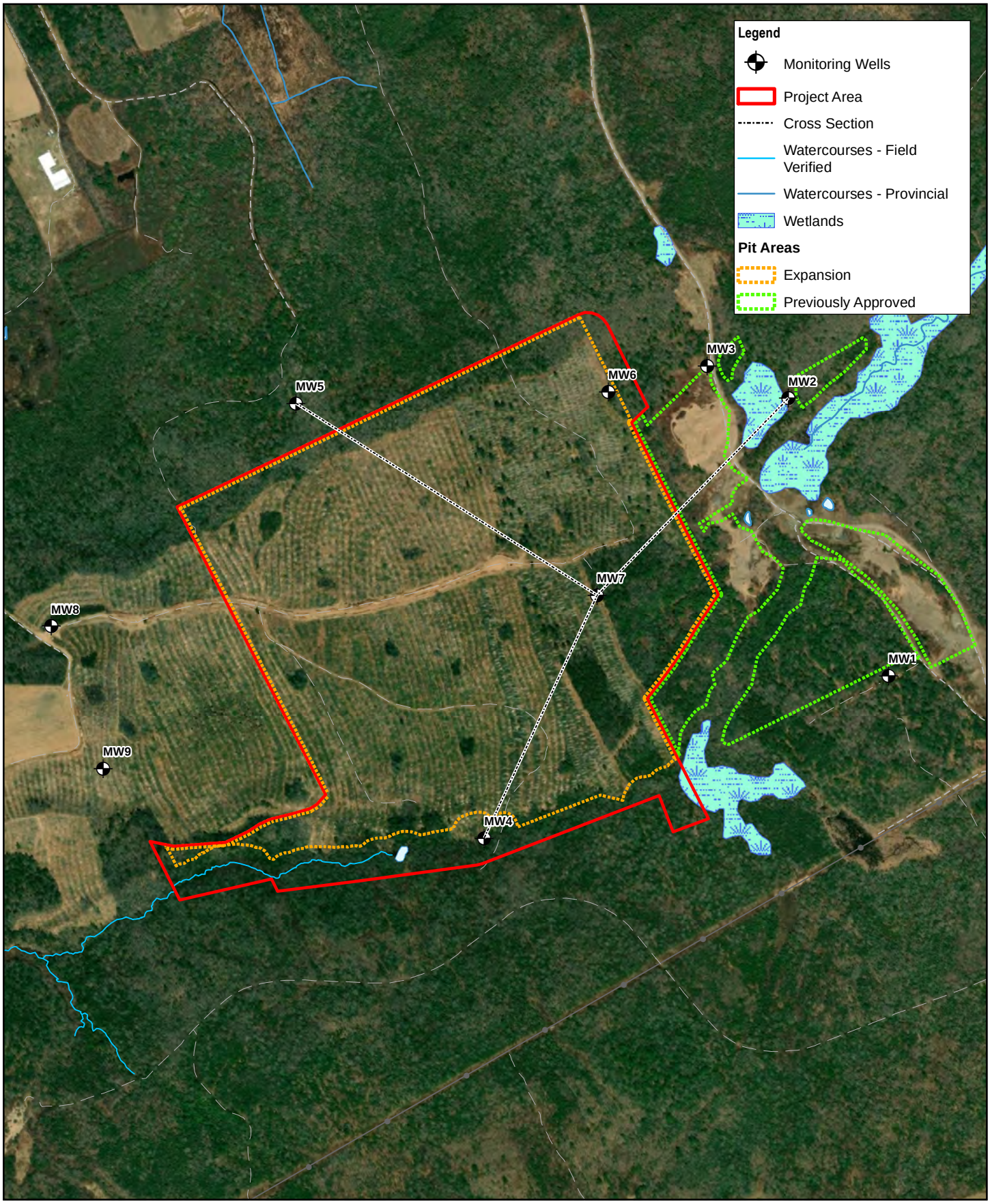
Freeze R.A. and Cherry, J.A., 1979. Groundwater. Prentice Hall, Inc., Engelwood Cliffs, NJ.

Kennedy, Gavin W, 2009. Hydrogeologic Characterization of Nova Scotia’s Groundwater Regions. Retrieved: https://novascotia.ca/natr/meb/pdf/09cs04.asp

Nova Scotia. 2024. DataLocator – Elevation Explorer. Retrieved: https://nsgi.novascotia.ca/datalocator/elevation/.

Nova Scotia Department of Natural Resources and Renewables (NSDNRR), 2011. Groundwater Chemistry Atlas. Retrieved: https://novascotia.ca/natr/meb/water-resources/groundwater-chemistry-atlas.asp.

Figures



Scale 1:12000

0 120 240 360

Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983 CSRS
Grid: NAD 1983 CSRS UTM Zone 20N

N

GHD

THE SHAW GROUP LIMITED
SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA
PROPOSED SAND PIT

Project No. **12586970**
Revision No. **-**
Date **Dec 18, 2024**

MONITORING WELL LOCATIONS

FIGURE 1

Q:\GIS\PROJECTS\12586000s\12586970\GIS\Maps\Deliverables\202409_RPT001\12586970_002_RPT001.mxd
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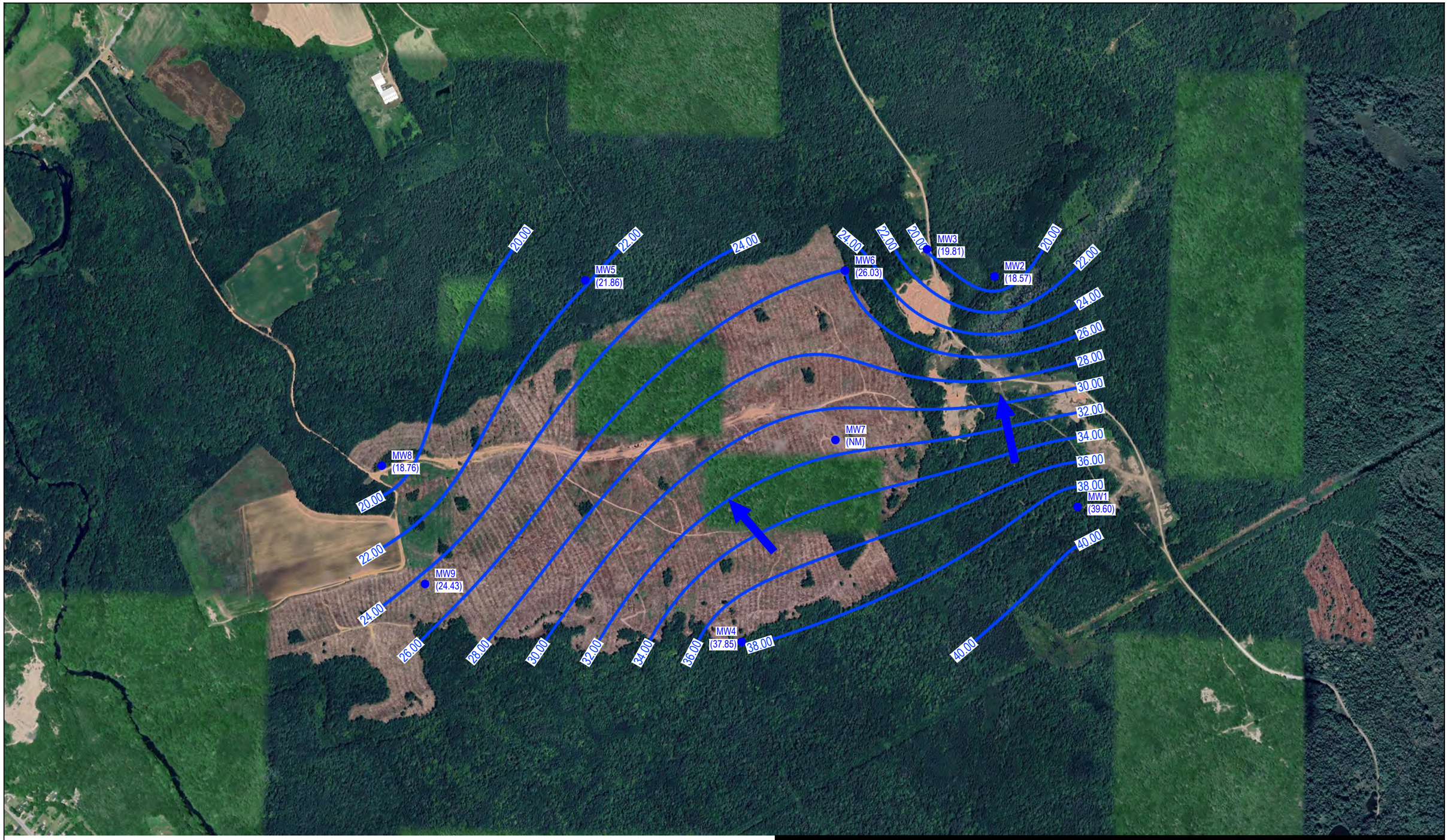


LEGEND

- MONITORING WELL LOCATION
- (37.85) MEASURED GROUNDWATER ELEVATION (mAMSL)
- 24.00 GROUNDWATER CONTOUR INTERVAL
- INFERRED GROUNDWATER FLOW DIRECTION

0 100 200 300

1:10000

N

GHD

THE SHAW GROUP LIMITED
SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA
PROPOSED SAND PIT

GROUNDWATER ELEVATION CONTOUR MAP - AUGUST 2024

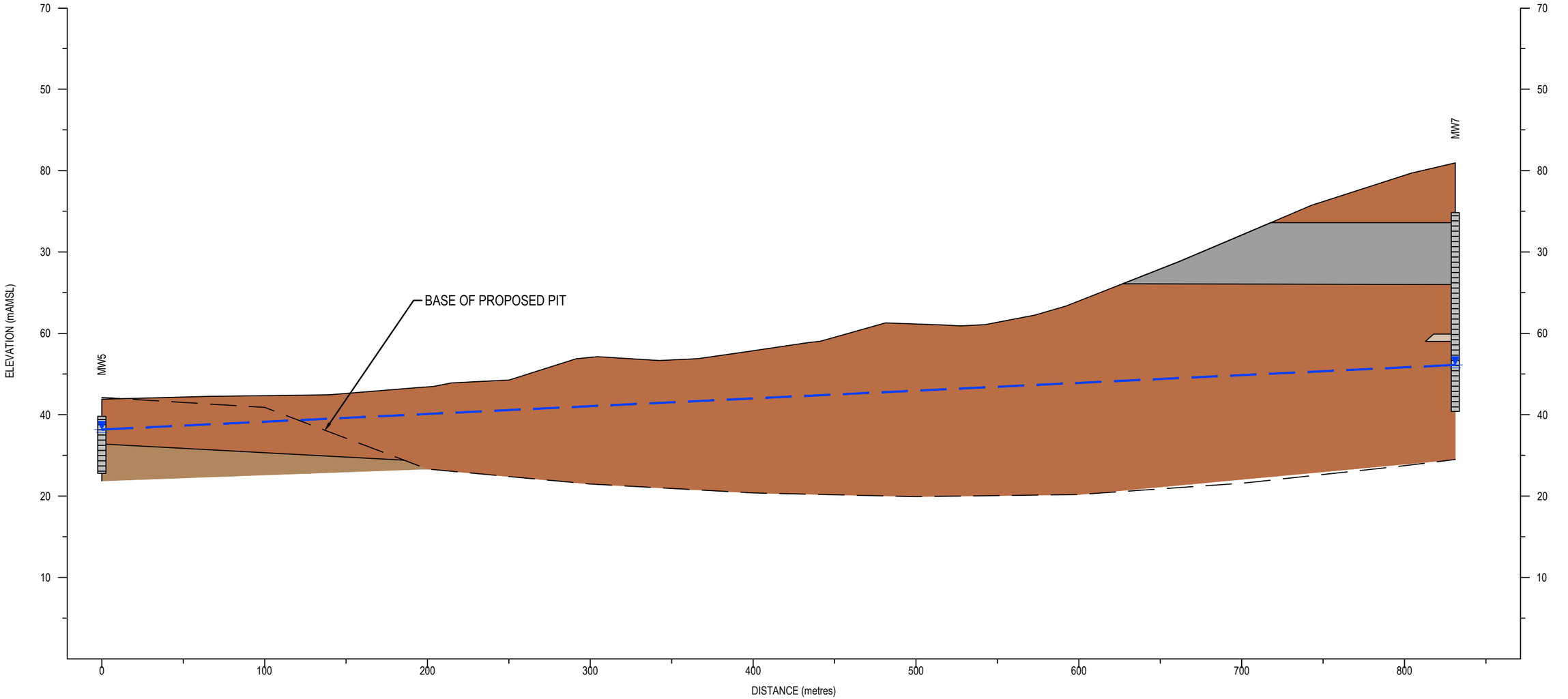
Project No. **12584960**
Date **March 2025**

FIGURE 2

Filename: \\ghdnet\ghd\CA\Halifax\Projects\661\12584960\Digital_Design\ACAD\Figures\RPT002\12584960-GHD-00-00-RPT-EN-D101_WA-001.dwg
Plot Date: 14 March 2025 9:40 AM

A
NORTHWEST

A'
SOUTHEAST



LEGEND

- SILTY SAND
- COBBLE
- SAND
- SAND AND COBBLES
- GROUNDWATER ELEVATION

HORIZONTAL
1:2500
0 25 50 75
0 5 10 15
VERTICAL
1:500

THE SHAW GROUP LIMITED
SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA
PROPOSED SAND PIT

GEOLOGIC CROSS-SECTION A-A'

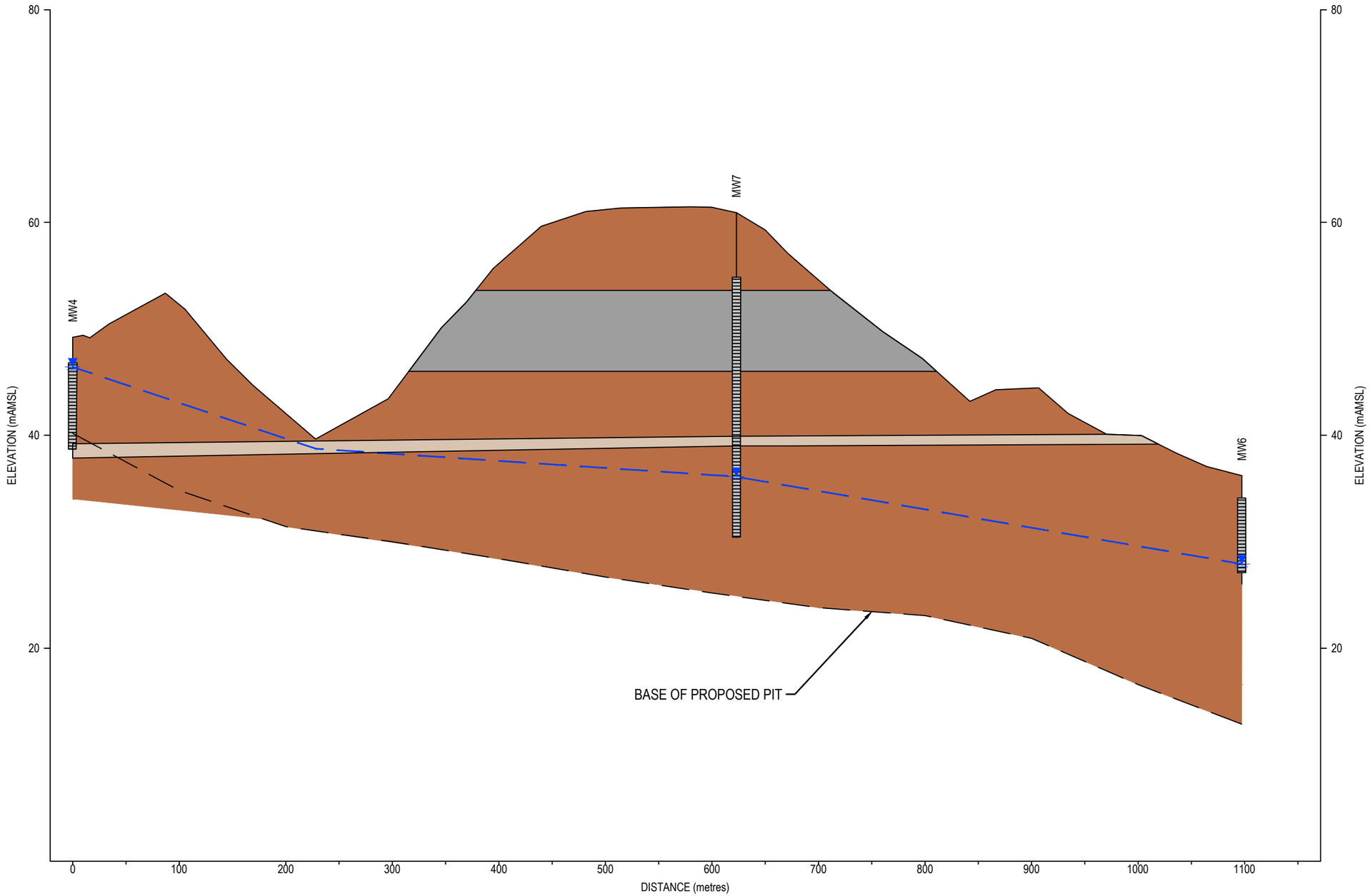
Project No. **12584960**
Date **February 2025**

FIGURE 3

Filename: \\ghdnet\ghd\CA\Halifax\Projects\661\12584960\Digital_Design\ACAD\Figures\RPT001\12584960-GHD-00-00-RPT-EN-D101_WA-001.dwg
Plot Date: 26 February 2025 10:38 AM

B
SOUTHWEST

B'
NORTHEAST



LEGEND

- COBBLE
- SAND
- SAND AND COBBLES
- GROUNDWATER ELEVATION

HORIZONTAL
1:4000
0 40 80 120
0 4 8 12
VERTICAL
1:400

GHD

THE SHAW GROUP LIMITED
SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA
PROPOSED SAND PIT

GEOLOGIC CROSS-SECTION B-B'

Project No. **12584960**
Date **February 2025**

FIGURE 4

Filename: \\ghdnet\ghd\CA\Halifax\Projects\661\12584960\Digital_Design\ACAD\Figures\RPT001\12584960-GHD-00-00-RPT-EN-D101_WA-001.dwg
Plot Date: 26 February 2025 11:03 AM

Appendices

Appendix A

Borehole Logs

REFERENCE No.: 12584960

ENCLOSURE No.:

BOREHOLE No.: MW4

ELEVATION: 49.22 m ASL

BOREHOLE REPORT

Page: 1 of 1

CLIENT: THE SHAW GROUP LIMITED

PROJECT: PROPOSED SAND PIT

LOCATION: SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA

DESCRIBED BY: J. Veniot CHECKED BY: G. Merkley

DATE (START): 20 March 2024 DATE (FINISH): 20 March 2024

LEGEND

- SSE - SPLIT SPOON
- STE - SHELBY TUBE
- RCE - ROCK CORE
- ▼ - WATER LEVEL
- O.V.C. - ORGANIC VAPOR CONC.
- CHEM - CHEMICAL ANALYSIS

Depth Feet	Depth Metres	Elevation (m) BGS	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Other Tests	Organic Vapor	Blows per 6 in. / 15 cm	Penetraion Index
		49.22		GROUND SURFACE			%		ppm		N
				Silty Sand - muddy, brown, highly saturated							
	1.0										
	2.0										
	3.0										
	4.0										
	5.0										
	6.0										
	7.0										
	8.0										
	9.0	40.12		Silty Sand - with clay, some cobbles, red, very dense		SS1	58			16-22-27-38	49
	10.0	39.22		Rock encountered							
	11.0	38.52		End of hole @ 10.7m							

REMARKS

S.U. 1.0 m
T.O.C. 0.9 m
50mm PVC Well Casing
1.20 m
WL 1.20 m
Bentonite Plug
1.80 m
Silica Sand
2.40 m
50mm PVC Well Screen
10.90 m

File: N:\CA\HALIFAX\PROJECTS\66\1\12584960\DIGITAL_DESIGN\GINT\WELL LOGS_DEC 12 2024.GPJ Library File: GHD_GEOTECH_V14.GLB Report: WELL LOG Date: 12/12/24

REFERENCE No.: 12584960

ENCLOSURE No.:

BOREHOLE No.: MW5

ELEVATION: 31.94 m ASL

BOREHOLE REPORT

Page: 1 of 1

CLIENT: THE SHAW GROUP LIMITED

PROJECT: PROPOSED SAND PIT

LOCATION: SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA

DESCRIBED BY: J. Veniot CHECKED BY: G. Merkley

DATE (START): 19 March 2024 DATE (FINISH): 20 March 2024

LEGEND

- SSE - SPLIT SPOON
- STE - SHELBY TUBE
- RCE - ROCK CORE
- ▼ - WATER LEVEL
- O.V.C. - ORGANIC VAPOR CONC.
- CHEM - CHEMICAL ANALYSIS

Depth Feet	Depth Metres	Elevation (m) BGS	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Other Tests	Organic Vapor	Blows per 6 in. / 15 cm	Penetraion Index	REMARKS
		31.94		GROUND SURFACE			%		ppm		N	S.U. 1.0 m T.O.C. 0.9 m
1				Sand - some silt, grey, wet, dense								
2												50mm PVC Well Casing
3	1.0											
4												1.20 m
5												Bentonite Plug
6												1.80 m
7	2.0											Silica Sand
8												2.10 m
9												
10	3.0											
11												
12												
13	4.0											
14												
15												WL 4.375 m
16	5.0											
17						SS1	75			22-21-40-30	61	
18		26.44										
		26.34		Silty Sand - red, compact								50mm PVC Well Screen
19				Silty Sand - some grey sand, red, dense								
20	6.0											
21												
22												
23	7.0											
24												
25												
26	8.0											
27												
28												
29												
30	9.0	22.84		End of hole @ 9.1m								9.10 m

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REFERENCE No.: 12584960

ENCLOSURE No.:

BOREHOLE No.: MW6

ELEVATION: 36.20 m ASL

BOREHOLE REPORT

Page: 1 of 1

CLIENT: THE SHAW GROUP LIMITED

PROJECT: PROPOSED SAND PIT

LOCATION: SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA

DESCRIBED BY: J. Veniot CHECKED BY: G. Merkley

DATE (START): 18 March 2024 DATE (FINISH): 18 March 2024

LEGEND

- SSE - SPLIT SPOON
- STE - SHELBY TUBE
- RCE - ROCK CORE
- ▼ - WATER LEVEL
- O.V.C. - ORGANIC VAPOR CONC.
- CHEM - CHEMICAL ANALYSIS

Depth Feet	Depth Metres	Elevation (m) BGS	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Other Tests	Organic Vapor	Blows per 6 in. / 15 cm	Penetraion Index	REMARKS
		36.20		GROUND SURFACE			%		ppm		N	S.U. 1.0 m T.O.C. 0.9 m
1				Sand - some silt, grey, wet, dense								
2												50mm PVC Well Casing
3	1.0											
4												1.20 m
5												Bentonite Plug
6												1.80 m
7	2.0											Silica Sand
8												2.10 m
9												
10	3.0											
11												
12												
13	4.0											WL 3.914 m
14												
15												
16	5.0											
17												
18												
19												50mm PVC Well Screen
20	6.0											
21												
22												
23	7.0											
24												
25												
26	8.0											
27												
28												
29												
30	9.0	27.10		End of hole @ 9.1m								9.10 m

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REFERENCE No.: 12584960

ENCLOSURE No.:

BOREHOLE No.: MW7

ELEVATION: 60.94 m ASL

BOREHOLE REPORT

Page: 1 of 1

CLIENT: THE SHAW GROUP LIMITED

PROJECT: PROPOSED SAND PIT

LOCATION: SOUTH FARMINGTON, ANNAPOLIS CO, NOVA SCOTIA

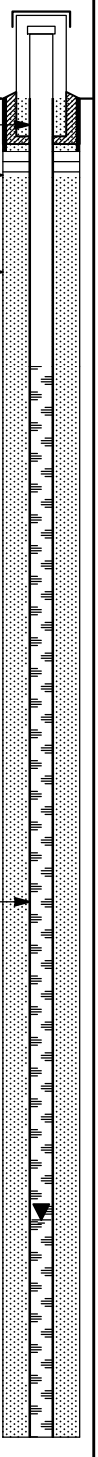
DESCRIBED BY: J. Veniot CHECKED BY: G. Merkley

DATE (START): 21 March 2024 DATE (FINISH): 26 March 2024

LEGEND

- SSE - SPLIT SPOON
- STE - SHELBY TUBE
- RCE - ROCK CORE
- ▼ - WATER LEVEL
- O.V.C. - ORGANIC VAPOR CONC.
- CHEM - CHEMICAL ANALYSIS

Depth (Feet)	Depth (Metres)	Elevation (m) BGS	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Other Tests	Organic Vapor	Blows per 6 in. / 15 cm	Penetraion Index	REMARKS
		60.94		GROUND SURFACE			%		ppm		N	S.U. 1.0 m T.O.C. 0.9 m
	1.0			Sand								50mm PVC Well Casing
5	2.0	58.54										Bentonite Plug
	3.0			Sand - coarse, slightly moist, becoming cobbly					Bentonite Plug	1.80 m		
10	4.0											Silica Sand
15	5.0											
	6.0											6.10 m
20	7.0	53.64										
	8.0			Sand and Cobbles								
25	9.0											
30	10.0											
	11.0											
35	12.0											
40	13.0											
	14.0											
45	15.0	46.04			☒	SS1	29			4-5-3-2	8	
50	16.0			Sand - with cobbles, coarse								
	17.0											
55	18.0											
60	19.0											50mm PVC Well Screen
	20.0											
65	21.0	39.94										
70	22.0	39.04		Granite Boulders								
	23.0			Sand - with cobbles, coarse								
75	24.0											
80	25.0											WL 25.546 m
	26.0											
85	27.0											
90	28.0											
95	29.0	32.24		Sand - trace clay, brown	☒	SS2	100			10-16-28-50/5"	44	
	30.0											
100		30.44		End of hole @ 30.5m								30.50 m



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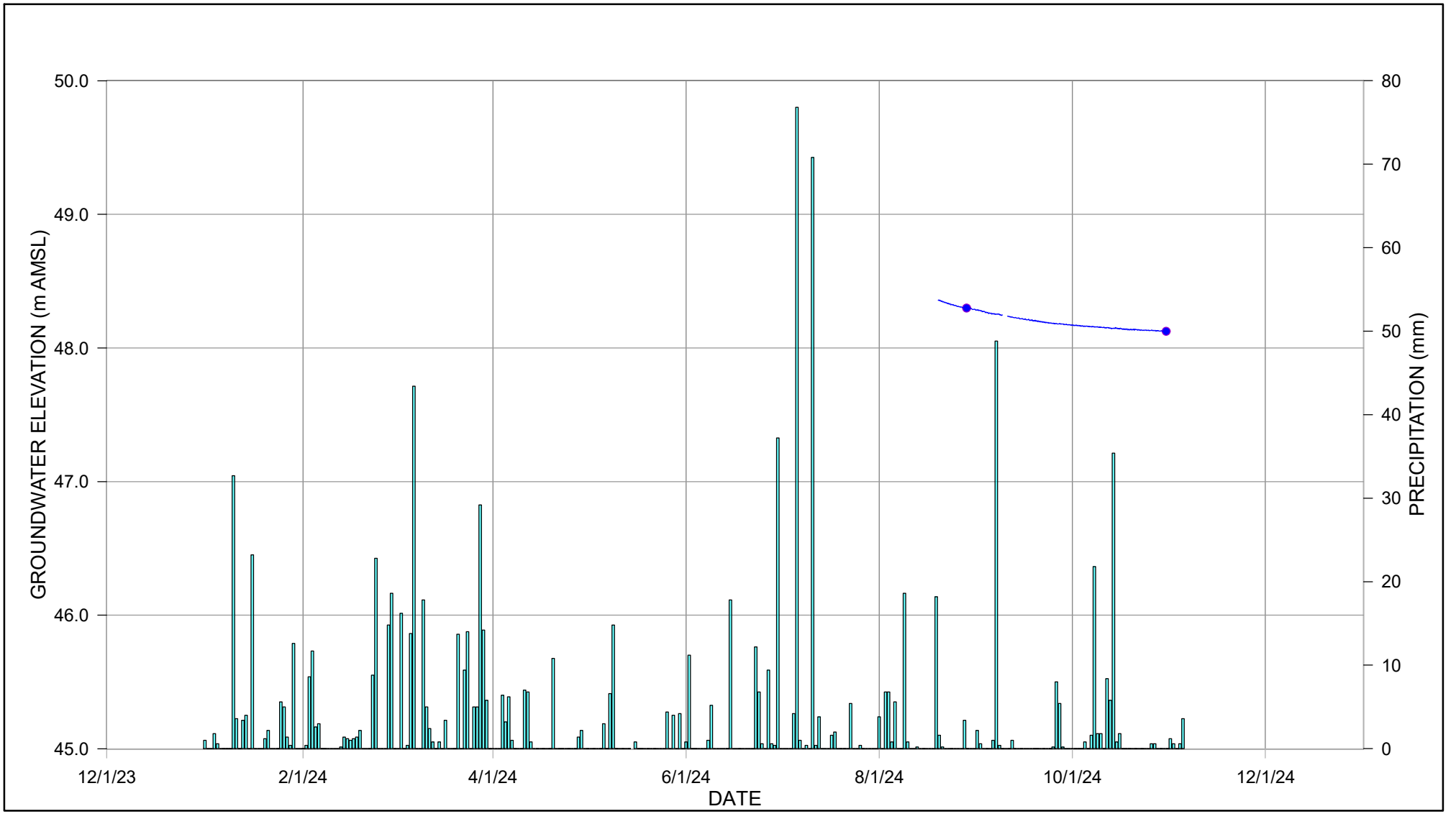
Appendix B

Groundwater Level Hydrographs



Legend

MW1 Logger Data

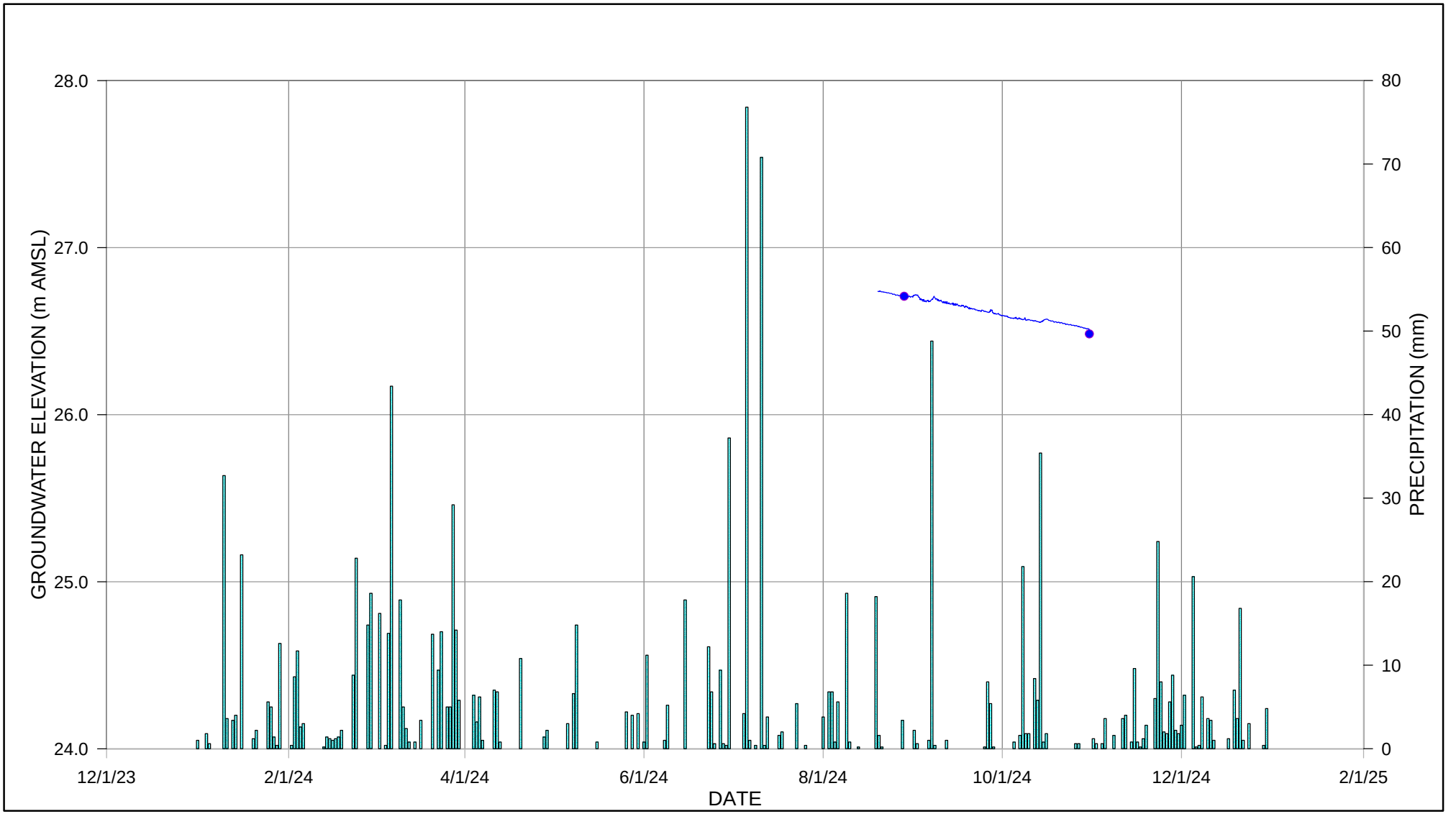
PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW1
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.1



Legend

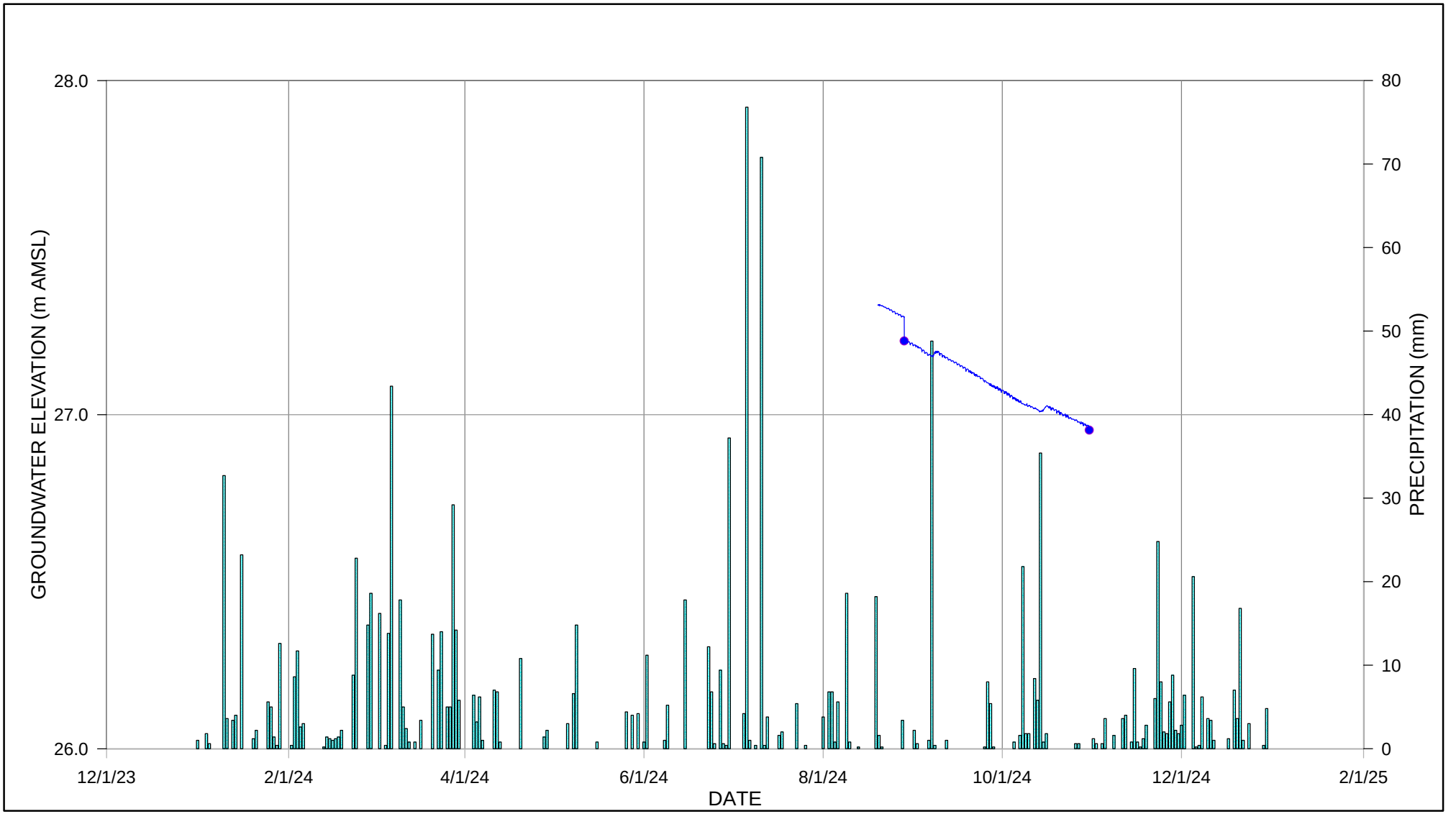
MW2 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW2
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.2



Legend

MW3 Logger

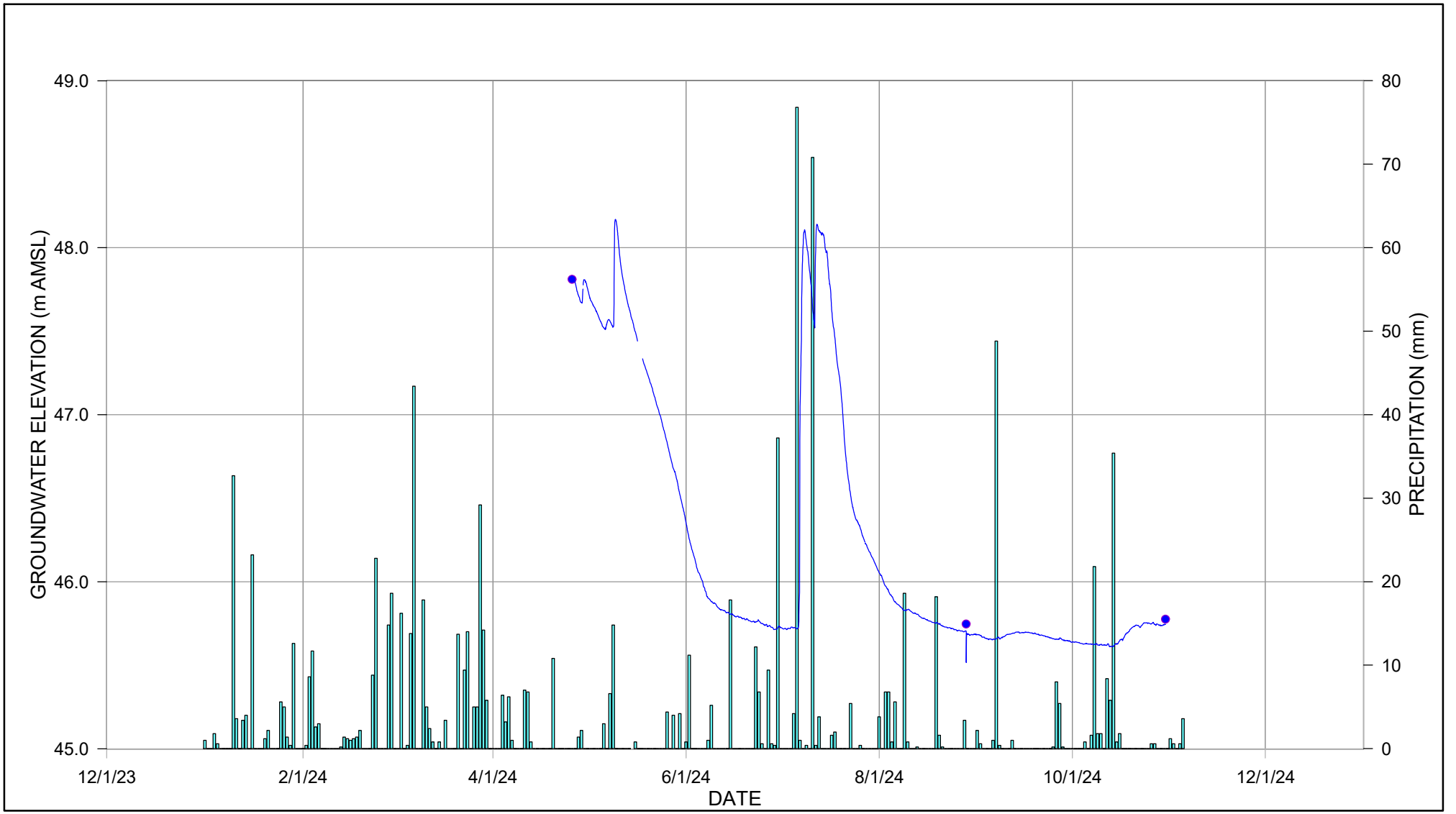
PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW3
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.3



Legend

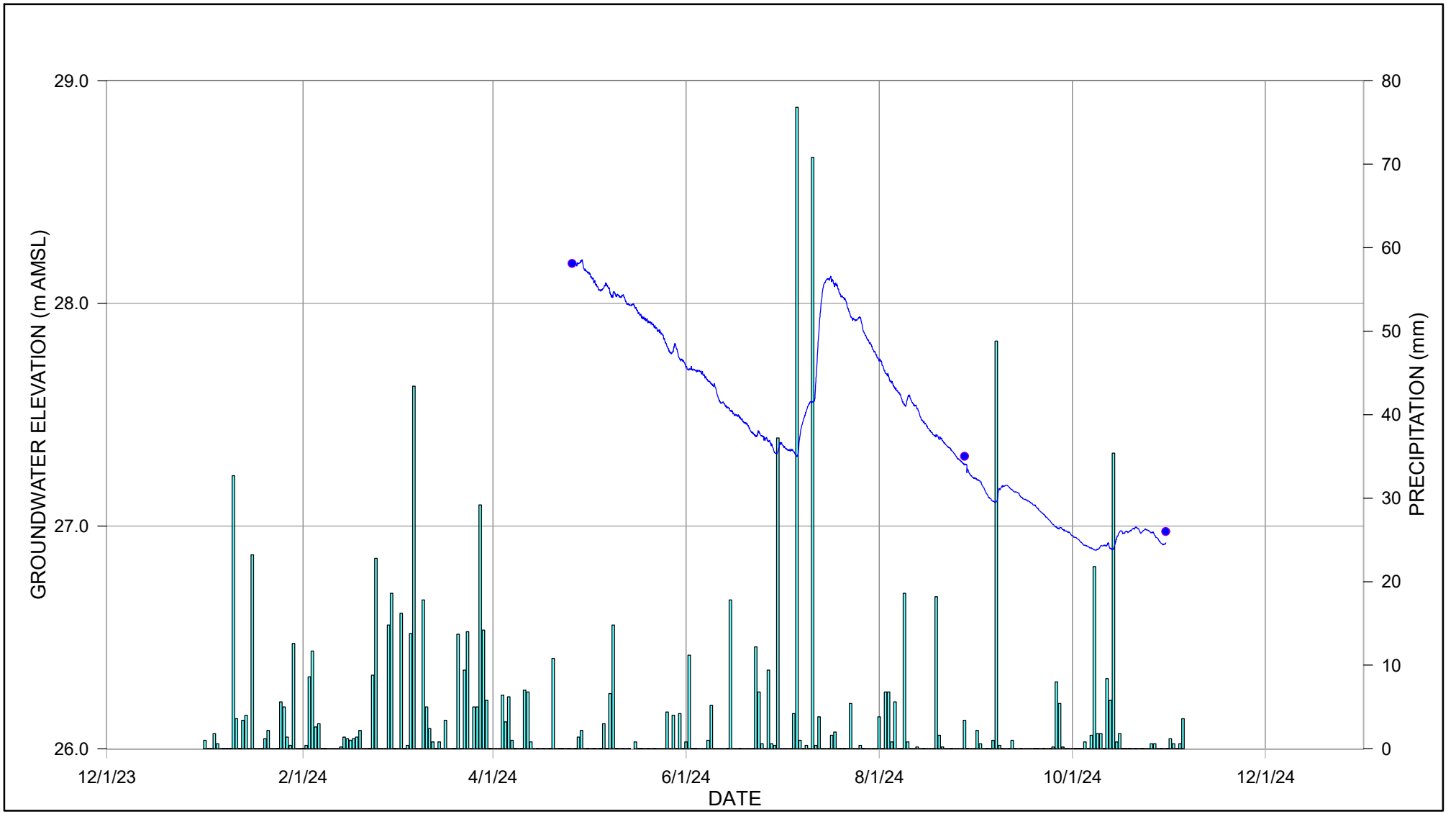
MW4 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW4
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.4



Legend

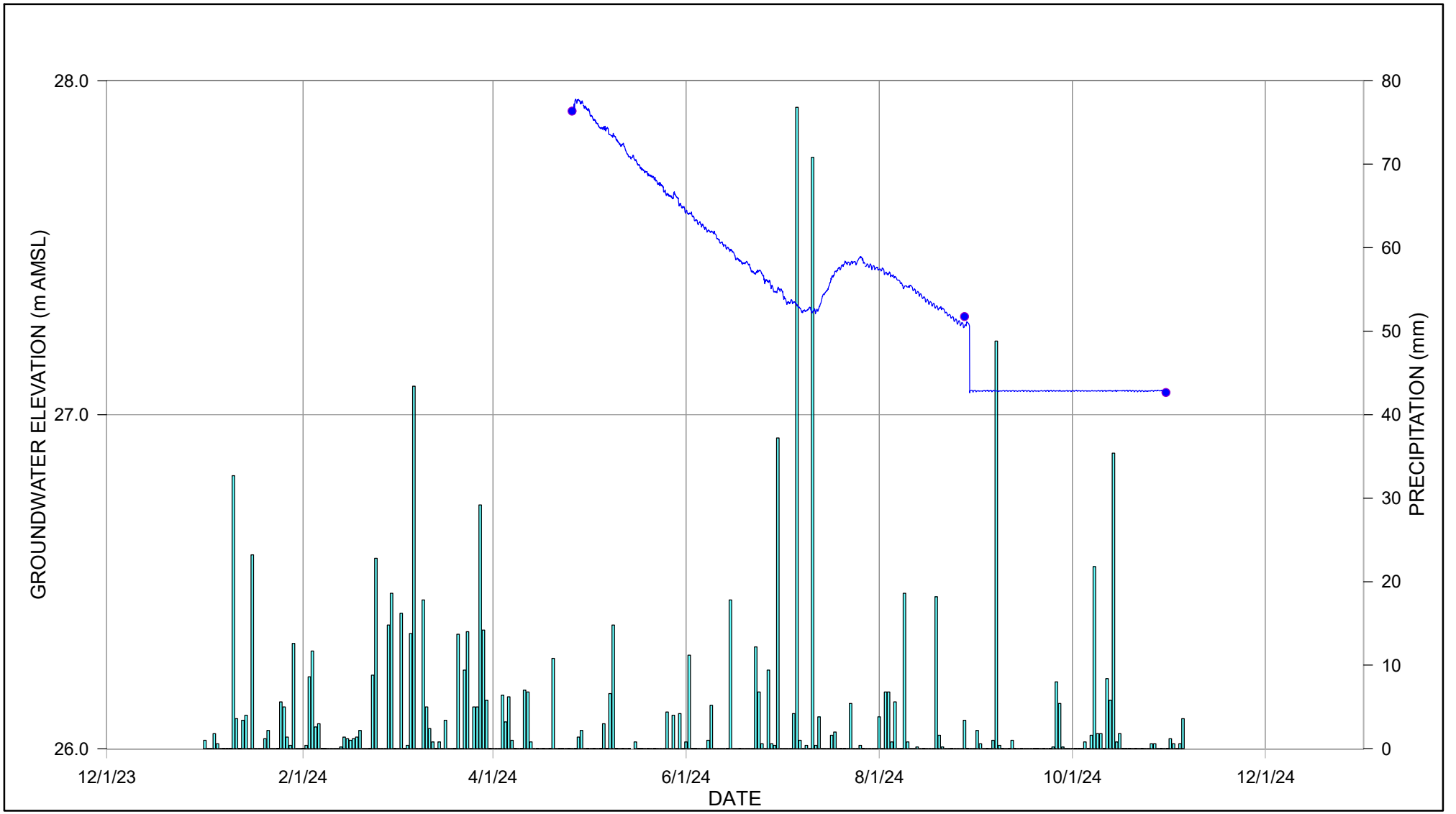
MW5 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW5
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.5



Legend

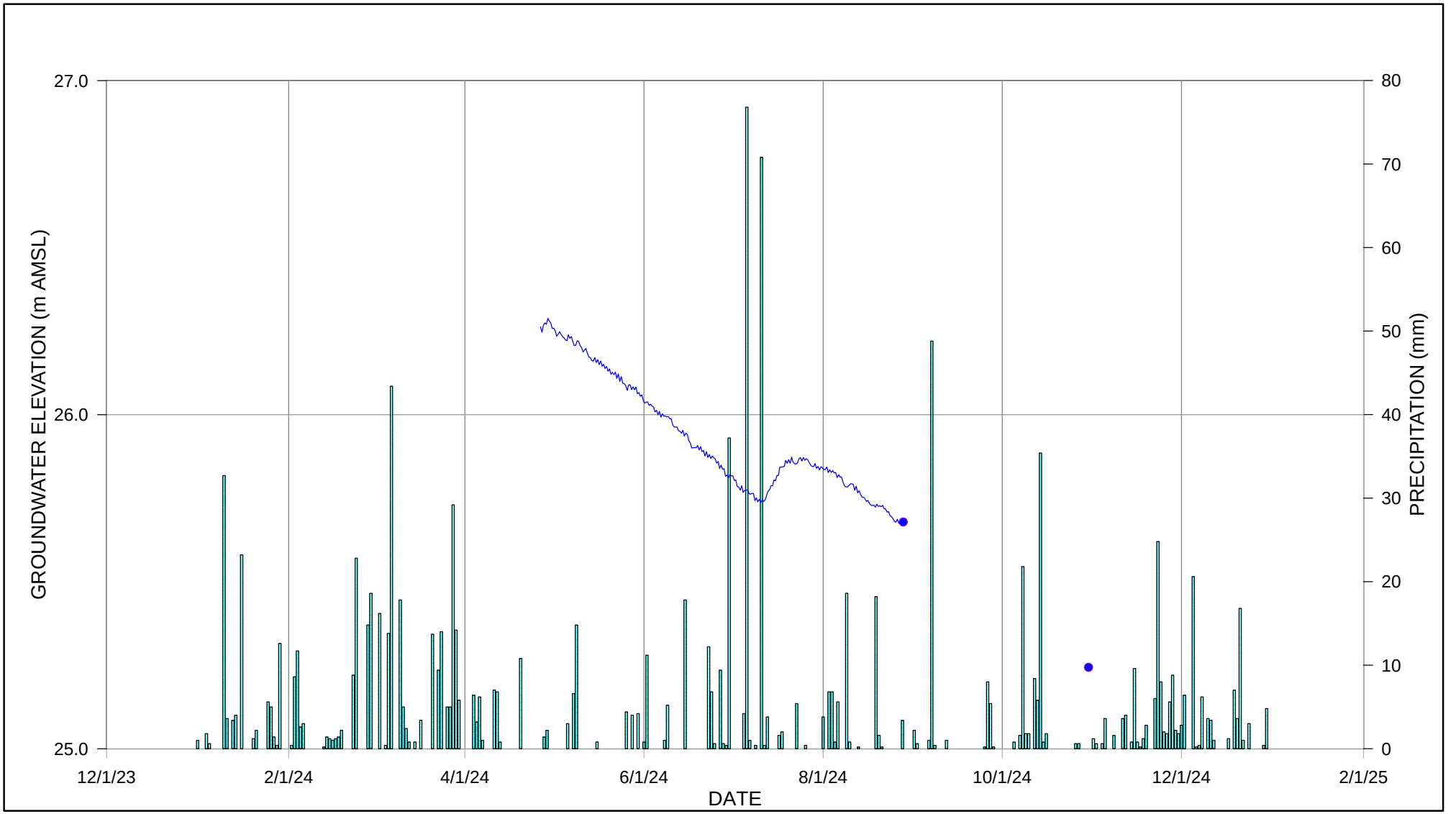
MW6 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW6
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.6



Legend

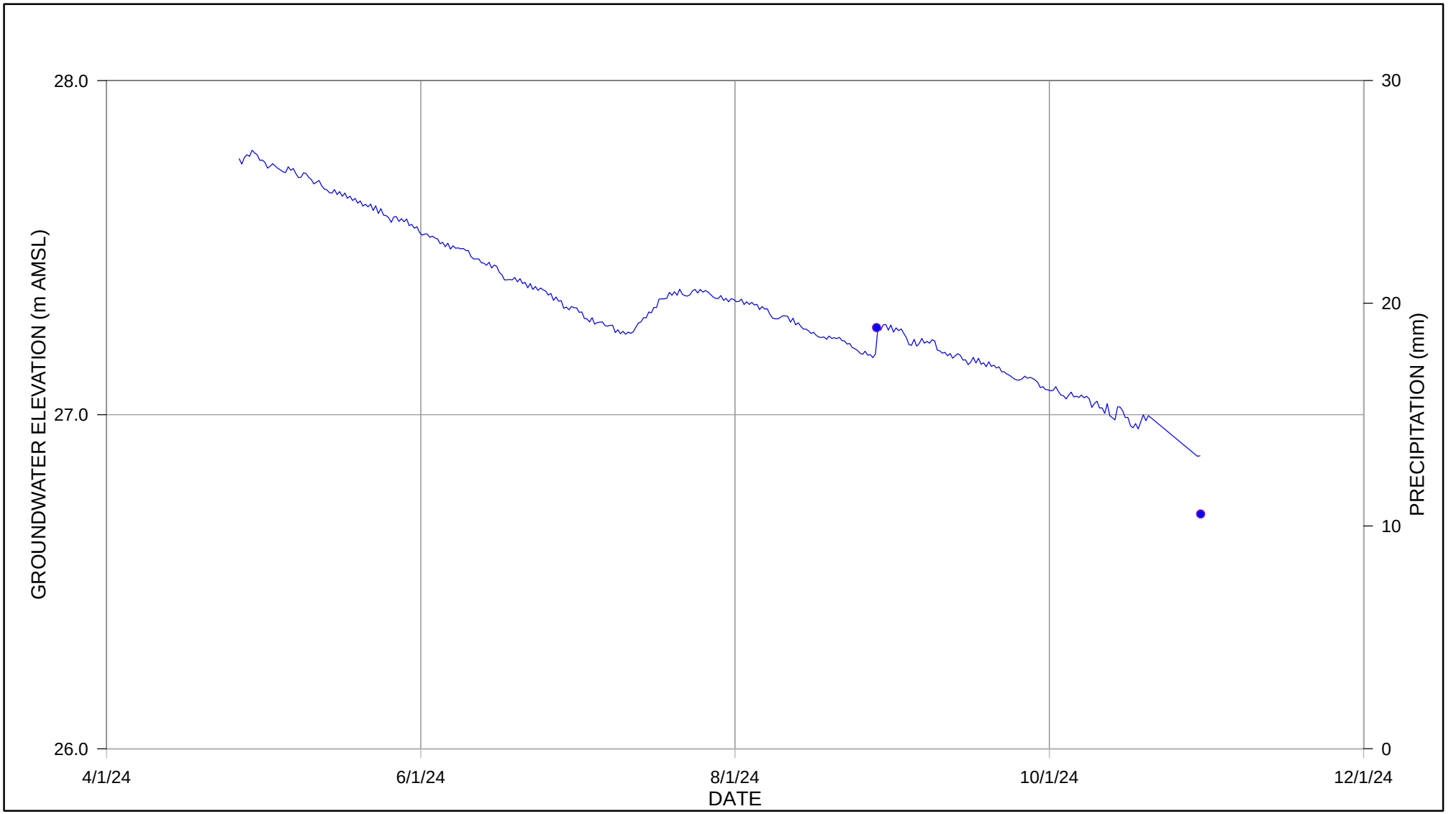
MW8 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW8
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.8



Legend

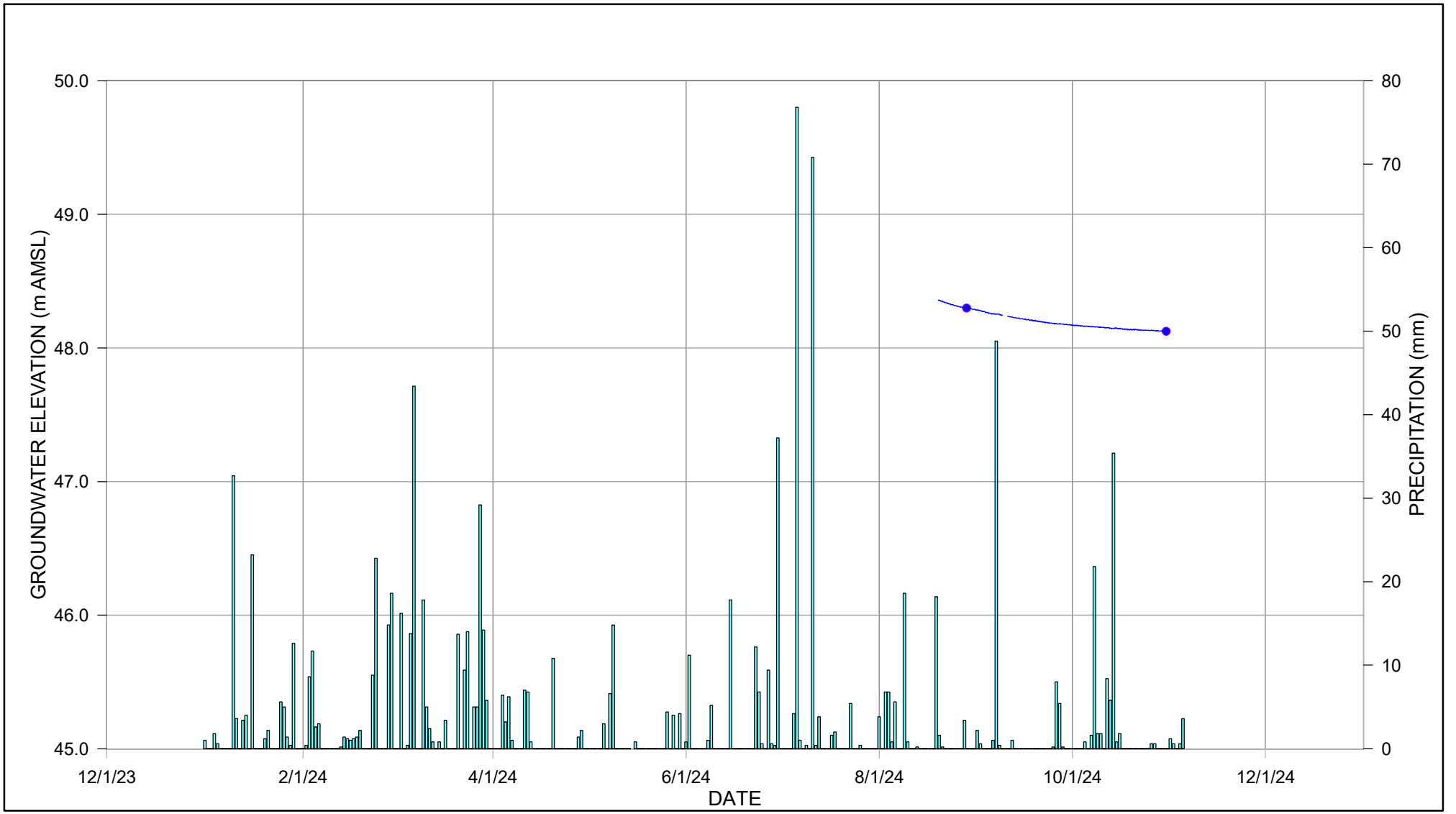
MW9 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW9
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.9



Legend

MW1 Logger Data

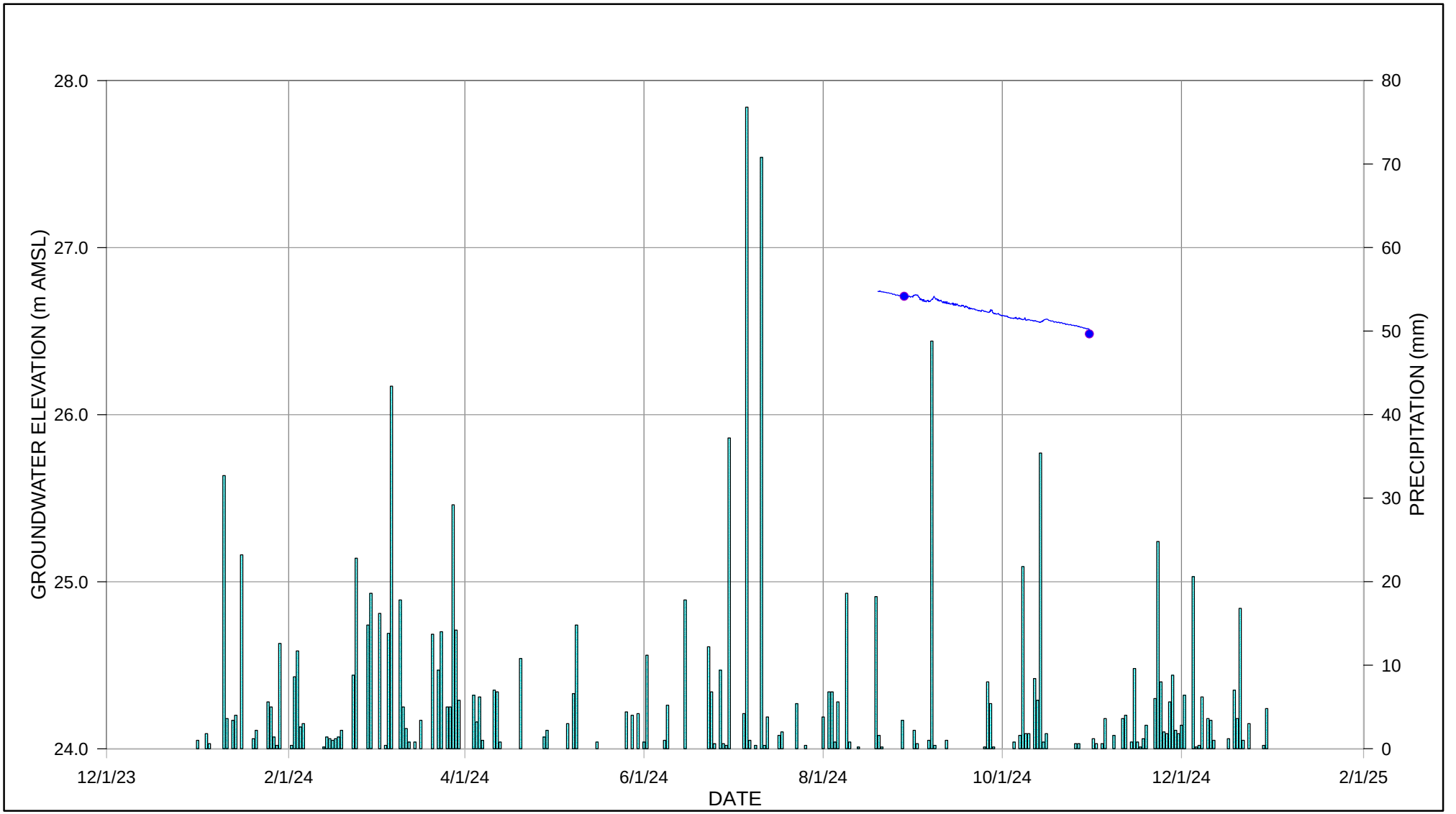
PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW1
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.1



Legend

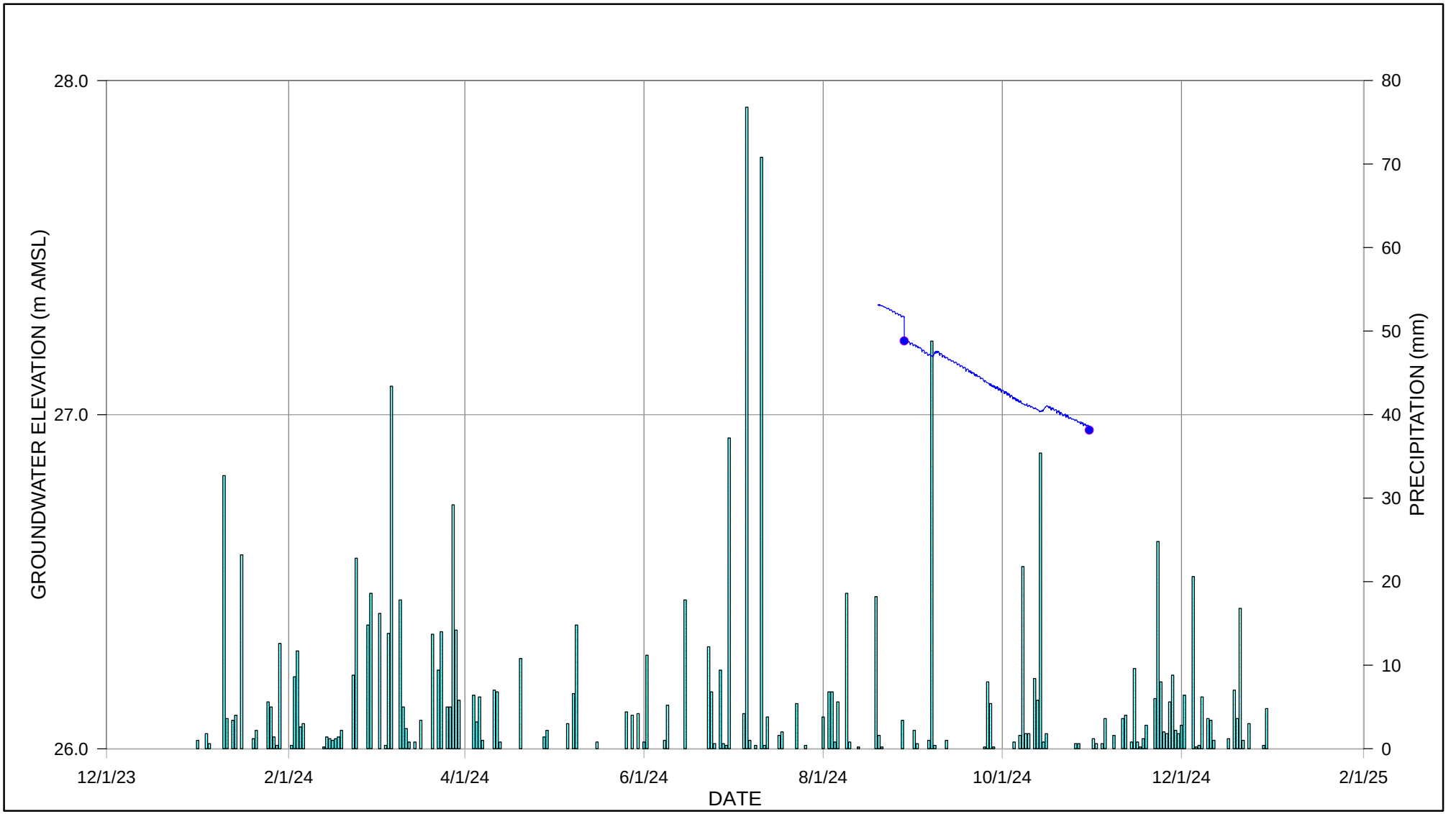
MW2 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW2
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.2



Legend

MW3 Logger

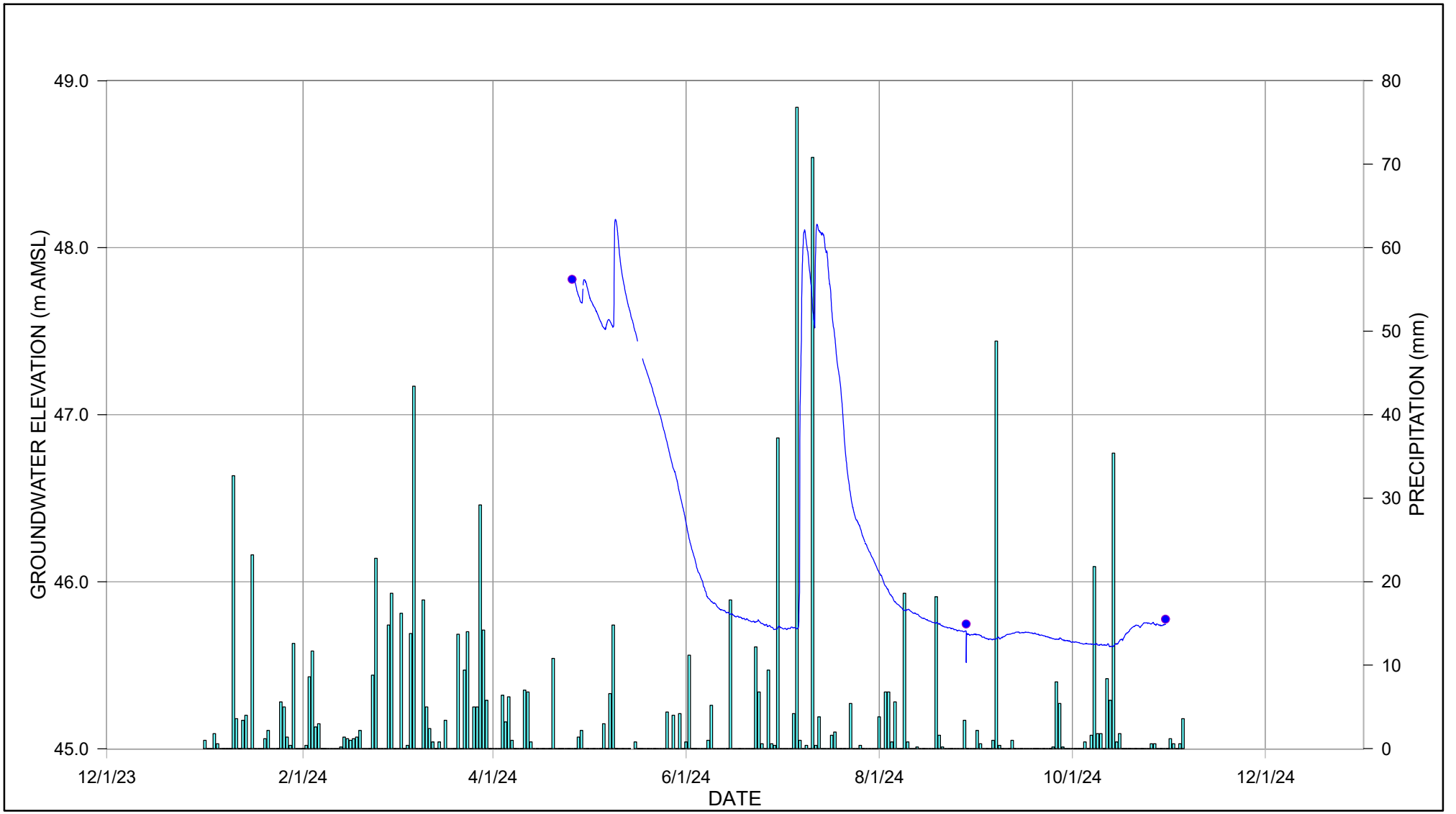
PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW3
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.3



Legend

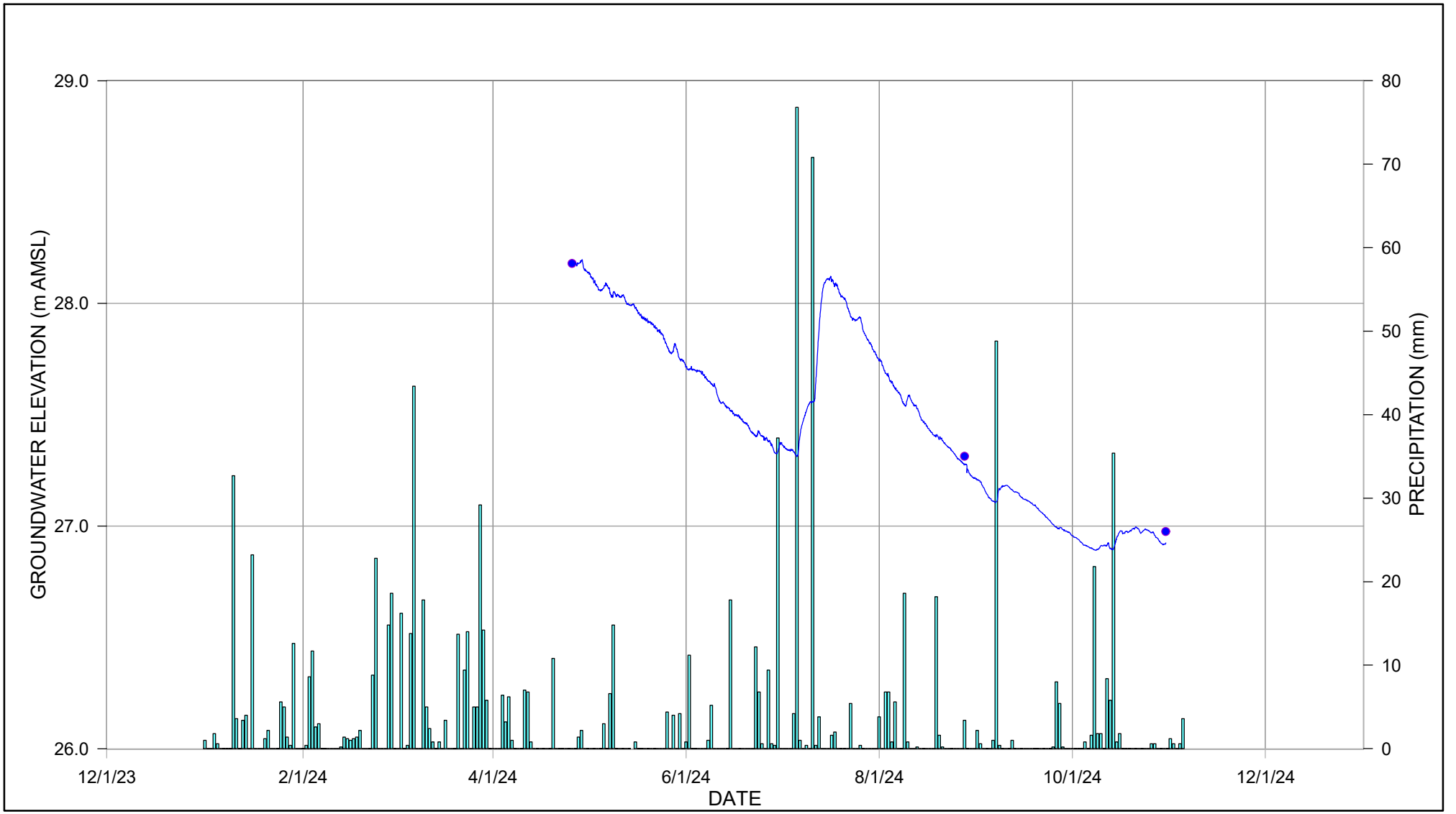
MW4 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW4
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.4



Legend

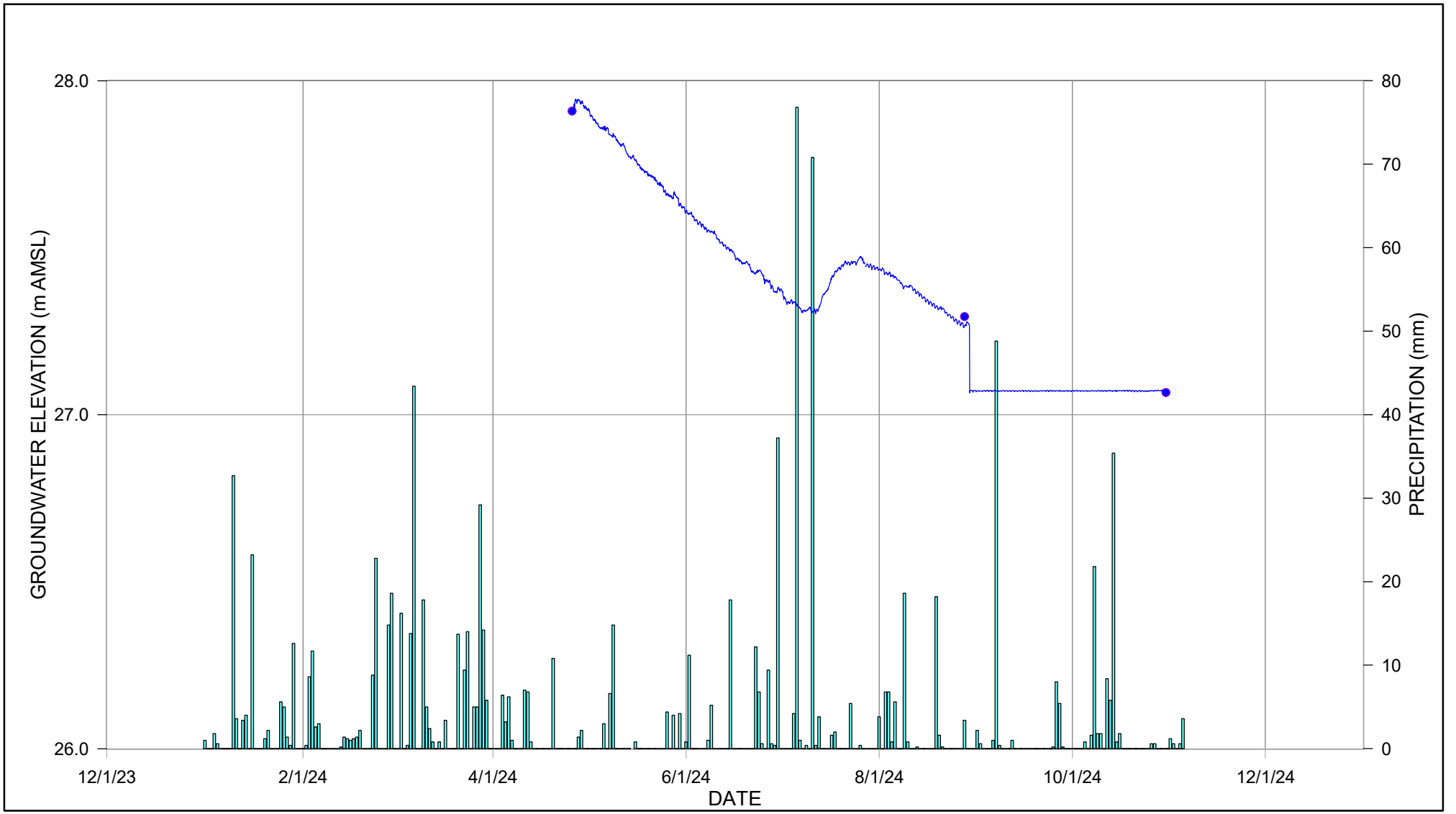
MW5 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW5
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.5



Legend

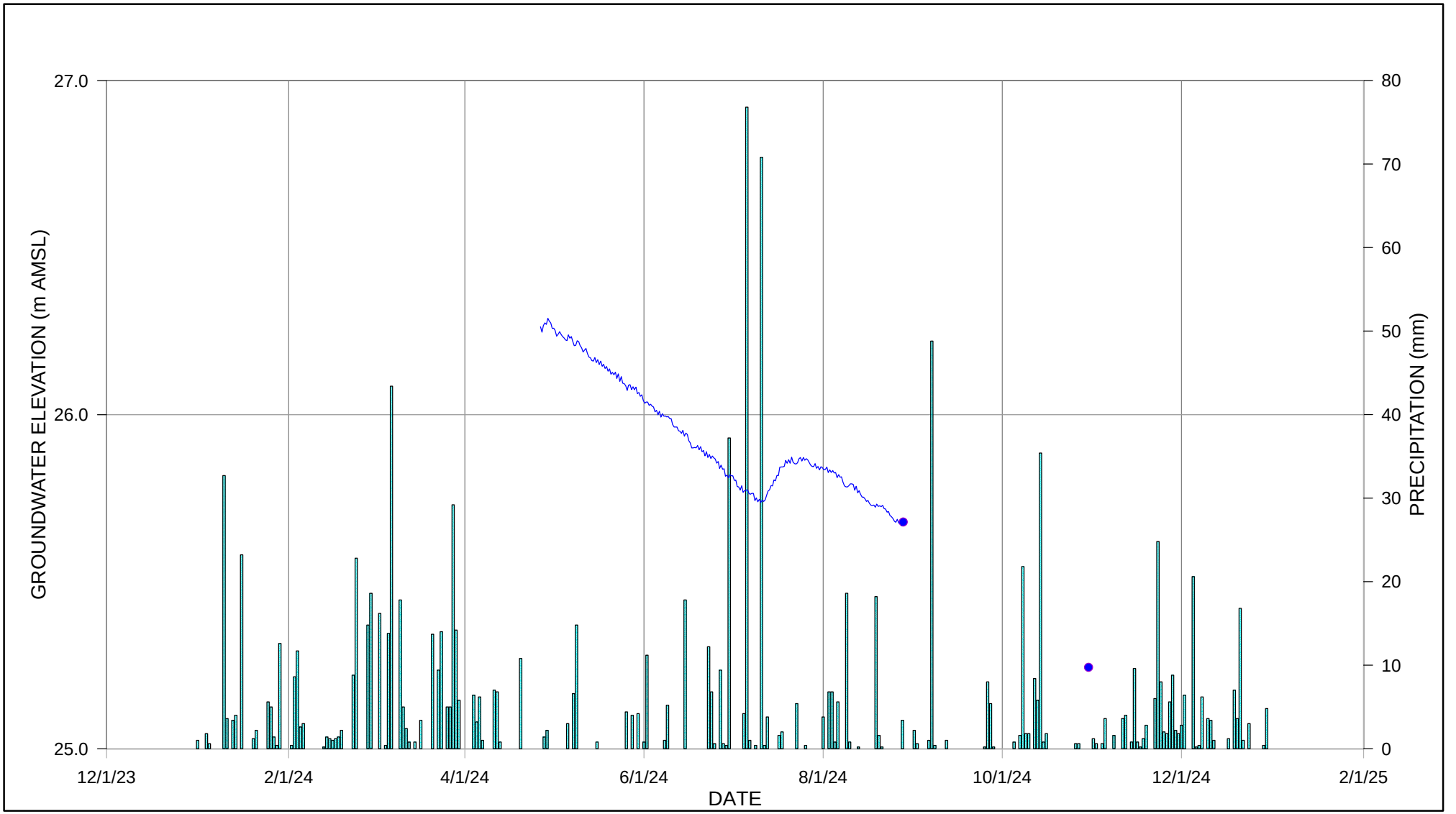
MW6 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW6
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.6



Legend

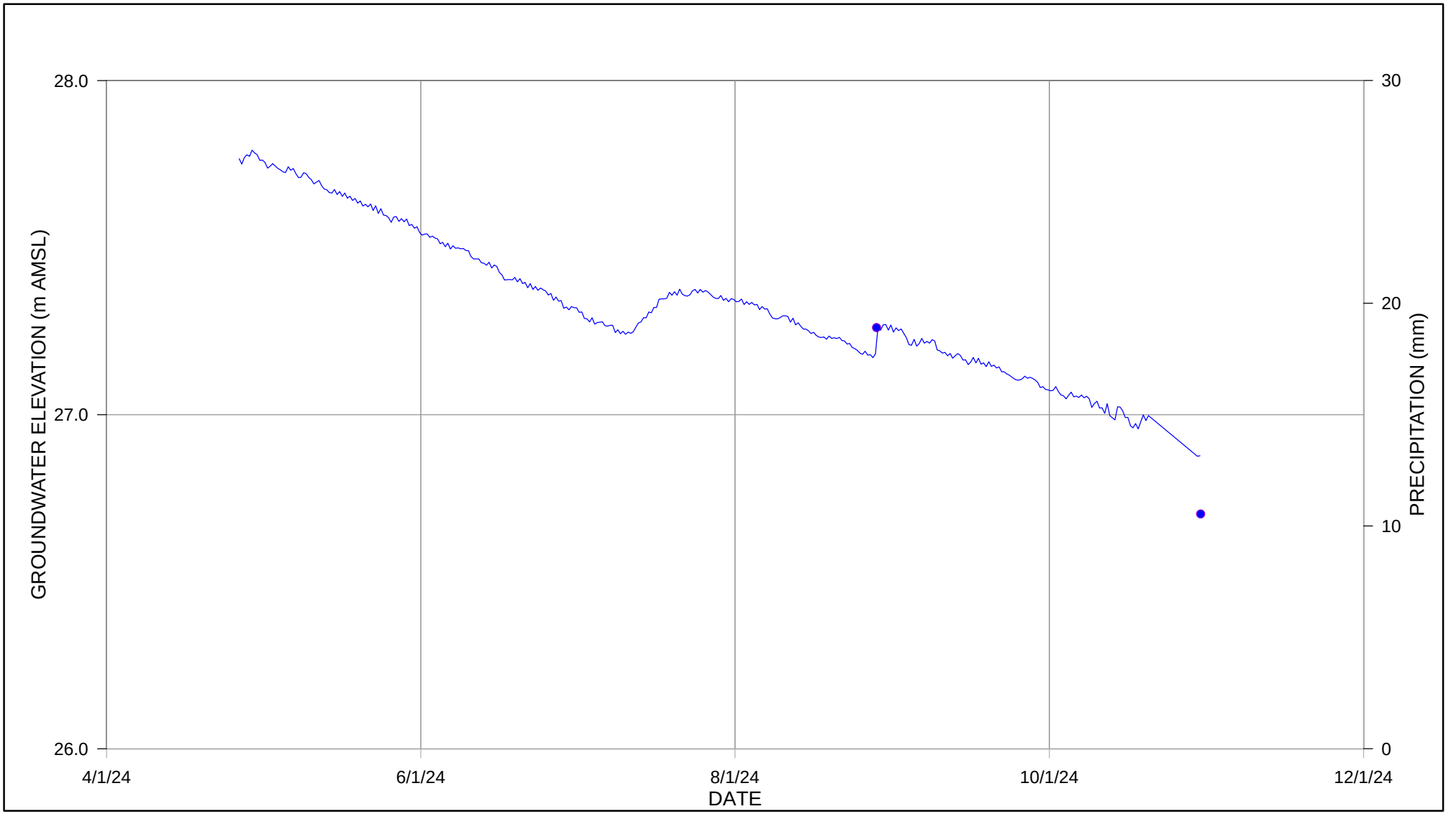
MW8 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW8
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.8



Legend

MW9 PRECIPITATION (mm)

SHAW GROUP LIMITED
NICTAUX SAND PIT PROJECT
NICTAUX, NOVA SCOTIA

MONITORING WELL MW9
MEASURED GROUNDWATER ELEVATIONS

12584960
December 2024

FIGURE B.9

Appendix C

Analytical Results

Table 1
Groundwater Results - General Chemistry
Nictaux Sand Pit Expansion Project

Parameters	Units	Criteria				MW-01		MW-02		MW-03			MW-04			MW-05				MW-06		MW-07	MW-08			MW-09	
		CDWQG; MAC	CDWQG; AO	NS Tier I EQS; Potable Groundwater	NS Tier II PSS; GW > 10m from SW	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	DUP-A (FD of MW-03)	MW-04	MW-04	MW-04	MW-05	DUP-A (FD of MW-05)	MW-05	MW-05	MW-06	MW-06	MW-07	MW-08	DUP-A (FD of MW-08)	MW-08	MW-09	MW-09
Date						**29-Aug-24**	**31-Oct-24**	**29-Aug-24**	**31-Oct-24**	**29-Aug-24**	**31-Oct-24**	**31-Oct-24**	**21-Mar-24**	**29-Aug-24**	**31-Oct-24**	**21-Mar-24**	**21-Mar-24**	**29-Aug-24**	**31-Oct-24**	**27-Mar-24**	**29-Aug-24**	**27-Mar-24**	**29-Aug-24**	**29-Aug-24**	**31-Oct-24**	**29-Aug-24**	**31-Oct-24**
Anion Sum	me/L	-	-	-	-	1.07	1.04	0.24	0.33	0.44	0.36	0.28	0.42	1.06	1.23	0.83	0.89	0.45	0.27	1.46	0.79	2.65	1.53	1.74	1.02	0.47	0.48
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	-	41	39	6.7	7.7	12	7.5	4.8	14	42	51	28	28	13	4.1	37	27	110	67	78	41	13	12
Calculated TDS	mg/L	-	500	-	-	72	73	23	30	33	31	28	28	66	77	49	51	32	23	96	59	150	81	87	62	36	38
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L	-	-	-	-	1.12	1.17	0.26	0.34	0.44	0.41	0.41	0.41	1.07	1.34	0.67	0.68	0.46	0.29	1.56	0.99	2.83	1.23	1.22	1.02	0.49	0.51
Hardness (CaCO3)	mg/L	-	-	-	-	33	35	6.6	9	12	11	11	11	41	52	23	24	14	6	41	30	80	43	43	37	14	15
Ion Balance (% Difference)	%	-	-	-	-	2.28	5.88	4	1.49	0	6.49	18.8	1.2	0.47	4.28	10.7	13.4	1.1	3.57	3.31	11.2	3.28	10.9	17.6	0	2.08	3.03
Langelier Index (@ 20C)	N/A	-	-	-	-	-0.808	-0.695	-3.87	-3.69	-3.15	-3.09	-3.27	-3.03	-1.15	-0.898	-2.09	-2.04	-2.81	-4.2	-1.31	-1.69	-0.195	-0.508	-0.358	-0.959	-2.45	-2.55
Langelier Index (@ 4C)	N/A	-	-	-	-	-1.06	-0.946	-4.13	-3.95	-3.4	-3.34	-3.52	-3.28	-1.4	-1.15	-2.34	-2.3	-3.06	-4.45	-1.56	-1.95	-0.446	-0.759	-0.609	-1.21	-2.7	-2.8
Nitrate (N)	mg/L	10	-	-	130	0.053	0.069	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.066	0.07	0.079	0.081	<0.050	<0.050	0.96	0.056	0.42	<0.050	<0.050	<0.050	0.16	0.16
Saturation pH (@ 20C)	N/A	-	-	-	-	8.66	8.65	10.4	10.2	9.71	9.96	10.2	9.67	8.63	8.44	9.01	9.01	9.61	10.6	8.66	8.91	7.94	8.35	8.29	8.62	9.61	9.6
Saturation pH (@ 4C)	N/A	-	-	-	-	8.91	8.9	10.7	10.4	9.96	10.2	10.4	9.93	8.88	8.7	9.26	9.26	9.86	10.8	8.91	9.16	8.19	8.6	8.54	8.87	9.86	9.85
Inorganics																											
Total Alkalinity (Total as CaCO3)	mg/L	-	-	-	-	41	40	6.7	7.7	12	7.5	4.8	14	43	51	28	28	13	4.1	37	27	110	68	78	41	13	12
Dissolved Chloride (Cl-)	mg/L	-	250	-	1200	4.8	3.9	3.7	3.9	5.7	4.9	4.9	3.8	5.1	4.7	6.4	8.9	4.4	4.4	10	6.7	9.6	4.3	4.2	4.8	5.1	5.2
Colour	TCU	-	15	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.2	<5.0	<5.0	<5.0	6	<5.0	<5.0	47	7	17	<5.0	<5.0	<5.0	<5.0	<5.0
Nitrate + Nitrite (N)	mg/L	-	-	-	-	0.053	0.069	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.066	0.07	0.079	0.081	<0.050	<0.050	0.96	0.056	0.42	<0.050	<0.050	<0.050	0.16	0.16
Nitrite (N)	mg/L	1	-	-	0.6	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06	<0.050	<0.050	<0.050	0.06	<0.050	1.70	0.19	2.90	0.10	0.06	<0.050	0.06	<0.050
Total Organic Carbon (C)	mg/L	-	-	-	-	0.63	<0.50	1.1	0.8	1.3	1.4	1.2	1.5	0.94	0.75	2.8	2.6	<5.0	0.81	16	6.4	110	0.69	0.69	0.76	0.66	<5.0
Orthophosphate (P)	mg/L	-	-	-	-	0.026	0.035	<0.010	0.01	0.029	0.025	0.026	<0.010	<0.010	0.015	0.019	0.019	0.065	0.1	0.011	<0.010	<0.010	0.021	0.022	0.023	0.015	0.016
pH	pH	-	7.0-10.5	-	-	7.85	7.96	6.54	6.5	6.56	6.87	6.91	6.64	7.48	7.55	6.92	6.97	6.8	6.39	7.35	7.22	7.75	7.84	7.93	7.66	7.16	7.05
Reactive Silica (SiO2)	mg/L	-	-	-	-	14	14	9.9	11	9.2	9.5	9.3	5.2	11	12	7.3	7.2	7.3	6.4	9.6	12	3.6	8	8.2	8.8	10	10
Dissolved Sulphate (SO4)	mg/L	-	500	-	-	5.3	6.2	<2.0	3.4	2.2	3.5	2.2	2.1	3.2	3.7	3.8	4	3	2.9	17	2.6	9.6	2.8	2.8	2.7	2.6	3.7
Turbidity	NTU	-	-	-	-	2.1	5.4	16	13	8.7	20	14	16	95	21	550	560	600	14	410	370	130	320	280	11	66	350
Conductivity	uS/cm	-	-	-	-	120	120	31	41	49	46	46	43	120	130	93	93	51	36	150	87	260	160	160	110	55	54

Notes:

nd = non detect value. Detection limits were not reported

-- Not applicable

Screening:

Shaded	Indicates values are greater than GCDWQ, MAC
Bold	Indicates values are greater than NS Tier I EQS
Double Underline	Indicates values are greater than NS Tier II PSS
Single Underline	Indicates values are greater than GCDWQ, AO

References:

MAC,AO: Guideline - Summary of Guidelines for Canadian Drinking Water Quality (SGCDWQ), Health Canada, 2024

Industrial Land Use, Coarse

Nova Scotia Tier II Pathway Specific Standards (PSS) for Groundwater Discharging to Surface Water, >10 m from Surface Water Body

Table 2
Groundwater Results - Dissolved Metals
Nictaux Sand Pit Expansion Project

Parameters	Units	Criteria				MW-01		MW-02		MW-03			MW-04			MW-05				MW-06		MW-07	MW-08			MW-09	
		CDWQG; MAC	CDWQG; AO	NS Tier I EQS; Potable Groundwater (Industrial	NS Tier II PSS; GW > 10m from SW	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	DUP-A (FD of MW-03)	MW-04	MW-04	MW-04	MW-05	DUP-A (FD of MW-05)	MW-05	MW-05	MW-06	MW-06	MW-07	MW-08	DUP-A (FD of MW-08)	MW-08	MW-09	MW-09
Date						29-Aug-24	31-Oct-24	29-Aug-24	31-Oct-24	29-Aug-24	31-Oct-24	31-Oct-24	21-Mar-24	29-Aug-24	31-Oct-24	21-Mar-24	21-Mar-24	29-Aug-24	31-Oct-24	27-Mar-24	29-Aug-24	27-Mar-24	29-Aug-24	29-Aug-24	31-Oct-24	29-Aug-24	31-Oct-24
Dissolved Aluminum (Al)	ug/L	2900	100	100	50	<5.0	<5.0	24	18	<5.0	<5.0	<5.0	20	<5.0	<5.0	6.3	7.8	12	11	**330**	62	**320**	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Antimony (Sb)	ug/L	6	-	6	90	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Arsenic (As)	ug/L	10	-	10	50	**12**	**13**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	1.5	1.1	<1.0	<1.0
Dissolved Barium (Ba)	ug/L	2000	-	1000	10000	9.2	9.3	6.8	7.7	3.4	3.3	3.3	11	91	140	20	20	10	11	**1300**	27	36	8.6	9.1	6.9	4.4	4.3
Dissolved Beryllium (Be)	ug/L	-	-	4	1.5	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Bismuth (Bi)	ug/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Boron (B)	ug/L	5000	-	5000	15000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	130	<50	<50	<50	<50	<50	<50	<50
Dissolved Cadmium (Cd)	ug/L	7	-	5	0.9	0.013	<0.010	0.024	0.018	0.05	0.022	0.032	<0.010	0.024	0.017	0.023	0.024	0.018	0.012	0.049	0.085	<0.10	0.017	0.023	<0.010	<0.010	<0.010
Dissolved Calcium (Ca)	ug/L	-	-	-	-	11000	12000	1100	1600	3200	2800	2700	3000	12000	15000	7100	7200	3800	1200	13000	9300	25000	14000	14000	12000	3800	4200
Dissolved Chromium (Cr)	ug/L	50	-	-	89	1.3	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Cobalt (Co)	ug/L	-	-	3.8	40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	**5.7**	**11**	3.1	1.6	1.7	1.1	<0.40	1.3	1.3	1.4	<0.40	<0.40	<0.40	<0.40	<0.40
Dissolved Copper (Cu)	ug/L	2000	1000	2000	20	<0.50	<0.50	0.92	0.72	1	0.96	1.1	1.7	5.8	3.3	7	7.8	9.2	2.6	25	140	5.5	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Iron (Fe)	ug/L	-	300	300	3000	<50	<50	<50	89	<50	<50	<50	220	<50	<50	<50	<50	<50	<50	**410**	**800**	**1600**	<50	<50	<50	<50	<50
Dissolved Lead (Pb)	ug/L	5	-	5	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.63	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	ug/L	-	-	-	-	1100	1200	920	1200	890	970	950	780	2800	3600	1300	1300	1000	750	2100	1600	4200	1800	1800	1600	1100	1200
Dissolved Manganese (Mn)	ug/L	120	20	120	4300	<2.0	<2.0	50	32	4	3.5	4.2	95	**260**	**160**	97	98	41	3.2	**170**	**580**	**470**	**130**	**130**	71	<2.0	<2.0
Dissolved Molybdenum (Mo)	ug/L	-	-	70	730	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.7	**160**	14	14	9.8	<2.0	<2.0
Dissolved Nickel (Ni)	ug/L	-	-	100	250	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	5.5	2.2	2.4	2.5	<2.0	<2.0	2.6	3.8	17	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Phosphorus (P)	ug/L	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Dissolved Potassium (K)	ug/L	-	-	-	-	390	340	210	500	1000	890	920	350	690	940	1100	1100	920	660	3000	2300	7800	1700	1700	1600	680	720
Dissolved Selenium (Se)	ug/L	50	-	50	10	0.51	0.52	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Silver (Ag)	ug/L	-	-	-	2.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Sodium (Na)	ug/L	-	200000	-	-	10000	11000	2900	3300	4100	3800	3900	4000	5600	6200	4100	4200	3800	3600	12000	6600	18000	7400	7200	5700	4300	4400
Dissolved Strontium (Sr)	ug/L	7000	-	2400	210000	22	23	7.3	10	17	14	15	22	69	91	21	22	14	7	54	33	73	62	62	58	20	20
Dissolved Thallium (Tl)	ug/L	-	-	2	8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Tin (Sn)	ug/L	-	-	2400	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	6.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Titanium (Ti)	ug/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	8.7	<2.0	4.2	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Uranium (U)	ug/L	20	-	20	150	1	1	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	0.16	<0.10	0.19	<0.10	<0.10	0.54	0.54	0.44	<0.10	<0.10
Dissolved Vanadium (V)	ug/L	-	-	6.2	1200	15	16	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Zinc (Zn)	ug/L	-	5000	5000	70	<5.0	<5.0	<5.0	6.7	8.2	<5.0	<5.0	5.2	30	12	8.3	7.3	10	<5.0	43	19	17	<5.0	<5.0	<5.0	<5.0	6.8

Notes:

nd = non detect value. Detection limits were not reported

-- Not applicable

Screening:

Shaded	Indicates values are greater than GCDWQ, MAC
Bold	Indicates values are greater than NS Tier I EQS
Double Underline	Indicates values are greater than NS Tier II PSS
Single Underline	Indicates values are greater than GCDWQ, AO

References:

MAC,AO: Guideline - Summary of Guidelines for Canadian Drinking Water Quality (SGCDWQ), Health Canada, 2024

Groundwater, Potable, Industrial Land Use, Coarse

Nova Scotia Tier II Pathway Specific Standards (PSS) for Groundwater Discharging to Surface Water, >10 m from Surface Water Body

Your P.O. #: 735-009799
Your Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your C.O.C. #: C#981420-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/04/05
Report #: R8094501
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C492645
Received: 2024/03/28, 09:32

Sample Matrix: Ground Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	1	N/A	2024/04/03	N/A	SM 24 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	4	N/A	2024/04/04	N/A	SM 24 4500-CO2 D
Alkalinity	5	N/A	2024/04/03	ATL SOP 00142	SM 24 2320 B
Chloride	5	N/A	2024/04/03	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	5	N/A	2024/04/04	ATL SOP 00020	SM 24 2120C m
Conductance - water	5	N/A	2024/04/03	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	4	N/A	2024/04/03	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2024/04/05	ATL SOP 00048	Auto Calc
Metals Water Diss. MS (1)	1	N/A	2024/04/04	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS (as rec'd)	3	N/A	2024/04/02	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS (as rec'd)	1	N/A	2024/04/03	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	5	N/A	2024/04/05	N/A	Auto Calc.
Anion and Cation Sum	5	N/A	2024/04/05	N/A	Auto Calc.
Nitrogen Ammonia - water	5	N/A	2024/04/04	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	5	N/A	2024/04/04	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	5	N/A	2024/04/04	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	5	N/A	2024/04/05	ATL SOP 00018	ASTM D3867-16
pH (2)	5	N/A	2024/04/03	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	5	N/A	2024/04/04	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	5	N/A	2024/04/05	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	5	N/A	2024/04/05	ATL SOP 00049	Auto Calc.
Reactive Silica	5	N/A	2024/04/03	ATL SOP 00022	EPA 366.0 m
Sulphate	5	N/A	2024/04/03	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	5	N/A	2024/04/05	N/A	Auto Calc.
Organic carbon - Total (TOC) (3)	2	N/A	2024/04/02	ATL SOP 00203	SM 24 5310B m
Organic carbon - Total (TOC) (3)	3	N/A	2024/04/03	ATL SOP 00203	SM 24 5310B m
Turbidity	5	N/A	2024/04/03	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

Your P.O. #: 735-009799
Your Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your C.O.C. #: C#981420-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/04/05
Report #: R8094501
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C492645
Received: 2024/03/28, 09:32

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Sample filtered in laboratory prior to analysis for dissolved metals.
(2) The APHA Standard Method requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marie Muise, Key Account Specialist
Email: Marie.MUISE@bureauveritas.com
Phone# (902)420-0203 Ext:253

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		YTH079				YTH080			
Sampling Date		2024/03/21 12:15				2024/03/21 13:00			
COC Number		C#981420-01-01				C#981420-01-01			
	UNITS	MW-01	RDL	MDL	QC Batch	MW-02	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.420	N/A	N/A	9302211	0.830	N/A	N/A	9302211
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	14	1.0	0.20	9302207	28	1.0	0.20	9302207
Calculated TDS	mg/L	28	1.0	0.20	9302216	49	1.0	0.20	9302216
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9302207	<1.0	1.0	0.20	9302207
Cation Sum	me/L	0.410	N/A	N/A	9302211	0.670	N/A	N/A	9302211
Hardness (CaCO3)	mg/L	11	1.0	1.0	9302208	23	1.0	1.0	9302208
Ion Balance (% Difference)	%	1.20	N/A	N/A	9302209	10.7	N/A	N/A	9302209
Langelier Index (@ 20C)	N/A	-3.03			9302214	-2.09			9302214
Langelier Index (@ 4C)	N/A	-3.28			9302215	-2.34			9302215
Nitrate (N)	mg/L	<0.050	0.050	N/A	9302212	0.079	0.050	N/A	9302212
Saturation pH (@ 20C)	N/A	9.67			9302214	9.01			9302214
Saturation pH (@ 4C)	N/A	9.93			9302215	9.26			9302215
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	14	2.0	N/A	9310772	28	2.0	N/A	9310772
Dissolved Chloride (Cl-)	mg/L	3.8	1.0	N/A	9310873	6.4	1.0	N/A	9310873
Colour	TCU	5.2	5.0	N/A	9310989	<5.0	5.0	N/A	9310989
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9310991	0.079	0.050	N/A	9310991
Nitrite (N)	mg/L	<0.010	0.010	N/A	9310992	<0.010	0.010	N/A	9310992
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9313630	<0.050	0.050	N/A	9313630
Total Organic Carbon (C)	mg/L	1.5	0.50	N/A	9306874	2.8	0.50	N/A	9311021
Orthophosphate (P)	mg/L	<0.010	0.010	N/A	9310990	0.019	0.010	N/A	9310990
pH	pH	6.64			9310775	6.92			9310775
Reactive Silica (SiO2)	mg/L	5.2	0.50	N/A	9310988	7.3	0.50	N/A	9310988
Dissolved Sulphate (SO4)	mg/L	2.1	2.0	N/A	9310987	3.8	2.0	N/A	9310987
Turbidity	NTU	16	0.10	0.10	9310876	550	1.0	1.0	9310889
Conductivity	uS/cm	43	1.0	N/A	9310776	93	1.0	N/A	9310776

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		YTH081		YTH082			YTH083			
Sampling Date		2024/03/27 15:40		2024/03/27 16:16			2024/03/21			
COC Number		C#981420-01-01		C#981420-01-01			C#981420-01-01			
	UNITS	MW-03	RDL	MW-04	RDL	QC Batch	DUP-A	RDL	MDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	1.46	N/A	2.65	N/A	9302211	0.890	N/A	N/A	9302211
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	37	1.0	110	1.0	9302207	28	1.0	0.20	9302207
Calculated TDS	mg/L	96	1.0	150	1.0	9302216	51	1.0	0.20	9302216
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	9302207	<1.0	1.0	0.20	9302207
Cation Sum	me/L	1.56	N/A	2.83	N/A	9302211	0.680	N/A	N/A	9302211
Hardness (CaCO3)	mg/L	41	1.0	80	1.0	9302208	24	1.0	1.0	9302208
Ion Balance (% Difference)	%	3.31	N/A	3.28	N/A	9302209	13.4	N/A	N/A	9302209
Langelier Index (@ 20C)	N/A	-1.31		-0.195		9302214	-2.04			9302214
Langelier Index (@ 4C)	N/A	-1.56		-0.446		9302215	-2.30			9302215
Nitrate (N)	mg/L	0.96	0.050	0.42	0.050	9302212	0.081	0.050	N/A	9302212
Saturation pH (@ 20C)	N/A	8.66		7.94		9302214	9.01			9302214
Saturation pH (@ 4C)	N/A	8.91		8.19		9302215	9.26			9302215
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	37	2.0	110	2.0	9310785	28	2.0	N/A	9310767
Dissolved Chloride (Cl-)	mg/L	10	1.0	9.6	1.0	9310873	8.9	1.0	N/A	9310873
Colour	TCU	47	5.0	17	5.0	9310989	6.0	5.0	N/A	9310989
Nitrate + Nitrite (N)	mg/L	0.96	0.050	0.42	0.050	9310991	0.081	0.050	N/A	9310991
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	9310992	<0.010	0.010	N/A	9310992
Nitrogen (Ammonia Nitrogen)	mg/L	1.7	0.050	2.9	0.25	9313630	<0.050	0.050	N/A	9313632
Total Organic Carbon (C)	mg/L	16	0.50	110	1.5	9311021	2.6	0.50	N/A	9306874
Orthophosphate (P)	mg/L	0.011	0.010	<0.010	0.010	9310990	0.019	0.010	N/A	9310990
pH	pH	7.35		7.75		9310783	6.97			9310768
Reactive Silica (SiO2)	mg/L	9.6	0.50	3.6	0.50	9310988	7.2	0.50	N/A	9310988
Dissolved Sulphate (SO4)	mg/L	17	2.0	9.6	2.0	9310987	4.0	2.0	N/A	9310987
Turbidity	NTU	410	1.0	130	1.0	9310889	560	1.0	1.0	9310876
Conductivity	uS/cm	150	1.0	260	1.0	9310784	93	1.0	N/A	9310762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		YTH083			
Sampling Date		2024/03/21			
COC Number		C#981420-01-01			
	UNITS	**DUP-A Lab-Dup**	**RDL**	**MDL**	**QC Batch**
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L	27	2.0	N/A	9310767
pH	pH	6.79			9310768
Conductivity	uS/cm	92	1.0	N/A	9310762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		YTH079	YTH080		YTH081			
Sampling Date		2024/03/21 12:15	2024/03/21 13:00		2024/03/27 15:40			
COC Number		C#981420-01-01	C#981420-01-01		C#981420-01-01			
	UNITS	MW-01	MW-02	QC Batch	MW-03	RDL	MDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	20	6.3	9308406	330	5.0	N/A	9313684
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	9308406	<1.0	1.0	N/A	9313684
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	9308406	<1.0	1.0	N/A	9313684
Dissolved Barium (Ba)	ug/L	11	20	9308406	1300	1.0	N/A	9313684
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	9308406	<0.10	0.10	N/A	9313684
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	9308406	<2.0	2.0	N/A	9313684
Dissolved Boron (B)	ug/L	<50	<50	9308406	130	50	N/A	9313684
Dissolved Cadmium (Cd)	ug/L	<0.010	0.023	9308406	0.049	0.010	N/A	9313684
Dissolved Calcium (Ca)	ug/L	3000	7100	9308406	13000	100	N/A	9313684
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	9308406	<1.0	1.0	N/A	9313684
Dissolved Cobalt (Co)	ug/L	5.7	1.6	9308406	1.3	0.40	N/A	9313684
Dissolved Copper (Cu)	ug/L	1.7	7.0	9308406	25	0.50	N/A	9313684
Dissolved Iron (Fe)	ug/L	220	<50	9308406	410	50	N/A	9313684
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	9308406	<0.50	0.50	N/A	9313684
Dissolved Magnesium (Mg)	ug/L	780	1300	9308406	2100	100	N/A	9313684
Dissolved Manganese (Mn)	ug/L	95	97	9308406	170	2.0	N/A	9313684
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	9308406	<2.0	2.0	N/A	9313684
Dissolved Nickel (Ni)	ug/L	<2.0	2.4	9308406	2.6	2.0	N/A	9313684
Dissolved Phosphorus (P)	ug/L	<100	<100	9308406	<100	100	N/A	9313684
Dissolved Potassium (K)	ug/L	350	1100	9308406	3000	100	N/A	9313684
Dissolved Selenium (Se)	ug/L	<0.50	<0.50	9308406	<0.50	0.50	N/A	9313684
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	9308406	<0.10	0.10	N/A	9313684
Dissolved Sodium (Na)	ug/L	4000	4100	9308406	12000	100	N/A	9313684
Dissolved Strontium (Sr)	ug/L	22	21	9308406	54	2.0	N/A	9313684
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	9308406	<0.10	0.10	N/A	9313684
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	9308406	<2.0	2.0	N/A	9313684
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	9308406	8.7	2.0	N/A	9313684
Dissolved Uranium (U)	ug/L	0.14	<0.10	9308406	0.19	0.10	N/A	9313684
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	9308406	<2.0	2.0	N/A	9313684
Dissolved Zinc (Zn)	ug/L	5.2	8.3	9308406	43	5.0	N/A	9313684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		YTH082		YTH083			
Sampling Date		2024/03/27 16:16		2024/03/21			
COC Number		C#981420-01-01		C#981420-01-01			
	UNITS	MW-04	RDL	DUP-A	RDL	MDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	320	5.0	7.8	5.0	N/A	9308406
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	N/A	9308406
Dissolved Arsenic (As)	ug/L	<1.0	1.0	<1.0	1.0	N/A	9308406
Dissolved Barium (Ba)	ug/L	36	1.0	20	1.0	N/A	9308406
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	<0.10	0.10	N/A	9308406
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	N/A	9308406
Dissolved Boron (B)	ug/L	<50	50	<50	50	N/A	9308406
Dissolved Cadmium (Cd)	ug/L	<0.10 (1)	0.10	0.024	0.010	N/A	9308406
Dissolved Calcium (Ca)	ug/L	25000	100	7200	100	N/A	9308406
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	N/A	9308406
Dissolved Cobalt (Co)	ug/L	1.4	0.40	1.7	0.40	N/A	9308406
Dissolved Copper (Cu)	ug/L	5.5	0.50	7.8	0.50	N/A	9308406
Dissolved Iron (Fe)	ug/L	1600	50	<50	50	N/A	9308406
Dissolved Lead (Pb)	ug/L	0.63	0.50	<0.50	0.50	N/A	9308406
Dissolved Magnesium (Mg)	ug/L	4200	100	1300	100	N/A	9308406
Dissolved Manganese (Mn)	ug/L	470	2.0	98	2.0	N/A	9308406
Dissolved Molybdenum (Mo)	ug/L	160	2.0	<2.0	2.0	N/A	9308406
Dissolved Nickel (Ni)	ug/L	17	2.0	2.5	2.0	N/A	9308406
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	N/A	9308406
Dissolved Potassium (K)	ug/L	7800	100	1100	100	N/A	9308406
Dissolved Selenium (Se)	ug/L	<0.50	0.50	<0.50	0.50	N/A	9308406
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	N/A	9308406
Dissolved Sodium (Na)	ug/L	18000	100	4200	100	N/A	9308406
Dissolved Strontium (Sr)	ug/L	73	2.0	22	2.0	N/A	9308406
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	N/A	9308406
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	N/A	9308406
Dissolved Titanium (Ti)	ug/L	4.2	2.0	<2.0	2.0	N/A	9308406
Dissolved Uranium (U)	ug/L	<0.10	0.10	<0.10	0.10	N/A	9308406
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	N/A	9308406
Dissolved Zinc (Zn)	ug/L	17	5.0	7.3	5.0	N/A	9308406

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C

Sample YTH080 [MW-02] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YTH081 [MW-03] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample YTH083 [DUP-A] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. Ion balance acceptable. Low ionic strength sample.

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9306874	SSI	Matrix Spike	Total Organic Carbon (C)	2024/04/02		97	%	85 - 115
9306874	SSI	Spiked Blank	Total Organic Carbon (C)	2024/04/02		105	%	80 - 120
9306874	SSI	Method Blank	Total Organic Carbon (C)	2024/04/02	<0.50		mg/L	
9306874	SSI	RPD	Total Organic Carbon (C)	2024/04/02	0.56		%	15
9308406	MOA	Matrix Spike	Dissolved Aluminum (Al)	2024/04/03		NC	%	80 - 120
			Dissolved Antimony (Sb)	2024/04/03		105	%	80 - 120
			Dissolved Arsenic (As)	2024/04/03		101	%	80 - 120
			Dissolved Barium (Ba)	2024/04/03		99	%	80 - 120
			Dissolved Beryllium (Be)	2024/04/03		98	%	80 - 120
			Dissolved Bismuth (Bi)	2024/04/03		97	%	80 - 120
			Dissolved Boron (B)	2024/04/03		95	%	80 - 120
			Dissolved Cadmium (Cd)	2024/04/03		96	%	80 - 120
			Dissolved Calcium (Ca)	2024/04/03		98	%	80 - 120
			Dissolved Chromium (Cr)	2024/04/03		99	%	80 - 120
			Dissolved Cobalt (Co)	2024/04/03		98	%	80 - 120
			Dissolved Copper (Cu)	2024/04/03		96	%	80 - 120
			Dissolved Iron (Fe)	2024/04/03		101	%	80 - 120
			Dissolved Lead (Pb)	2024/04/03		99	%	80 - 120
			Dissolved Magnesium (Mg)	2024/04/03		104	%	80 - 120
			Dissolved Manganese (Mn)	2024/04/03		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/04/03		NC	%	80 - 120
			Dissolved Nickel (Ni)	2024/04/03		99	%	80 - 120
			Dissolved Phosphorus (P)	2024/04/03		101	%	80 - 120
			Dissolved Potassium (K)	2024/04/03		104	%	80 - 120
			Dissolved Selenium (Se)	2024/04/03		98	%	80 - 120
			Dissolved Silver (Ag)	2024/04/03		96	%	80 - 120
			Dissolved Sodium (Na)	2024/04/03		NC	%	80 - 120
			Dissolved Strontium (Sr)	2024/04/03		102	%	80 - 120
			Dissolved Thallium (Tl)	2024/04/03		99	%	80 - 120
			Dissolved Tin (Sn)	2024/04/03		102	%	80 - 120
			Dissolved Titanium (Ti)	2024/04/03		102	%	80 - 120
			Dissolved Uranium (U)	2024/04/03		106	%	80 - 120
			Dissolved Vanadium (V)	2024/04/03		100	%	80 - 120
			Dissolved Zinc (Zn)	2024/04/03		102	%	80 - 120
9308406	MOA	Spiked Blank	Dissolved Aluminum (Al)	2024/04/02		107	%	80 - 120
			Dissolved Antimony (Sb)	2024/04/02		96	%	80 - 120
			Dissolved Arsenic (As)	2024/04/02		102	%	80 - 120
			Dissolved Barium (Ba)	2024/04/02		103	%	80 - 120
			Dissolved Beryllium (Be)	2024/04/02		100	%	80 - 120
			Dissolved Bismuth (Bi)	2024/04/02		94	%	80 - 120
			Dissolved Boron (B)	2024/04/02		89	%	80 - 120
			Dissolved Cadmium (Cd)	2024/04/02		106	%	80 - 120
			Dissolved Calcium (Ca)	2024/04/02		104	%	80 - 120
			Dissolved Chromium (Cr)	2024/04/02		101	%	80 - 120
			Dissolved Cobalt (Co)	2024/04/02		101	%	80 - 120
			Dissolved Copper (Cu)	2024/04/02		101	%	80 - 120
			Dissolved Iron (Fe)	2024/04/02		107	%	80 - 120
			Dissolved Lead (Pb)	2024/04/02		104	%	80 - 120
			Dissolved Magnesium (Mg)	2024/04/02		109	%	80 - 120
			Dissolved Manganese (Mn)	2024/04/02		105	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/04/02		98	%	80 - 120
			Dissolved Nickel (Ni)	2024/04/02		103	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Phosphorus (P)	2024/04/02		108	%	80 - 120
			Dissolved Potassium (K)	2024/04/02		109	%	80 - 120
			Dissolved Selenium (Se)	2024/04/02		100	%	80 - 120
			Dissolved Silver (Ag)	2024/04/02		99	%	80 - 120
			Dissolved Sodium (Na)	2024/04/02		104	%	80 - 120
			Dissolved Strontium (Sr)	2024/04/02		105	%	80 - 120
			Dissolved Thallium (Tl)	2024/04/02		96	%	80 - 120
			Dissolved Tin (Sn)	2024/04/02		95	%	80 - 120
			Dissolved Titanium (Ti)	2024/04/02		103	%	80 - 120
			Dissolved Uranium (U)	2024/04/02		109	%	80 - 120
			Dissolved Vanadium (V)	2024/04/02		103	%	80 - 120
			Dissolved Zinc (Zn)	2024/04/02		99	%	80 - 120
9308406	MOA	Method Blank	Dissolved Aluminum (Al)	2024/04/02	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/04/02	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/04/02	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/04/02	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/04/02	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2024/04/02	<2.0		ug/L	
			Dissolved Boron (B)	2024/04/02	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/04/02	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/04/02	<100		ug/L	
			Dissolved Chromium (Cr)	2024/04/02	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/04/02	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/04/02	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/04/02	<50		ug/L	
			Dissolved Lead (Pb)	2024/04/02	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/04/02	<100		ug/L	
			Dissolved Manganese (Mn)	2024/04/02	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/04/02	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/04/02	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/04/02	<100		ug/L	
			Dissolved Potassium (K)	2024/04/02	<100		ug/L	
			Dissolved Selenium (Se)	2024/04/02	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/04/02	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/04/02	<100		ug/L	
			Dissolved Strontium (Sr)	2024/04/02	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/04/02	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/04/02	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/04/02	<2.0		ug/L	
			Dissolved Uranium (U)	2024/04/02	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/04/02	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/04/02	<5.0		ug/L	
9308406	MOA	RPD	Dissolved Aluminum (Al)	2024/04/03	2.2		%	20
			Dissolved Antimony (Sb)	2024/04/03	NC		%	20
			Dissolved Arsenic (As)	2024/04/03	NC		%	20
			Dissolved Barium (Ba)	2024/04/03	0.26		%	20
			Dissolved Beryllium (Be)	2024/04/03	NC		%	20
			Dissolved Bismuth (Bi)	2024/04/03	NC		%	20
			Dissolved Boron (B)	2024/04/03	0.35		%	20
			Dissolved Cadmium (Cd)	2024/04/03	NC		%	20
			Dissolved Calcium (Ca)	2024/04/03	1.8		%	20
			Dissolved Chromium (Cr)	2024/04/03	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2024/04/03	NC		%	20
			Dissolved Copper (Cu)	2024/04/03	0.30		%	20
			Dissolved Iron (Fe)	2024/04/03	NC		%	20
			Dissolved Lead (Pb)	2024/04/03	NC		%	20
			Dissolved Magnesium (Mg)	2024/04/03	0.14		%	20
			Dissolved Manganese (Mn)	2024/04/03	0.16		%	20
			Dissolved Molybdenum (Mo)	2024/04/03	0.15		%	20
			Dissolved Nickel (Ni)	2024/04/03	5.1		%	20
			Dissolved Phosphorus (P)	2024/04/03	NC		%	20
			Dissolved Potassium (K)	2024/04/03	0.32		%	20
			Dissolved Selenium (Se)	2024/04/03	NC		%	20
			Dissolved Silver (Ag)	2024/04/03	NC		%	20
			Dissolved Sodium (Na)	2024/04/03	0.29		%	20
			Dissolved Strontium (Sr)	2024/04/03	1.2		%	20
			Dissolved Thallium (Tl)	2024/04/03	1.8		%	20
			Dissolved Tin (Sn)	2024/04/03	NC		%	20
			Dissolved Titanium (Ti)	2024/04/03	NC		%	20
			Dissolved Uranium (U)	2024/04/03	NC		%	20
			Dissolved Vanadium (V)	2024/04/03	3.8		%	20
			Dissolved Zinc (Zn)	2024/04/03	7.2		%	20
9310762	LJV	Spiked Blank	Conductivity	2024/04/03		99	%	80 - 120
9310762	LJV	Method Blank	Conductivity	2024/04/03	<1.0		uS/cm	
9310762	LJV	RPD [YTH083-01]	Conductivity	2024/04/03	0.56		%	10
9310767	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/04/03		98	%	80 - 120
9310767	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2024/04/03	<2.0		mg/L	
9310767	LJV	RPD [YTH083-01]	Total Alkalinity (Total as CaCO3)	2024/04/03	1.4		%	20
9310768	LJV	Spiked Blank	pH	2024/04/03		101	%	97 - 103
9310768	LJV	RPD [YTH083-01]	pH	2024/04/03	2.5		%	N/A
9310772	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/04/03		101	%	80 - 120
9310772	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2024/04/03	<2.0		mg/L	
9310772	LJV	RPD	Total Alkalinity (Total as CaCO3)	2024/04/03	NC		%	20
9310775	LJV	Spiked Blank	pH	2024/04/03		101	%	97 - 103
9310775	LJV	RPD	pH	2024/04/03	2.4		%	N/A
9310776	LJV	Spiked Blank	Conductivity	2024/04/03		99	%	80 - 120
9310776	LJV	Method Blank	Conductivity	2024/04/03	<1.0		uS/cm	
9310776	LJV	RPD	Conductivity	2024/04/03	NC		%	10
9310783	LJV	Spiked Blank	pH	2024/04/03		101	%	97 - 103
9310783	LJV	RPD	pH	2024/04/03	0.47		%	N/A
9310784	LJV	Spiked Blank	Conductivity	2024/04/03		96	%	80 - 120
9310784	LJV	Method Blank	Conductivity	2024/04/03	<1.0		uS/cm	
9310784	LJV	RPD	Conductivity	2024/04/03	1.2		%	10
9310785	LJV	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/04/03		99	%	80 - 120
9310785	LJV	Method Blank	Total Alkalinity (Total as CaCO3)	2024/04/03	<2.0		mg/L	
9310785	LJV	RPD	Total Alkalinity (Total as CaCO3)	2024/04/03	0.33		%	20
9310873	MCN	Matrix Spike	Dissolved Chloride (Cl-)	2024/04/03		93	%	80 - 120
9310873	MCN	Spiked Blank	Dissolved Chloride (Cl-)	2024/04/03		93	%	80 - 120
9310873	MCN	Method Blank	Dissolved Chloride (Cl-)	2024/04/03	<1.0		mg/L	
9310873	MCN	RPD	Dissolved Chloride (Cl-)	2024/04/03	0.71		%	20
9310876	LJV	QC Standard	Turbidity	2024/04/03		118	%	80 - 120
9310876	LJV	Spiked Blank	Turbidity	2024/04/03		107	%	80 - 120
9310876	LJV	Method Blank	Turbidity	2024/04/03	<0.10		NTU	
9310876	LJV	RPD	Turbidity	2024/04/03	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9310889	LJV	QC Standard	Turbidity	2024/04/03		119	%	80 - 120
9310889	LJV	Spiked Blank	Turbidity	2024/04/03		107	%	80 - 120
9310889	LJV	Method Blank	Turbidity	2024/04/03	<0.10		NTU	
9310889	LJV	RPD	Turbidity	2024/04/03	2.1		%	20
9310987	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2024/04/03		99	%	80 - 120
9310987	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2024/04/03		96	%	80 - 120
9310987	MCN	Method Blank	Dissolved Sulphate (SO4)	2024/04/03	<2.0		mg/L	
9310987	MCN	RPD	Dissolved Sulphate (SO4)	2024/04/03	8.8		%	20
9310988	MCN	Matrix Spike	Reactive Silica (SiO2)	2024/04/03		86	%	80 - 120
9310988	MCN	Spiked Blank	Reactive Silica (SiO2)	2024/04/03		91	%	80 - 120
9310988	MCN	Method Blank	Reactive Silica (SiO2)	2024/04/03	<0.50		mg/L	
9310988	MCN	RPD	Reactive Silica (SiO2)	2024/04/03	1.3		%	20
9310989	MCN	Spiked Blank	Colour	2024/04/04		96	%	80 - 120
9310989	MCN	Method Blank	Colour	2024/04/04	<5.0		TCU	
9310989	MCN	RPD	Colour	2024/04/04	13		%	20
9310990	EMT	Matrix Spike	Orthophosphate (P)	2024/04/04		78 (1)	%	80 - 120
9310990	EMT	Spiked Blank	Orthophosphate (P)	2024/04/04		85	%	80 - 120
9310990	EMT	Method Blank	Orthophosphate (P)	2024/04/04	<0.010		mg/L	
9310990	EMT	RPD	Orthophosphate (P)	2024/04/04	NC		%	20
9310991	EMT	Matrix Spike	Nitrate + Nitrite (N)	2024/04/04		96	%	80 - 120
9310991	EMT	Spiked Blank	Nitrate + Nitrite (N)	2024/04/04		96	%	80 - 120
9310991	EMT	Method Blank	Nitrate + Nitrite (N)	2024/04/04	<0.050		mg/L	
9310991	EMT	RPD	Nitrate + Nitrite (N)	2024/04/04	3.2		%	20
9310992	EMT	Matrix Spike	Nitrite (N)	2024/04/04		83	%	80 - 120
9310992	EMT	Spiked Blank	Nitrite (N)	2024/04/04		100	%	80 - 120
9310992	EMT	Method Blank	Nitrite (N)	2024/04/04	<0.010		mg/L	
9310992	EMT	RPD	Nitrite (N)	2024/04/04	NC		%	20
9311021	SSI	Matrix Spike	Total Organic Carbon (C)	2024/04/03		98	%	85 - 115
9311021	SSI	Spiked Blank	Total Organic Carbon (C)	2024/04/03		103	%	80 - 120
9311021	SSI	Method Blank	Total Organic Carbon (C)	2024/04/03	<0.50		mg/L	
9311021	SSI	RPD	Total Organic Carbon (C)	2024/04/03	1.4		%	15
9313630	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/04/04		NC	%	80 - 120
9313630	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/04/04		107	%	80 - 120
9313630	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/04/04	<0.050		mg/L	
9313630	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2024/04/04	0.69		%	20
9313632	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/04/04		NC	%	80 - 120
9313632	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/04/04		106	%	80 - 120
9313632	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/04/04	<0.050		mg/L	
9313632	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2024/04/04	2.8		%	20
9313684	MOA	Matrix Spike	Dissolved Aluminum (Al)	2024/04/04		108	%	80 - 120
			Dissolved Antimony (Sb)	2024/04/04		99	%	80 - 120
			Dissolved Arsenic (As)	2024/04/04		105	%	80 - 120
			Dissolved Barium (Ba)	2024/04/04		102	%	80 - 120
			Dissolved Beryllium (Be)	2024/04/04		107	%	80 - 120
			Dissolved Bismuth (Bi)	2024/04/04		89	%	80 - 120
			Dissolved Boron (B)	2024/04/04		96	%	80 - 120
			Dissolved Cadmium (Cd)	2024/04/04		107	%	80 - 120
			Dissolved Calcium (Ca)	2024/04/04		108	%	80 - 120
			Dissolved Chromium (Cr)	2024/04/04		104	%	80 - 120
			Dissolved Cobalt (Co)	2024/04/04		103	%	80 - 120
			Dissolved Copper (Cu)	2024/04/04		103	%	80 - 120
			Dissolved Iron (Fe)	2024/04/04		107	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2024/04/04		105	%	80 - 120
			Dissolved Magnesium (Mg)	2024/04/04		112	%	80 - 120
			Dissolved Manganese (Mn)	2024/04/04		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/04/04		97	%	80 - 120
			Dissolved Nickel (Ni)	2024/04/04		104	%	80 - 120
			Dissolved Phosphorus (P)	2024/04/04		113	%	80 - 120
			Dissolved Potassium (K)	2024/04/04		111	%	80 - 120
			Dissolved Selenium (Se)	2024/04/04		105	%	80 - 120
			Dissolved Silver (Ag)	2024/04/04		103	%	80 - 120
			Dissolved Sodium (Na)	2024/04/04		106	%	80 - 120
			Dissolved Strontium (Sr)	2024/04/04		104	%	80 - 120
			Dissolved Thallium (Tl)	2024/04/04		97	%	80 - 120
			Dissolved Tin (Sn)	2024/04/04		97	%	80 - 120
			Dissolved Titanium (Ti)	2024/04/04		106	%	80 - 120
			Dissolved Uranium (U)	2024/04/04		108	%	80 - 120
			Dissolved Vanadium (V)	2024/04/04		105	%	80 - 120
			Dissolved Zinc (Zn)	2024/04/04		103	%	80 - 120
9313684	MOA	Spiked Blank	Dissolved Aluminum (Al)	2024/04/04		100	%	80 - 120
			Dissolved Antimony (Sb)	2024/04/04		99	%	80 - 120
			Dissolved Arsenic (As)	2024/04/04		99	%	80 - 120
			Dissolved Barium (Ba)	2024/04/04		97	%	80 - 120
			Dissolved Beryllium (Be)	2024/04/04		101	%	80 - 120
			Dissolved Bismuth (Bi)	2024/04/04		95	%	80 - 120
			Dissolved Boron (B)	2024/04/04		98	%	80 - 120
			Dissolved Cadmium (Cd)	2024/04/04		101	%	80 - 120
			Dissolved Calcium (Ca)	2024/04/04		100	%	80 - 120
			Dissolved Chromium (Cr)	2024/04/04		99	%	80 - 120
			Dissolved Cobalt (Co)	2024/04/04		99	%	80 - 120
			Dissolved Copper (Cu)	2024/04/04		99	%	80 - 120
			Dissolved Iron (Fe)	2024/04/04		102	%	80 - 120
			Dissolved Lead (Pb)	2024/04/04		100	%	80 - 120
			Dissolved Magnesium (Mg)	2024/04/04		105	%	80 - 120
			Dissolved Manganese (Mn)	2024/04/04		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/04/04		99	%	80 - 120
			Dissolved Nickel (Ni)	2024/04/04		100	%	80 - 120
			Dissolved Phosphorus (P)	2024/04/04		103	%	80 - 120
			Dissolved Potassium (K)	2024/04/04		103	%	80 - 120
			Dissolved Selenium (Se)	2024/04/04		100	%	80 - 120
			Dissolved Silver (Ag)	2024/04/04		96	%	80 - 120
			Dissolved Sodium (Na)	2024/04/04		100	%	80 - 120
			Dissolved Strontium (Sr)	2024/04/04		101	%	80 - 120
			Dissolved Thallium (Tl)	2024/04/04		99	%	80 - 120
			Dissolved Tin (Sn)	2024/04/04		99	%	80 - 120
			Dissolved Titanium (Ti)	2024/04/04		100	%	80 - 120
			Dissolved Uranium (U)	2024/04/04		104	%	80 - 120
			Dissolved Vanadium (V)	2024/04/04		100	%	80 - 120
			Dissolved Zinc (Zn)	2024/04/04		104	%	80 - 120
9313684	MOA	Method Blank	Dissolved Aluminum (Al)	2024/04/04	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/04/04	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/04/04	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/04/04	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/04/04	<0.10		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Bismuth (Bi)	2024/04/04	<2.0		ug/L	
			Dissolved Boron (B)	2024/04/04	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/04/04	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/04/04	<100		ug/L	
			Dissolved Chromium (Cr)	2024/04/04	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/04/04	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/04/04	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/04/04	<50		ug/L	
			Dissolved Lead (Pb)	2024/04/04	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/04/04	<100		ug/L	
			Dissolved Manganese (Mn)	2024/04/04	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/04/04	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/04/04	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/04/04	<100		ug/L	
			Dissolved Potassium (K)	2024/04/04	<100		ug/L	
			Dissolved Selenium (Se)	2024/04/04	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/04/04	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/04/04	<100		ug/L	
			Dissolved Strontium (Sr)	2024/04/04	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/04/04	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/04/04	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/04/04	<2.0		ug/L	
			Dissolved Uranium (U)	2024/04/04	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/04/04	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/04/04	<5.0		ug/L	
9313684	MOA	RPD	Dissolved Aluminum (Al)	2024/04/04	1.0		%	20
			Dissolved Antimony (Sb)	2024/04/04	NC		%	20
			Dissolved Arsenic (As)	2024/04/04	0.84		%	20
			Dissolved Barium (Ba)	2024/04/04	4.4		%	20
			Dissolved Beryllium (Be)	2024/04/04	9.0		%	20
			Dissolved Bismuth (Bi)	2024/04/04	NC		%	20
			Dissolved Boron (B)	2024/04/04	NC		%	20
			Dissolved Cadmium (Cd)	2024/04/04	7.3		%	20
			Dissolved Calcium (Ca)	2024/04/04	0.51		%	20
			Dissolved Chromium (Cr)	2024/04/04	NC		%	20
			Dissolved Cobalt (Co)	2024/04/04	2.6		%	20
			Dissolved Copper (Cu)	2024/04/04	2.9		%	20
			Dissolved Iron (Fe)	2024/04/04	1.2		%	20
			Dissolved Lead (Pb)	2024/04/04	NC		%	20
			Dissolved Magnesium (Mg)	2024/04/04	0.90		%	20
			Dissolved Manganese (Mn)	2024/04/04	0.20		%	20
			Dissolved Molybdenum (Mo)	2024/04/04	NC		%	20
			Dissolved Nickel (Ni)	2024/04/04	NC		%	20
			Dissolved Phosphorus (P)	2024/04/04	NC		%	20
			Dissolved Potassium (K)	2024/04/04	1.6		%	20
			Dissolved Selenium (Se)	2024/04/04	NC		%	20
			Dissolved Silver (Ag)	2024/04/04	NC		%	20
			Dissolved Sodium (Na)	2024/04/04	0.92		%	20
			Dissolved Strontium (Sr)	2024/04/04	2.9		%	20
			Dissolved Thallium (Tl)	2024/04/04	NC		%	20
			Dissolved Tin (Sn)	2024/04/04	NC		%	20
			Dissolved Titanium (Ti)	2024/04/04	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Uranium (U)	2024/04/04	0.58		%	20
			Dissolved Vanadium (V)	2024/04/04	NC		%	20
			Dissolved Zinc (Zn)	2024/04/04	1.6		%	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Poor spike recovery due to probable sample matrix interference.

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Bureau Veritas Job #: C492645
Report Date: 2024/04/05

GHD Limited
Client Project #: 12584960
Site Location: SHAW-PROPOSED SAND PIT
Your P.O. #: 735-009799
Sampler Initials: JV

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colleen Acker, B.Sc, Scientific Service Specialist

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-free:800-563-6266 Fax:(902) 420-8612 www.bvna.com

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name		Quotation #	C40091	Bureau Veritas Job #	Bottle Order #:
Contact Name	Accounts Payable	Contact Name	Glen Merkley	P.O. #	~~TO FOLLOW~~ 735-0109799		981420
Address	120 Western Parkway	Address		Project #	12584960		
	Bedford NS B4B 0V2			Project Name	Shaw - Proposed Sand Pit	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 802-4790 Fax:	Site #		C#981420-01-01	Marie Muise
Email	AccountsPayableCDN@ghd.com	Email	glen.merkley@ghd.com	Sampled By	JV-t RU		

Regulatory Criteria:

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions: "F" = FIELD FILTERED

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	At. RCAp-MS Dissolved (FieldFilt) in W	Atlantic RCAp-MS Total Metals in Water	# of Bottles	Comments / Hazards / Other Required Analysis
1		MW-01	21MAR24	12:15	GW	✓		X		4	
2		MW-02	21MAR24	13:00	GW	✓		X		4	
3		MW-03	27Mar24	15:40	GW	✓		X		4	
4		MW-04	27MAR24	16:16	GW	✓		X		4	
5		DUP-A	21MAR24	—	GW	✓		X		4	
6		SW-1	—	—	—				X		
7											
8											
9											
10											

BEDF-2024-03-1390

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Rebecca Upward	24/03/28	9:26					☐	3.1, 2	☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Bureau Veritas Yellow: Client

ICE: Yo

Bureau Veritas Canada (2019) Inc.

Your P.O. #: 735-009799
Your Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your C.O.C. #: C#1007056-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/09/09
Report #: R8311894
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4R0855
Received: 2024/08/30, 09:20

Sample Matrix: Ground Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	9	N/A	2024/09/06	N/A	SM 24 4500-CO2 D
Alkalinity	9	N/A	2024/09/05	ATL SOP 00142	SM 24 2320 B
Chloride	9	N/A	2024/09/05	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	9	N/A	2024/09/05	ATL SOP 00020	SM 24 2120C m
Conductance - water	9	N/A	2024/09/05	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	3	N/A	2024/09/04	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2024/09/05	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2024/09/06	ATL SOP 00048	Auto Calc
Metals Water Diss. MS- Lab Filtered (1)	3	N/A	2024/09/04	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS- Field Filtered	6	N/A	2024/09/05	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	9	N/A	2024/09/06	N/A	Auto Calc.
Anion and Cation Sum	9	N/A	2024/09/06	N/A	Auto Calc.
Nitrogen Ammonia - water	9	N/A	2024/09/04	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	9	N/A	2024/09/05	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	9	N/A	2024/09/05	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	9	N/A	2024/09/06	ATL SOP 00018	ASTM D3867-16
pH (2)	9	N/A	2024/09/05	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	9	N/A	2024/09/05	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	9	N/A	2024/09/06	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	9	N/A	2024/09/06	ATL SOP 00049	Auto Calc.
Reactive Silica	9	N/A	2024/09/05	ATL SOP 00022	EPA 366.0 m
Sulphate	9	N/A	2024/09/05	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	9	N/A	2024/09/06	N/A	Auto Calc.
Organic carbon - Total (TOC) (3)	9	N/A	2024/09/04	ATL SOP 00203	SM 24 5310B m
Turbidity	2	N/A	2024/09/05	ATL SOP 00011	EPA 180.1 R2 m
Turbidity	7	N/A	2024/09/06	ATL SOP 00011	EPA 180.1 R2 m

Sample Matrix: Surface Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	3	N/A	2024/09/06	N/A	SM 24 4500-CO2 D
Alkalinity	3	N/A	2024/09/05	ATL SOP 00142	SM 24 2320 B

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Your P.O. #: 735-009799
Your Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your C.O.C. #: C#1007056-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/09/09
Report #: R8311894
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4R0855
Received: 2024/08/30, 09:20

Sample Matrix: Surface Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride	3	N/A	2024/09/05	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	3	N/A	2024/09/05	ATL SOP 00020	SM 24 2120C m
Conductance - water	3	N/A	2024/09/05	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	2	N/A	2024/09/05	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2024/09/06	ATL SOP 00048	Auto Calc
Metals Water Total MS	2	2024/09/03	2024/09/04	ATL SOP 00058	EPA 6020B R2 m
Metals Water Total MS	1	2024/09/03	2024/09/05	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	3	N/A	2024/09/06	N/A	Auto Calc.
Anion and Cation Sum	3	N/A	2024/09/06	N/A	Auto Calc.
Nitrogen Ammonia - water	3	N/A	2024/09/04	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	3	N/A	2024/09/05	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	3	N/A	2024/09/05	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	3	N/A	2024/09/06	ATL SOP 00018	ASTM D3867-16
pH (2)	3	N/A	2024/09/05	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	3	N/A	2024/09/05	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	3	N/A	2024/09/06	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	3	N/A	2024/09/06	ATL SOP 00049	Auto Calc.
Reactive Silica	3	N/A	2024/09/05	ATL SOP 00022	EPA 366.0 m
Sulphate	3	N/A	2024/09/05	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	3	N/A	2024/09/06	N/A	Auto Calc.
Organic carbon - Total (TOC) (3)	3	N/A	2024/09/04	ATL SOP 00203	SM 24 5310B m
Total Suspended Solids	3	2024/09/04	2024/09/05	ATL SOP 00007	SM 24 2540D m
Turbidity	2	N/A	2024/09/05	ATL SOP 00011	EPA 180.1 R2 m
Turbidity	1	N/A	2024/09/09	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement

Your P.O. #: 735-009799
Your Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your C.O.C. #: C#1007056-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/09/09
Report #: R8311894
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4R0855
Received: 2024/08/30, 09:20

Uncertainty has not been accounted for when stating conformity to the referenced standard.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Sample filtered in laboratory prior to analysis for dissolved metals.
(2) The APHA Standard Method requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
09 Sep 2024 16:10:35

Please direct all questions regarding this Certificate of Analysis to:
Marie Muise, Key Account Specialist
Email: Marie.MUISE@bureauveritas.com
Phone# (902)420-0203 Ext:253

==========

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		ABLU47		ABLU48		ABLU49			
Sampling Date		2024/08/29 15:15		2024/08/29 14:53		2024/08/29 14:32			
COC Number		C#1007056-01-01		C#1007056-01-01		C#1007056-01-01			
	UNITS	MW1	QC Batch	MW2	QC Batch	MW3	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	1.07	9610149	0.240	9610149	0.440	N/A	N/A	9610149
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	41	9610145	6.7	9610145	12	1.0	0.20	9610145
Calculated TDS	mg/L	72	9610154	23	9610154	33	1.0	0.20	9610154
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	9610145	<1.0	9610145	<1.0	1.0	0.20	9610145
Cation Sum	me/L	1.12	9610149	0.260	9610149	0.440	N/A	N/A	9610149
Hardness (CaCO3)	mg/L	33	9610147	6.6	9610147	12	1.0	1.0	9610147
Ion Balance (% Difference)	%	2.28	9610148	4.00	9610148	0.00	N/A	N/A	9610148
Langelier Index (@ 20C)	N/A	-0.808	9610151	-3.87	9610151	-3.15			9610151
Langelier Index (@ 4C)	N/A	-1.06	9610152	-4.13	9610152	-3.40			9610152
Nitrate (N)	mg/L	0.053	9610029	<0.050	9610029	<0.050	0.050	N/A	9610029
Saturation pH (@ 20C)	N/A	8.66	9610151	10.4	9610151	9.71			9610151
Saturation pH (@ 4C)	N/A	8.91	9610152	10.7	9610152	9.96			9610152
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	41	9616598	6.7	9616598	12	2.0	N/A	9616544
Dissolved Chloride (Cl-)	mg/L	4.8	9615525	3.7	9615585	5.7	1.0	N/A	9615585
Colour	TCU	<5.0	9615531	<5.0	9615592	<5.0	5.0	N/A	9615592
Nitrate + Nitrite (N)	mg/L	0.053	9615533	<0.050	9615594	<0.050	0.050	N/A	9615594
Nitrite (N)	mg/L	<0.010	9615534	<0.010	9615597	<0.010	0.010	N/A	9615597
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	9616213	<0.050	9616225	<0.050	0.050	N/A	9616225
Total Organic Carbon (C)	mg/L	0.63	9615401	1.1	9615401	1.3	0.50	N/A	9615401
Orthophosphate (P)	mg/L	0.026	9615532	<0.010	9615593	0.029	0.010	N/A	9615593
pH	pH	7.85	9616578	6.54	9616578	6.56			9616540
Reactive Silica (SiO2)	mg/L	14	9615529	9.9	9615590	9.2	0.50	N/A	9615590
Dissolved Sulphate (SO4)	mg/L	5.3	9615528	<2.0	9615588	2.2	2.0	N/A	9615588
Turbidity	NTU	2.1	9622206	16	9619404	8.7	0.10	0.10	9622206
Conductivity	uS/cm	120	9616596	31	9616596	49	1.0	N/A	9616541

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		ABLU50				ABLU51	ABLU52			
Sampling Date		2024/08/29 12:06				2024/08/29 13:02	2024/08/29 14:06			
COC Number		C#1007056-01-01				C#1007056-01-01	C#1007056-01-01			
	UNITS	MW4	RDL	MDL	QC Batch	MW5	MW6	RDL	MDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	1.06	N/A	N/A	9610149	0.450	0.790	N/A	N/A	9610149
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	42	1.0	0.20	9610145	13	27	1.0	0.20	9610145
Calculated TDS	mg/L	66	1.0	0.20	9610154	32	59	1.0	0.20	9610154
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9610145	<1.0	<1.0	1.0	0.20	9610145
Cation Sum	me/L	1.07	N/A	N/A	9610149	0.460	0.990	N/A	N/A	9610149
Hardness (CaCO3)	mg/L	41	1.0	1.0	9610147	14	30	1.0	1.0	9610147
Ion Balance (% Difference)	%	0.470	N/A	N/A	9610148	1.10	11.2	N/A	N/A	9610148
Langelier Index (@ 20C)	N/A	-1.15			9610151	-2.81	-1.69			9610151
Langelier Index (@ 4C)	N/A	-1.40			9610152	-3.06	-1.95			9610152
Nitrate (N)	mg/L	0.066	0.050	N/A	9610029	<0.050	0.056	0.050	N/A	9610029
Saturation pH (@ 20C)	N/A	8.63			9610151	9.61	8.91			9610151
Saturation pH (@ 4C)	N/A	8.88			9610152	9.86	9.16			9610152
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	43	2.0	N/A	9616598	13	27	2.0	N/A	9616567
Dissolved Chloride (Cl-)	mg/L	5.1	1.0	N/A	9615585	4.4	6.7	1.0	N/A	9615585
Colour	TCU	<5.0	5.0	N/A	9615592	<5.0	7.0	5.0	N/A	9615592
Nitrate + Nitrite (N)	mg/L	0.066	0.050	N/A	9615594	<0.050	0.056	0.050	N/A	9615594
Nitrite (N)	mg/L	<0.010	0.010	N/A	9615597	<0.010	<0.010	0.010	N/A	9615597
Nitrogen (Ammonia Nitrogen)	mg/L	0.058	0.050	N/A	9616225	0.060	0.19	0.050	N/A	9616225
Total Organic Carbon (C)	mg/L	0.94	0.50	N/A	9615401	<5.0 (1)	6.4 (1)	5.0	N/A	9615679
Orthophosphate (P)	mg/L	<0.010	0.010	N/A	9615593	0.065	<0.010	0.010	N/A	9615593
pH	pH	7.48			9616578	6.80	7.22			9616556
Reactive Silica (SiO2)	mg/L	11	0.50	N/A	9615590	7.3	12	0.50	N/A	9615590
Dissolved Sulphate (SO4)	mg/L	3.2	2.0	N/A	9615588	3.0	2.6	2.0	N/A	9615588
Turbidity	NTU	95	0.10	0.10	9622206	600	370	1.0	1.0	9622206
Conductivity	uS/cm	120	1.0	N/A	9616596	51	87	1.0	N/A	9616565

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		ABLU53				ABLU53			
Sampling Date		2024/08/29 00:00				2024/08/29 00:00			
COC Number		C#1007056-01-01				C#1007056-01-01			
	UNITS	MWDUP	RDL	MDL	QC Batch	MWDUP Lab-Dup	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	1.74	N/A	N/A	9610149				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	78	1.0	0.20	9610145				
Calculated TDS	mg/L	87	1.0	0.20	9610154				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9610145				
Cation Sum	me/L	1.22	N/A	N/A	9610149				
Hardness (CaCO3)	mg/L	43	1.0	1.0	9610147				
Ion Balance (% Difference)	%	17.6	N/A	N/A	9610148				
Langelier Index (@ 20C)	N/A	-0.358			9610151				
Langelier Index (@ 4C)	N/A	-0.609			9610152				
Nitrate (N)	mg/L	<0.050	0.050	N/A	9610029				
Saturation pH (@ 20C)	N/A	8.29			9610151				
Saturation pH (@ 4C)	N/A	8.54			9610152				
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	78	2.0	N/A	9616567				
Dissolved Chloride (Cl-)	mg/L	4.2	1.0	N/A	9615585				
Colour	TCU	<5.0	5.0	N/A	9615592				
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9615594				
Nitrite (N)	mg/L	<0.010	0.010	N/A	9615597				
Nitrogen (Ammonia Nitrogen)	mg/L	0.061	0.050	N/A	9616225				
Total Organic Carbon (C)	mg/L	0.69	0.50	N/A	9615686				
Orthophosphate (P)	mg/L	0.022	0.010	N/A	9615593				
pH	pH	7.93			9616556				
Reactive Silica (SiO2)	mg/L	8.2	0.50	N/A	9615590				
Dissolved Sulphate (SO4)	mg/L	2.8	2.0	N/A	9615588				
Turbidity	NTU	280	1.0	1.0	9622195	280	1.0	1.0	9622195
Conductivity	uS/cm	160	1.0	N/A	9616565				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		ABLU54				ABLU55			
Sampling Date		2024/08/29 10:10				2024/08/29 11:09			
COC Number		C#1007056-01-01				C#1007056-01-01			
	UNITS	MW8	RDL	MDL	QC Batch	MW9	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	1.53	N/A	N/A	9610149	0.470	N/A	N/A	9610149
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	67	1.0	0.20	9610145	13	1.0	0.20	9610145
Calculated TDS	mg/L	81	1.0	0.20	9610154	36	1.0	0.20	9610154
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9610145	<1.0	1.0	0.20	9610145
Cation Sum	me/L	1.23	N/A	N/A	9610149	0.490	N/A	N/A	9610149
Hardness (CaCO3)	mg/L	43	1.0	1.0	9610147	14	1.0	1.0	9610147
Ion Balance (% Difference)	%	10.9	N/A	N/A	9610148	2.08	N/A	N/A	9610148
Langelier Index (@ 20C)	N/A	-0.508			9610151	-2.45			9610151
Langelier Index (@ 4C)	N/A	-0.759			9610152	-2.70			9610152
Nitrate (N)	mg/L	<0.050	0.050	N/A	9610029	0.16	0.050	N/A	9610029
Saturation pH (@ 20C)	N/A	8.35			9610151	9.61			9610151
Saturation pH (@ 4C)	N/A	8.60			9610152	9.86			9610152
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	68	2.0	N/A	9616567	13	2.0	N/A	9616567
Dissolved Chloride (Cl-)	mg/L	4.3	1.0	N/A	9615585	5.1	1.0	N/A	9615585
Colour	TCU	<5.0	5.0	N/A	9615592	<5.0	5.0	N/A	9615592
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9615594	0.16	0.050	N/A	9615594
Nitrite (N)	mg/L	<0.010	0.010	N/A	9615597	<0.010	0.010	N/A	9615597
Nitrogen (Ammonia Nitrogen)	mg/L	0.096	0.050	N/A	9616213	0.056	0.050	N/A	9616225
Total Organic Carbon (C)	mg/L	0.69	0.50	N/A	9615686	0.66	0.50	N/A	9615672
Orthophosphate (P)	mg/L	0.021	0.010	N/A	9615593	0.015	0.010	N/A	9615593
pH	pH	7.84			9616556	7.16			9616556
Reactive Silica (SiO2)	mg/L	8.0	0.50	N/A	9615590	10	0.50	N/A	9615590
Dissolved Sulphate (SO4)	mg/L	2.8	2.0	N/A	9615588	2.6	2.0	N/A	9615588
Turbidity	NTU	320	1.0	1.0	9622206	66	0.10	0.10	9619404
Conductivity	uS/cm	160	1.0	N/A	9616565	55	1.0	N/A	9616565

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		ABLU55			
Sampling Date		2024/08/29 11:09			
COC Number		C#1007056-01-01			
	UNITS	MW9 Lab-Dup	RDL	MDL	QC Batch
Inorganics					
Turbidity	NTU	67	0.10	0.10	9619404

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		ABLU47	ABLU48		ABLU49	ABLU50			
Sampling Date		2024/08/29 15:15	2024/08/29 14:53		2024/08/29 14:32	2024/08/29 12:06			
COC Number		C#1007056-01-01	C#1007056-01-01		C#1007056-01-01	C#1007056-01-01			
	UNITS	MW1	MW2	QC Batch	MW3	MW4	RDL	MDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<5.0	24	9618219	<5.0	<5.0	5.0	N/A	9618235
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	9618219	<1.0	<1.0	1.0	N/A	9618235
Dissolved Arsenic (As)	ug/L	12	<1.0	9618219	<1.0	<1.0	1.0	N/A	9618235
Dissolved Barium (Ba)	ug/L	9.2	6.8	9618219	3.4	91	1.0	N/A	9618235
Dissolved Beryllium (Be)	ug/L	<0.10	0.11	9618219	<0.10	<0.10	0.10	N/A	9618235
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	9618219	<2.0	<2.0	2.0	N/A	9618235
Dissolved Boron (B)	ug/L	<50	<50	9618219	<50	<50	50	N/A	9618235
Dissolved Cadmium (Cd)	ug/L	0.013	0.024	9618219	0.050	0.024	0.010	N/A	9618235
Dissolved Calcium (Ca)	ug/L	11000	1100	9618219	3200	12000	100	N/A	9618235
Dissolved Chromium (Cr)	ug/L	1.3	<1.0	9618219	<1.0	<1.0	1.0	N/A	9618235
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	9618219	<0.40	11	0.40	N/A	9618235
Dissolved Copper (Cu)	ug/L	<0.50	0.92	9618219	1.0	5.8	0.50	N/A	9618235
Dissolved Iron (Fe)	ug/L	<50	<50	9618219	<50	<50	50	N/A	9618235
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	9618219	<0.50	<0.50	0.50	N/A	9618235
Dissolved Magnesium (Mg)	ug/L	1100	920	9618219	890	2800	100	N/A	9618235
Dissolved Manganese (Mn)	ug/L	<2.0	50	9618219	4.0	260	2.0	N/A	9618235
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	9618219	<2.0	<2.0	2.0	N/A	9618235
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	9618219	<2.0	5.5	2.0	N/A	9618235
Dissolved Phosphorus (P)	ug/L	<100	<100	9618219	<100	<100	100	N/A	9618235
Dissolved Potassium (K)	ug/L	390	210	9618219	1000	690	100	N/A	9618235
Dissolved Selenium (Se)	ug/L	0.51	<0.50	9618219	<0.50	<0.50	0.50	N/A	9618235
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	9618219	<0.10	<0.10	0.10	N/A	9618235
Dissolved Sodium (Na)	ug/L	10000	2900	9618219	4100	5600	100	N/A	9618235
Dissolved Strontium (Sr)	ug/L	22	7.3	9618219	17	69	2.0	N/A	9618235
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	9618219	<0.10	<0.10	0.10	N/A	9618235
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	9618219	<2.0	<2.0	2.0	N/A	9618235
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	9618219	<2.0	<2.0	2.0	N/A	9618235
Dissolved Uranium (U)	ug/L	1.0	<0.10	9618219	<0.10	<0.10	0.10	N/A	9618235
Dissolved Vanadium (V)	ug/L	15	<2.0	9618219	<2.0	<2.0	2.0	N/A	9618235
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	9618219	8.2	30	5.0	N/A	9618235

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		ABLU50	ABLU51		ABLU52	ABLU52			
Sampling Date		2024/08/29 12:06	2024/08/29 13:02		2024/08/29 14:06	2024/08/29 14:06			
COC Number		C#1007056-01-01	C#1007056-01-01		C#1007056-01-01	C#1007056-01-01			
	UNITS	MW4 Lab-Dup	MW5	QC Batch	MW6	MW6 Lab-Dup	RDL	MDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<5.0	12	9618235	62	69	5.0	N/A	9615523
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	9618235	<1.0	<1.0	1.0	N/A	9615523
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	9618235	<1.0	<1.0	1.0	N/A	9615523
Dissolved Barium (Ba)	ug/L	92	10	9618235	27	28	1.0	N/A	9615523
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	9618235	<0.10	<0.10	0.10	N/A	9615523
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	9618235	<2.0	<2.0	2.0	N/A	9615523
Dissolved Boron (B)	ug/L	<50	<50	9618235	<50	<50	50	N/A	9615523
Dissolved Cadmium (Cd)	ug/L	0.026	0.018	9618235	0.085	0.085	0.010	N/A	9615523
Dissolved Calcium (Ca)	ug/L	12000	3800	9618235	9300	9100	100	N/A	9615523
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	9618235	<1.0	<1.0	1.0	N/A	9615523
Dissolved Cobalt (Co)	ug/L	11	1.1	9618235	1.3	1.4	0.40	N/A	9615523
Dissolved Copper (Cu)	ug/L	5.8	9.2	9618235	140	140	0.50	N/A	9615523
Dissolved Iron (Fe)	ug/L	<50	<50	9618235	800	820	50	N/A	9615523
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	9618235	<0.50	<0.50	0.50	N/A	9615523
Dissolved Magnesium (Mg)	ug/L	2900	1000	9618235	1600	1700	100	N/A	9615523
Dissolved Manganese (Mn)	ug/L	270	41	9618235	580	570	2.0	N/A	9615523
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	9618235	2.7	2.7	2.0	N/A	9615523
Dissolved Nickel (Ni)	ug/L	5.8	<2.0	9618235	3.8	3.6	2.0	N/A	9615523
Dissolved Phosphorus (P)	ug/L	<100	<100	9618235	<100	<100	100	N/A	9615523
Dissolved Potassium (K)	ug/L	690	920	9618235	2300	2300	100	N/A	9615523
Dissolved Selenium (Se)	ug/L	<0.50	<0.50	9618235	<0.50	<0.50	0.50	N/A	9615523
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	9618235	<0.10	<0.10	0.10	N/A	9615523
Dissolved Sodium (Na)	ug/L	5600	3800	9618235	6600	6400	100	N/A	9615523
Dissolved Strontium (Sr)	ug/L	71	14	9618235	33	34	2.0	N/A	9615523
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	9618235	<0.10	<0.10	0.10	N/A	9615523
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	9618235	6.7	6.7	2.0	N/A	9615523
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	9618235	<2.0	<2.0	2.0	N/A	9615523
Dissolved Uranium (U)	ug/L	<0.10	0.16	9618235	<0.10	<0.10	0.10	N/A	9615523
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	9618235	<2.0	<2.0	2.0	N/A	9615523
Dissolved Zinc (Zn)	ug/L	30	10	9618235	19	20	5.0	N/A	9615523

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		ABLU53	ABLU54		ABLU55			
Sampling Date		2024/08/29 00:00	2024/08/29 10:10		2024/08/29 11:09			
COC Number		C#1007056-01-01	C#1007056-01-01		C#1007056-01-01			
	UNITS	MWDUP	MW8	QC Batch	MW9	RDL	MDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	<5.0	<5.0	9615523	<5.0	5.0	N/A	9618235
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	9615523	<1.0	1.0	N/A	9618235
Dissolved Arsenic (As)	ug/L	1.5	1.5	9615523	<1.0	1.0	N/A	9618235
Dissolved Barium (Ba)	ug/L	9.1	8.6	9615523	4.4	1.0	N/A	9618235
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	9615523	<0.10	0.10	N/A	9618235
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	9615523	<2.0	2.0	N/A	9618235
Dissolved Boron (B)	ug/L	<50	<50	9615523	<50	50	N/A	9618235
Dissolved Cadmium (Cd)	ug/L	0.023	0.017	9615523	<0.010	0.010	N/A	9618235
Dissolved Calcium (Ca)	ug/L	14000	14000	9615523	3800	100	N/A	9618235
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	9615523	<1.0	1.0	N/A	9618235
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	9615523	<0.40	0.40	N/A	9618235
Dissolved Copper (Cu)	ug/L	<0.50	<0.50	9615523	<0.50	0.50	N/A	9618235
Dissolved Iron (Fe)	ug/L	<50	<50	9615523	<50	50	N/A	9618235
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	9615523	<0.50	0.50	N/A	9618235
Dissolved Magnesium (Mg)	ug/L	1800	1800	9615523	1100	100	N/A	9618235
Dissolved Manganese (Mn)	ug/L	130	130	9615523	<2.0	2.0	N/A	9618235
Dissolved Molybdenum (Mo)	ug/L	14	14	9615523	<2.0	2.0	N/A	9618235
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	9615523	<2.0	2.0	N/A	9618235
Dissolved Phosphorus (P)	ug/L	<100	<100	9615523	<100	100	N/A	9618235
Dissolved Potassium (K)	ug/L	1700	1700	9615523	680	100	N/A	9618235
Dissolved Selenium (Se)	ug/L	<0.50	<0.50	9615523	<0.50	0.50	N/A	9618235
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	9615523	<0.10	0.10	N/A	9618235
Dissolved Sodium (Na)	ug/L	7200	7400	9615523	4300	100	N/A	9618235
Dissolved Strontium (Sr)	ug/L	62	62	9615523	20	2.0	N/A	9618235
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	9615523	<0.10	0.10	N/A	9618235
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	9615523	<2.0	2.0	N/A	9618235
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	9615523	<2.0	2.0	N/A	9618235
Dissolved Uranium (U)	ug/L	0.54	0.54	9615523	<0.10	0.10	N/A	9618235
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	9615523	<2.0	2.0	N/A	9618235
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	9615523	<5.0	5.0	N/A	9618235

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		ABLU44				ABLU44			
Sampling Date		2024/08/29 15:58				2024/08/29 15:58			
COC Number		C#1007056-01-01				C#1007056-01-01			
	UNITS	SW1	RDL	MDL	QC Batch	SW1 Lab-Dup	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.440	N/A	N/A	9610149				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	12	1.0	0.20	9610145				
Calculated TDS	mg/L	36	1.0	0.20	9610154				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9610145				
Cation Sum	me/L	0.490	N/A	N/A	9610149				
Hardness (CaCO3)	mg/L	14	1.0	1.0	9610147				
Ion Balance (% Difference)	%	5.38	N/A	N/A	9610148				
Langelier Index (@ 20C)	N/A	-2.59			9610151				
Langelier Index (@ 4C)	N/A	-2.84			9610152				
Nitrate (N)	mg/L	<0.050	0.050	N/A	9610029				
Saturation pH (@ 20C)	N/A	9.70			9610151				
Saturation pH (@ 4C)	N/A	9.96			9610152				
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	12	2.0	N/A	9616598				
Dissolved Chloride (Cl-)	mg/L	5.5	1.0	N/A	9615525				
Colour	TCU	8.9	5.0	N/A	9615531				
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9615533				
Nitrite (N)	mg/L	<0.010	0.010	N/A	9615534				
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9616213				
Total Organic Carbon (C)	mg/L	1.2	0.50	N/A	9615401	1.2	0.50	N/A	9615401
Orthophosphate (P)	mg/L	0.013	0.010	N/A	9615532				
pH	pH	7.12			9616578				
Reactive Silica (SiO2)	mg/L	10	0.50	N/A	9615529				
Total Suspended Solids	mg/L	<1.0	1.0	N/A	9615361				
Dissolved Sulphate (SO4)	mg/L	2.6	2.0	N/A	9615528				
Turbidity	NTU	0.39	0.10	0.10	9625708				
Conductivity	uS/cm	51	1.0	N/A	9616596				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		ABLU45			ABLU46			
Sampling Date		2024/08/29 16:34			2024/08/29 00:00			
COC Number		C#1007056-01-01			C#1007056-01-01			
	UNITS	SW2	RDL	QC Batch	SW DUP	RDL	MDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.720	N/A	9610149	0.700	N/A	N/A	9610149
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	27	1.0	9610145	26	1.0	0.20	9610145
Calculated TDS	mg/L	53	1.0	9610154	52	1.0	0.20	9610154
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	9610145	<1.0	1.0	0.20	9610145
Cation Sum	me/L	0.800	N/A	9610149	0.810	N/A	N/A	9610149
Hardness (CaCO3)	mg/L	25	1.0	9610147	25	1.0	1.0	9610147
Ion Balance (% Difference)	%	5.26	N/A	9610148	7.28	N/A	N/A	9610148
Langelier Index (@ 20C)	N/A	-1.64		9610151	-1.66			9610151
Langelier Index (@ 4C)	N/A	-1.90		9610152	-1.91			9610152
Nitrate (N)	mg/L	<0.050	0.050	9610029	<0.050	0.050	N/A	9610029
Saturation pH (@ 20C)	N/A	9.06		9610151	9.08			9610151
Saturation pH (@ 4C)	N/A	9.32		9610152	9.34			9610152
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	27	2.0	9616567	26	2.0	N/A	9616598
Dissolved Chloride (Cl-)	mg/L	4.6	1.0	9615525	4.6	1.0	N/A	9615525
Colour	TCU	9.9	5.0	9615531	10	5.0	N/A	9615531
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	9615533	<0.050	0.050	N/A	9615533
Nitrite (N)	mg/L	<0.010	0.010	9615534	<0.010	0.010	N/A	9615534
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	9616213	<0.050	0.050	N/A	9616213
Total Organic Carbon (C)	mg/L	1.7	0.50	9615401	1.8	0.50	N/A	9615401
Orthophosphate (P)	mg/L	<0.010	0.010	9615532	<0.010	0.010	N/A	9615532
pH	pH	7.42		9616556	7.42			9616578
Reactive Silica (SiO2)	mg/L	13	0.50	9615529	13	0.50	N/A	9615529
Total Suspended Solids	mg/L	<2.0 (1)	2.0	9615361	<5.0 (1)	5.0	N/A	9615361
Dissolved Sulphate (SO4)	mg/L	2.7	2.0	9615528	2.6	2.0	N/A	9615528
Turbidity	NTU	5.3	0.10	9619404	7.7	0.10	0.10	9619404
Conductivity	uS/cm	77	1.0	9616565	76	1.0	N/A	9616596

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated DL due to sample matrix.

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Bureau Veritas Job #: C4R0855
Report Date: 2024/09/09

GHD Limited
Client Project #: 12584960
Site Location: Shaw-Proposed Sandpit Middleton
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		ABLU46			
Sampling Date		2024/08/29 00:00			
COC Number		C#1007056-01-01			
	UNITS	SW DUP Lab-Dup	RDL	MDL	QC Batch
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L	26	2.0	N/A	9616598
pH	pH	7.52			9616578
Conductivity	uS/cm	77	1.0	N/A	9616596

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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ELEMENTS BY ICP/MS (SURFACE WATER)

Bureau Veritas ID		ABLU44	ABLU45		ABLU46			
Sampling Date		2024/08/29 15:58	2024/08/29 16:34		2024/08/29 00:00			
COC Number		C#1007056-01-01	C#1007056-01-01		C#1007056-01-01			
	UNITS	SW1	SW2	QC Batch	SW DUP	RDL	MDL	QC Batch
Metals								
Total Aluminum (Al)	ug/L	22	200	9613615	210	5.0	N/A	9614016
Total Antimony (Sb)	ug/L	<1.0	<1.0	9613615	<1.0	1.0	N/A	9614016
Total Arsenic (As)	ug/L	<1.0	<1.0	9613615	<1.0	1.0	N/A	9614016
Total Barium (Ba)	ug/L	6.2	5.5	9613615	5.5	1.0	N/A	9614016
Total Beryllium (Be)	ug/L	<0.10	<0.10	9613615	<0.10	0.10	N/A	9614016
Total Bismuth (Bi)	ug/L	<2.0	<2.0	9613615	<2.0	2.0	N/A	9614016
Total Boron (B)	ug/L	<50	<50	9613615	<50	50	N/A	9614016
Total Cadmium (Cd)	ug/L	<0.010	0.011	9613615	0.011	0.010	N/A	9614016
Total Calcium (Ca)	ug/L	3400	6600	9613615	6500	100	N/A	9614016
Total Chromium (Cr)	ug/L	<1.0	<1.0	9613615	1.1	1.0	N/A	9614016
Total Cobalt (Co)	ug/L	<0.40	0.44	9613615	0.47	0.40	N/A	9614016
Total Copper (Cu)	ug/L	<0.50	0.63	9613615	0.69	0.50	N/A	9614016
Total Iron (Fe)	ug/L	120	1400	9613615	1600	50	N/A	9614016
Total Lead (Pb)	ug/L	<0.50	<0.50	9613615	<0.50	0.50	N/A	9614016
Total Magnesium (Mg)	ug/L	1200	2100	9613615	2100	100	N/A	9614016
Total Manganese (Mn)	ug/L	10	59	9613615	63	2.0	N/A	9614016
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	9613615	<2.0	2.0	N/A	9614016
Total Nickel (Ni)	ug/L	<2.0	<2.0	9613615	<2.0	2.0	N/A	9614016
Total Phosphorus (P)	ug/L	<100	<100	9613615	<100	100	N/A	9614016
Total Potassium (K)	ug/L	730	780	9613615	810	100	N/A	9614016
Total Selenium (Se)	ug/L	<0.50	<0.50	9613615	<0.50	0.50	N/A	9614016
Total Silver (Ag)	ug/L	<0.10	<0.10	9613615	<0.10	0.10	N/A	9614016
Total Sodium (Na)	ug/L	4600	5300	9613615	5300	100	N/A	9614016
Total Strontium (Sr)	ug/L	23	34	9613615	36	2.0	N/A	9614016
Total Thallium (Tl)	ug/L	<0.10	<0.10	9613615	<0.10	0.10	N/A	9614016
Total Tin (Sn)	ug/L	<2.0	<2.0	9613615	<2.0	2.0	N/A	9614016
Total Titanium (Ti)	ug/L	<2.0	6.4	9613615	6.6	2.0	N/A	9614016
Total Uranium (U)	ug/L	<0.10	<0.10	9613615	<0.10	0.10	N/A	9614016
Total Vanadium (V)	ug/L	<2.0	<2.0	9613615	<2.0	2.0	N/A	9614016
Total Zinc (Zn)	ug/L	<5.0	<5.0	9613615	<5.0	5.0	N/A	9614016

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.3°C
Package 2	0.0°C

Sample ABLU44 [SW1] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ABLU45 [SW2] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ABLU46 [SW DUP] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ABLU47 [MW1] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample ABLU49 [MW3] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample ABLU51 [MW5] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample ABLU52 [MW6] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ABLU53 [MWDUP] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. Poor RCAp Ion Balance due to sample matrix.

Sample ABLU54 [MW8] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. Poor RCAp Ion Balance due to sample matrix.

Sample ABLU55 [MW9] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9613615	MTZ	Matrix Spike	Total Aluminum (Al)	2024/09/05		NC	%	80 - 120
			Total Antimony (Sb)	2024/09/05		101	%	80 - 120
			Total Arsenic (As)	2024/09/05		95	%	80 - 120
			Total Barium (Ba)	2024/09/05		92	%	80 - 120
			Total Beryllium (Be)	2024/09/05		96	%	80 - 120
			Total Bismuth (Bi)	2024/09/05		91	%	80 - 120
			Total Boron (B)	2024/09/05		90	%	80 - 120
			Total Cadmium (Cd)	2024/09/05		93	%	80 - 120
			Total Calcium (Ca)	2024/09/05		NC	%	80 - 120
			Total Chromium (Cr)	2024/09/05		93	%	80 - 120
			Total Cobalt (Co)	2024/09/05		91	%	80 - 120
			Total Copper (Cu)	2024/09/05		92	%	80 - 120
			Total Iron (Fe)	2024/09/05		NC	%	80 - 120
			Total Lead (Pb)	2024/09/05		91	%	80 - 120
			Total Magnesium (Mg)	2024/09/05		96	%	80 - 120
			Total Manganese (Mn)	2024/09/05		100	%	80 - 120
			Total Molybdenum (Mo)	2024/09/05		97	%	80 - 120
			Total Nickel (Ni)	2024/09/05		94	%	80 - 120
			Total Phosphorus (P)	2024/09/05		99	%	80 - 120
			Total Potassium (K)	2024/09/05		NC	%	80 - 120
			Total Selenium (Se)	2024/09/05		93	%	80 - 120
			Total Silver (Ag)	2024/09/05		91	%	80 - 120
			Total Sodium (Na)	2024/09/05		NC	%	80 - 120
			Total Strontium (Sr)	2024/09/05		NC	%	80 - 120
			Total Thallium (Tl)	2024/09/05		91	%	80 - 120
			Total Tin (Sn)	2024/09/05		95	%	80 - 120
			Total Titanium (Ti)	2024/09/05		97	%	80 - 120
			Total Uranium (U)	2024/09/05		96	%	80 - 120
			Total Vanadium (V)	2024/09/05		99	%	80 - 120
			Total Zinc (Zn)	2024/09/05		95	%	80 - 120
9613615	MTZ	Spiked Blank	Total Aluminum (Al)	2024/09/04		98	%	80 - 120
			Total Antimony (Sb)	2024/09/04		101	%	80 - 120
			Total Arsenic (As)	2024/09/04		97	%	80 - 120
			Total Barium (Ba)	2024/09/04		100	%	80 - 120
			Total Beryllium (Be)	2024/09/04		99	%	80 - 120
			Total Bismuth (Bi)	2024/09/04		100	%	80 - 120
			Total Boron (B)	2024/09/04		102	%	80 - 120
			Total Cadmium (Cd)	2024/09/04		102	%	80 - 120
			Total Calcium (Ca)	2024/09/04		99	%	80 - 120
			Total Chromium (Cr)	2024/09/04		98	%	80 - 120
			Total Cobalt (Co)	2024/09/04		98	%	80 - 120
			Total Copper (Cu)	2024/09/04		97	%	80 - 120
			Total Iron (Fe)	2024/09/04		100	%	80 - 120
			Total Lead (Pb)	2024/09/04		103	%	80 - 120
			Total Magnesium (Mg)	2024/09/04		102	%	80 - 120
			Total Manganese (Mn)	2024/09/04		100	%	80 - 120
			Total Molybdenum (Mo)	2024/09/04		103	%	80 - 120
			Total Nickel (Ni)	2024/09/04		98	%	80 - 120
			Total Phosphorus (P)	2024/09/04		101	%	80 - 120
			Total Potassium (K)	2024/09/04		98	%	80 - 120
			Total Selenium (Se)	2024/09/04		98	%	80 - 120
			Total Silver (Ag)	2024/09/04		97	%	80 - 120
			Total Sodium (Na)	2024/09/04		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Strontium (Sr)	2024/09/04		99	%	80 - 120
			Total Thallium (Tl)	2024/09/04		100	%	80 - 120
			Total Tin (Sn)	2024/09/04		101	%	80 - 120
			Total Titanium (Ti)	2024/09/04		99	%	80 - 120
			Total Uranium (U)	2024/09/04		106	%	80 - 120
			Total Vanadium (V)	2024/09/04		101	%	80 - 120
			Total Zinc (Zn)	2024/09/04		99	%	80 - 120
9613615	MTZ	Method Blank	Total Aluminum (Al)	2024/09/04	<5.0		ug/L	
			Total Antimony (Sb)	2024/09/04	<1.0		ug/L	
			Total Arsenic (As)	2024/09/04	<1.0		ug/L	
			Total Barium (Ba)	2024/09/04	<1.0		ug/L	
			Total Beryllium (Be)	2024/09/04	<0.10		ug/L	
			Total Bismuth (Bi)	2024/09/04	<2.0		ug/L	
			Total Boron (B)	2024/09/04	<50		ug/L	
			Total Cadmium (Cd)	2024/09/04	<0.010		ug/L	
			Total Calcium (Ca)	2024/09/04	<100		ug/L	
			Total Chromium (Cr)	2024/09/04	<1.0		ug/L	
			Total Cobalt (Co)	2024/09/04	<0.40		ug/L	
			Total Copper (Cu)	2024/09/04	<0.50		ug/L	
			Total Iron (Fe)	2024/09/04	<50		ug/L	
			Total Lead (Pb)	2024/09/04	<0.50		ug/L	
			Total Magnesium (Mg)	2024/09/04	<100		ug/L	
			Total Manganese (Mn)	2024/09/04	<2.0		ug/L	
			Total Molybdenum (Mo)	2024/09/04	<2.0		ug/L	
			Total Nickel (Ni)	2024/09/04	<2.0		ug/L	
			Total Phosphorus (P)	2024/09/04	<100		ug/L	
			Total Potassium (K)	2024/09/04	<100		ug/L	
			Total Selenium (Se)	2024/09/04	<0.50		ug/L	
			Total Silver (Ag)	2024/09/04	<0.10		ug/L	
			Total Sodium (Na)	2024/09/04	<100		ug/L	
			Total Strontium (Sr)	2024/09/04	<2.0		ug/L	
			Total Thallium (Tl)	2024/09/04	<0.10		ug/L	
			Total Tin (Sn)	2024/09/04	<2.0		ug/L	
			Total Titanium (Ti)	2024/09/04	<2.0		ug/L	
			Total Uranium (U)	2024/09/04	<0.10		ug/L	
			Total Vanadium (V)	2024/09/04	<2.0		ug/L	
			Total Zinc (Zn)	2024/09/04	<5.0		ug/L	
9613615	MTZ	RPD	Total Aluminum (Al)	2024/09/04	2.0		%	20
			Total Antimony (Sb)	2024/09/04	8.5		%	20
			Total Arsenic (As)	2024/09/04	1.7		%	20
			Total Barium (Ba)	2024/09/04	5.3		%	20
			Total Beryllium (Be)	2024/09/04	NC		%	20
			Total Bismuth (Bi)	2024/09/04	NC		%	20
			Total Boron (B)	2024/09/04	1.8		%	20
			Total Cadmium (Cd)	2024/09/04	2.6		%	20
			Total Calcium (Ca)	2024/09/04	4.2		%	20
			Total Chromium (Cr)	2024/09/04	NC		%	20
			Total Cobalt (Co)	2024/09/04	NC		%	20
			Total Copper (Cu)	2024/09/04	4.6		%	20
			Total Iron (Fe)	2024/09/04	7.7		%	20
			Total Lead (Pb)	2024/09/04	2.6		%	20
			Total Magnesium (Mg)	2024/09/04	2.5		%	20
			Total Manganese (Mn)	2024/09/04	2.7		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Molybdenum (Mo)	2024/09/04	3.8		%	20
			Total Nickel (Ni)	2024/09/04	NC		%	20
			Total Phosphorus (P)	2024/09/04	NC		%	20
			Total Potassium (K)	2024/09/04	4.1		%	20
			Total Selenium (Se)	2024/09/04	NC		%	20
			Total Silver (Ag)	2024/09/04	NC		%	20
			Total Sodium (Na)	2024/09/04	4.1		%	20
			Total Strontium (Sr)	2024/09/04	4.1		%	20
			Total Thallium (Tl)	2024/09/04	NC		%	20
			Total Tin (Sn)	2024/09/04	NC		%	20
			Total Titanium (Ti)	2024/09/04	10		%	20
			Total Uranium (U)	2024/09/04	5.8		%	20
			Total Vanadium (V)	2024/09/04	3.7		%	20
			Total Zinc (Zn)	2024/09/04	5.2		%	20
9614016	MOA	Matrix Spike [ABLU46-03]	Total Aluminum (Al)	2024/09/05		101	%	80 - 120
			Total Antimony (Sb)	2024/09/05		99	%	80 - 120
			Total Arsenic (As)	2024/09/05		98	%	80 - 120
			Total Barium (Ba)	2024/09/05		94	%	80 - 120
			Total Beryllium (Be)	2024/09/05		100	%	80 - 120
			Total Bismuth (Bi)	2024/09/05		98	%	80 - 120
			Total Boron (B)	2024/09/05		101	%	80 - 120
			Total Cadmium (Cd)	2024/09/05		98	%	80 - 120
			Total Calcium (Ca)	2024/09/05		99	%	80 - 120
			Total Chromium (Cr)	2024/09/05		97	%	80 - 120
			Total Cobalt (Co)	2024/09/05		98	%	80 - 120
			Total Copper (Cu)	2024/09/05		100	%	80 - 120
			Total Iron (Fe)	2024/09/05		NC	%	80 - 120
			Total Lead (Pb)	2024/09/05		97	%	80 - 120
			Total Magnesium (Mg)	2024/09/05		101	%	80 - 120
			Total Manganese (Mn)	2024/09/05		96	%	80 - 120
			Total Molybdenum (Mo)	2024/09/05		104	%	80 - 120
			Total Nickel (Ni)	2024/09/05		101	%	80 - 120
			Total Phosphorus (P)	2024/09/05		101	%	80 - 120
			Total Potassium (K)	2024/09/05		101	%	80 - 120
			Total Selenium (Se)	2024/09/05		99	%	80 - 120
			Total Silver (Ag)	2024/09/05		98	%	80 - 120
			Total Sodium (Na)	2024/09/05		96	%	80 - 120
			Total Strontium (Sr)	2024/09/05		99	%	80 - 120
			Total Thallium (Tl)	2024/09/05		98	%	80 - 120
			Total Tin (Sn)	2024/09/05		100	%	80 - 120
			Total Titanium (Ti)	2024/09/05		100	%	80 - 120
			Total Uranium (U)	2024/09/05		106	%	80 - 120
			Total Vanadium (V)	2024/09/05		99	%	80 - 120
			Total Zinc (Zn)	2024/09/05		100	%	80 - 120
9614016	MOA	Spiked Blank	Total Aluminum (Al)	2024/09/05		96	%	80 - 120
			Total Antimony (Sb)	2024/09/05		100	%	80 - 120
			Total Arsenic (As)	2024/09/05		100	%	80 - 120
			Total Barium (Ba)	2024/09/05		97	%	80 - 120
			Total Beryllium (Be)	2024/09/05		102	%	80 - 120
			Total Bismuth (Bi)	2024/09/05		101	%	80 - 120
			Total Boron (B)	2024/09/05		100	%	80 - 120
			Total Cadmium (Cd)	2024/09/05		98	%	80 - 120
			Total Calcium (Ca)	2024/09/05		98	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Chromium (Cr)	2024/09/05		102	%	80 - 120
			Total Cobalt (Co)	2024/09/05		101	%	80 - 120
			Total Copper (Cu)	2024/09/05		103	%	80 - 120
			Total Iron (Fe)	2024/09/05		103	%	80 - 120
			Total Lead (Pb)	2024/09/05		100	%	80 - 120
			Total Magnesium (Mg)	2024/09/05		102	%	80 - 120
			Total Manganese (Mn)	2024/09/05		102	%	80 - 120
			Total Molybdenum (Mo)	2024/09/05		102	%	80 - 120
			Total Nickel (Ni)	2024/09/05		104	%	80 - 120
			Total Phosphorus (P)	2024/09/05		101	%	80 - 120
			Total Potassium (K)	2024/09/05		103	%	80 - 120
			Total Selenium (Se)	2024/09/05		100	%	80 - 120
			Total Silver (Ag)	2024/09/05		98	%	80 - 120
			Total Sodium (Na)	2024/09/05		101	%	80 - 120
			Total Strontium (Sr)	2024/09/05		103	%	80 - 120
			Total Thallium (Tl)	2024/09/05		101	%	80 - 120
			Total Tin (Sn)	2024/09/05		99	%	80 - 120
			Total Titanium (Ti)	2024/09/05		102	%	80 - 120
			Total Uranium (U)	2024/09/05		107	%	80 - 120
			Total Vanadium (V)	2024/09/05		103	%	80 - 120
			Total Zinc (Zn)	2024/09/05		102	%	80 - 120
9614016	MOA	Method Blank	Total Aluminum (Al)	2024/09/05	<5.0		ug/L	
			Total Antimony (Sb)	2024/09/05	<1.0		ug/L	
			Total Arsenic (As)	2024/09/05	<1.0		ug/L	
			Total Barium (Ba)	2024/09/05	<1.0		ug/L	
			Total Beryllium (Be)	2024/09/05	<0.10		ug/L	
			Total Bismuth (Bi)	2024/09/05	<2.0		ug/L	
			Total Boron (B)	2024/09/05	<50		ug/L	
			Total Cadmium (Cd)	2024/09/05	<0.010		ug/L	
			Total Calcium (Ca)	2024/09/05	<100		ug/L	
			Total Chromium (Cr)	2024/09/05	<1.0		ug/L	
			Total Cobalt (Co)	2024/09/05	<0.40		ug/L	
			Total Copper (Cu)	2024/09/05	<0.50		ug/L	
			Total Iron (Fe)	2024/09/05	<50		ug/L	
			Total Lead (Pb)	2024/09/05	<0.50		ug/L	
			Total Magnesium (Mg)	2024/09/05	<100		ug/L	
			Total Manganese (Mn)	2024/09/05	<2.0		ug/L	
			Total Molybdenum (Mo)	2024/09/05	<2.0		ug/L	
			Total Nickel (Ni)	2024/09/05	<2.0		ug/L	
			Total Phosphorus (P)	2024/09/05	<100		ug/L	
			Total Potassium (K)	2024/09/05	<100		ug/L	
			Total Selenium (Se)	2024/09/05	<0.50		ug/L	
			Total Silver (Ag)	2024/09/05	<0.10		ug/L	
			Total Sodium (Na)	2024/09/05	<100		ug/L	
			Total Strontium (Sr)	2024/09/05	<2.0		ug/L	
			Total Thallium (Tl)	2024/09/05	<0.10		ug/L	
			Total Tin (Sn)	2024/09/05	<2.0		ug/L	
			Total Titanium (Ti)	2024/09/05	<2.0		ug/L	
			Total Uranium (U)	2024/09/05	<0.10		ug/L	
			Total Vanadium (V)	2024/09/05	<2.0		ug/L	
			Total Zinc (Zn)	2024/09/05	<5.0		ug/L	
9614016	MOA	RPD	Total Aluminum (Al)	2024/09/05	1.5		%	20
			Total Antimony (Sb)	2024/09/05	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Arsenic (As)	2024/09/05	NC		%	20
			Total Barium (Ba)	2024/09/05	2.6		%	20
			Total Beryllium (Be)	2024/09/05	NC		%	20
			Total Bismuth (Bi)	2024/09/05	NC		%	20
			Total Boron (B)	2024/09/05	NC		%	20
			Total Cadmium (Cd)	2024/09/05	NC		%	20
			Total Calcium (Ca)	2024/09/05	4.6		%	20
			Total Chromium (Cr)	2024/09/05	NC		%	20
			Total Cobalt (Co)	2024/09/05	NC		%	20
			Total Copper (Cu)	2024/09/05	4.2		%	20
			Total Iron (Fe)	2024/09/05	NC		%	20
			Total Lead (Pb)	2024/09/05	5.8		%	20
			Total Magnesium (Mg)	2024/09/05	4.5		%	20
			Total Manganese (Mn)	2024/09/05	NC		%	20
			Total Molybdenum (Mo)	2024/09/05	NC		%	20
			Total Nickel (Ni)	2024/09/05	NC		%	20
			Total Phosphorus (P)	2024/09/05	NC		%	20
			Total Potassium (K)	2024/09/05	2.7		%	20
			Total Selenium (Se)	2024/09/05	NC		%	20
			Total Silver (Ag)	2024/09/05	NC		%	20
			Total Sodium (Na)	2024/09/05	3.6		%	20
			Total Strontium (Sr)	2024/09/05	3.9		%	20
			Total Thallium (Tl)	2024/09/05	NC		%	20
			Total Tin (Sn)	2024/09/05	NC		%	20
			Total Titanium (Ti)	2024/09/05	NC		%	20
			Total Uranium (U)	2024/09/05	4.5		%	20
			Total Vanadium (V)	2024/09/05	NC		%	20
			Total Zinc (Zn)	2024/09/05	3.8		%	20
9615361	ZZH	QC Standard	Total Suspended Solids	2024/09/05		97	%	80 - 120
9615361	ZZH	Method Blank	Total Suspended Solids	2024/09/05	<1.0		mg/L	
9615361	ZZH	RPD	Total Suspended Solids	2024/09/05	0		%	20
9615401	SSI	Matrix Spike [ABLU44-04]	Total Organic Carbon (C)	2024/09/04		100	%	85 - 115
9615401	SSI	Spiked Blank	Total Organic Carbon (C)	2024/09/04		99	%	80 - 120
9615401	SSI	Method Blank	Total Organic Carbon (C)	2024/09/04	<0.50		mg/L	
9615401	SSI	RPD [ABLU44-04]	Total Organic Carbon (C)	2024/09/04	1.6		%	15
9615523	MTZ	Matrix Spike [ABLU52-02]	Dissolved Aluminum (Al)	2024/09/04		98	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/04		99	%	80 - 120
			Dissolved Arsenic (As)	2024/09/04		101	%	80 - 120
			Dissolved Barium (Ba)	2024/09/04		99	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/04		102	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/04		98	%	80 - 120
			Dissolved Boron (B)	2024/09/04		96	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/04		103	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/04		96	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/04		100	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/04		101	%	80 - 120
			Dissolved Copper (Cu)	2024/09/04		NC	%	80 - 120
			Dissolved Iron (Fe)	2024/09/04		92	%	80 - 120
			Dissolved Lead (Pb)	2024/09/04		102	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/04		103	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/04		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/04		99	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/04		102	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Phosphorus (P)	2024/09/04		104	%	80 - 120
			Dissolved Potassium (K)	2024/09/04		102	%	80 - 120
			Dissolved Selenium (Se)	2024/09/04		101	%	80 - 120
			Dissolved Silver (Ag)	2024/09/04		77 (1)	%	80 - 120
			Dissolved Sodium (Na)	2024/09/04		101	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/04		98	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/04		100	%	80 - 120
			Dissolved Tin (Sn)	2024/09/04		98	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/04		103	%	80 - 120
			Dissolved Uranium (U)	2024/09/04		109	%	80 - 120
			Dissolved Vanadium (V)	2024/09/04		105	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/04		101	%	80 - 120
9615523	MTZ	Spiked Blank	Dissolved Aluminum (Al)	2024/09/04		100	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/04		98	%	80 - 120
			Dissolved Arsenic (As)	2024/09/04		102	%	80 - 120
			Dissolved Barium (Ba)	2024/09/04		101	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/04		98	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/04		101	%	80 - 120
			Dissolved Boron (B)	2024/09/04		92	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/04		102	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/04		99	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/04		102	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/04		102	%	80 - 120
			Dissolved Copper (Cu)	2024/09/04		103	%	80 - 120
			Dissolved Iron (Fe)	2024/09/04		102	%	80 - 120
			Dissolved Lead (Pb)	2024/09/04		103	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/04		102	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/04		106	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/04		100	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/04		104	%	80 - 120
			Dissolved Phosphorus (P)	2024/09/04		104	%	80 - 120
			Dissolved Potassium (K)	2024/09/04		102	%	80 - 120
			Dissolved Selenium (Se)	2024/09/04		101	%	80 - 120
			Dissolved Silver (Ag)	2024/09/04		98	%	80 - 120
			Dissolved Sodium (Na)	2024/09/04		101	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/04		104	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/04		100	%	80 - 120
			Dissolved Tin (Sn)	2024/09/04		100	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/04		102	%	80 - 120
			Dissolved Uranium (U)	2024/09/04		109	%	80 - 120
			Dissolved Vanadium (V)	2024/09/04		106	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/04		104	%	80 - 120
9615523	MTZ	Method Blank	Dissolved Aluminum (Al)	2024/09/04	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/09/04	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/09/04	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/09/04	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/09/04	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2024/09/04	<2.0		ug/L	
			Dissolved Boron (B)	2024/09/04	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/09/04	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/09/04	<100		ug/L	
			Dissolved Chromium (Cr)	2024/09/04	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/09/04	<0.40		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Copper (Cu)	2024/09/04	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/09/04	<50		ug/L	
			Dissolved Lead (Pb)	2024/09/04	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/09/04	<100		ug/L	
			Dissolved Manganese (Mn)	2024/09/04	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/09/04	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/09/04	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/09/04	<100		ug/L	
			Dissolved Potassium (K)	2024/09/04	<100		ug/L	
			Dissolved Selenium (Se)	2024/09/04	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/09/04	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/09/04	<100		ug/L	
			Dissolved Strontium (Sr)	2024/09/04	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/09/04	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/09/04	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/09/04	<2.0		ug/L	
			Dissolved Uranium (U)	2024/09/04	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/09/04	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/09/04	<5.0		ug/L	
9615523	MTZ	RPD [ABLU52-02]	Dissolved Aluminum (Al)	2024/09/04	11		%	20
			Dissolved Antimony (Sb)	2024/09/04	NC		%	20
			Dissolved Arsenic (As)	2024/09/04	NC		%	20
			Dissolved Barium (Ba)	2024/09/04	2.9		%	20
			Dissolved Beryllium (Be)	2024/09/04	NC		%	20
			Dissolved Bismuth (Bi)	2024/09/04	NC		%	20
			Dissolved Boron (B)	2024/09/04	NC		%	20
			Dissolved Cadmium (Cd)	2024/09/04	0.30		%	20
			Dissolved Calcium (Ca)	2024/09/04	1.6		%	20
			Dissolved Chromium (Cr)	2024/09/04	NC		%	20
			Dissolved Cobalt (Co)	2024/09/04	1.3		%	20
			Dissolved Copper (Cu)	2024/09/04	0.27		%	20
			Dissolved Iron (Fe)	2024/09/04	2.4		%	20
			Dissolved Lead (Pb)	2024/09/04	NC		%	20
			Dissolved Magnesium (Mg)	2024/09/04	0.86		%	20
			Dissolved Manganese (Mn)	2024/09/04	1.0		%	20
			Dissolved Molybdenum (Mo)	2024/09/04	0.75		%	20
			Dissolved Nickel (Ni)	2024/09/04	6.0		%	20
			Dissolved Phosphorus (P)	2024/09/04	NC		%	20
			Dissolved Potassium (K)	2024/09/04	0.079		%	20
			Dissolved Selenium (Se)	2024/09/04	NC		%	20
			Dissolved Silver (Ag)	2024/09/04	NC		%	20
			Dissolved Sodium (Na)	2024/09/04	2.8		%	20
			Dissolved Strontium (Sr)	2024/09/04	1.5		%	20
			Dissolved Thallium (Tl)	2024/09/04	NC		%	20
			Dissolved Tin (Sn)	2024/09/04	0.96		%	20
			Dissolved Titanium (Ti)	2024/09/04	NC		%	20
			Dissolved Uranium (U)	2024/09/04	NC		%	20
			Dissolved Vanadium (V)	2024/09/04	NC		%	20
			Dissolved Zinc (Zn)	2024/09/04	1.3		%	20
9615525	EMT	Matrix Spike	Dissolved Chloride (Cl-)	2024/09/05		89	%	80 - 120
9615525	EMT	Spiked Blank	Dissolved Chloride (Cl-)	2024/09/05		92	%	80 - 120
9615525	EMT	Method Blank	Dissolved Chloride (Cl-)	2024/09/05	<1.0		mg/L	
9615525	EMT	RPD	Dissolved Chloride (Cl-)	2024/09/05	0.10		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9615528	EMT	Matrix Spike	Dissolved Sulphate (SO4)	2024/09/05		NC	%	80 - 120
9615528	EMT	Spiked Blank	Dissolved Sulphate (SO4)	2024/09/05		94	%	80 - 120
9615528	EMT	Method Blank	Dissolved Sulphate (SO4)	2024/09/05	<2.0		mg/L	
9615528	EMT	RPD	Dissolved Sulphate (SO4)	2024/09/05	1.0		%	20
9615529	EMT	Matrix Spike	Reactive Silica (SiO2)	2024/09/05		83	%	80 - 120
9615529	EMT	Spiked Blank	Reactive Silica (SiO2)	2024/09/05		89	%	80 - 120
9615529	EMT	Method Blank	Reactive Silica (SiO2)	2024/09/05	<0.50		mg/L	
9615529	EMT	RPD	Reactive Silica (SiO2)	2024/09/05	1.9		%	20
9615531	EMT	Spiked Blank	Colour	2024/09/05		104	%	80 - 120
9615531	EMT	Method Blank	Colour	2024/09/05	<5.0		TCU	
9615531	EMT	RPD	Colour	2024/09/05	NC		%	20
9615532	EMT	Matrix Spike	Orthophosphate (P)	2024/09/05		90	%	80 - 120
9615532	EMT	Spiked Blank	Orthophosphate (P)	2024/09/05		89	%	80 - 120
9615532	EMT	Method Blank	Orthophosphate (P)	2024/09/05	<0.010		mg/L	
9615532	EMT	RPD	Orthophosphate (P)	2024/09/05	NC		%	20
9615533	EMT	Matrix Spike	Nitrate + Nitrite (N)	2024/09/05		97	%	80 - 120
9615533	EMT	Spiked Blank	Nitrate + Nitrite (N)	2024/09/05		99	%	80 - 120
9615533	EMT	Method Blank	Nitrate + Nitrite (N)	2024/09/05	<0.050		mg/L	
9615533	EMT	RPD	Nitrate + Nitrite (N)	2024/09/05	NC		%	20
9615534	EMT	Matrix Spike	Nitrite (N)	2024/09/05		94	%	80 - 120
9615534	EMT	Spiked Blank	Nitrite (N)	2024/09/05		99	%	80 - 120
9615534	EMT	Method Blank	Nitrite (N)	2024/09/05	<0.010		mg/L	
9615534	EMT	RPD	Nitrite (N)	2024/09/05	NC		%	20
9615585	EMT	Matrix Spike	Dissolved Chloride (Cl-)	2024/09/05		90	%	80 - 120
9615585	EMT	Spiked Blank	Dissolved Chloride (Cl-)	2024/09/05		91	%	80 - 120
9615585	EMT	Method Blank	Dissolved Chloride (Cl-)	2024/09/05	<1.0		mg/L	
9615585	EMT	RPD	Dissolved Chloride (Cl-)	2024/09/05	2.4		%	20
9615588	EMT	Matrix Spike	Dissolved Sulphate (SO4)	2024/09/05		NC	%	80 - 120
9615588	EMT	Spiked Blank	Dissolved Sulphate (SO4)	2024/09/05		94	%	80 - 120
9615588	EMT	Method Blank	Dissolved Sulphate (SO4)	2024/09/05	<2.0		mg/L	
9615588	EMT	RPD	Dissolved Sulphate (SO4)	2024/09/05	0.21		%	20
9615590	EMT	Matrix Spike	Reactive Silica (SiO2)	2024/09/05		85	%	80 - 120
9615590	EMT	Spiked Blank	Reactive Silica (SiO2)	2024/09/05		90	%	80 - 120
9615590	EMT	Method Blank	Reactive Silica (SiO2)	2024/09/05	<0.50		mg/L	
9615590	EMT	RPD	Reactive Silica (SiO2)	2024/09/05	3.5		%	20
9615592	EMT	Spiked Blank	Colour	2024/09/05		105	%	80 - 120
9615592	EMT	Method Blank	Colour	2024/09/05	<5.0		TCU	
9615592	EMT	RPD	Colour	2024/09/05	14		%	20
9615593	EMT	Matrix Spike	Orthophosphate (P)	2024/09/05		78 (2)	%	80 - 120
9615593	EMT	Spiked Blank	Orthophosphate (P)	2024/09/05		92	%	80 - 120
9615593	EMT	Method Blank	Orthophosphate (P)	2024/09/05	<0.010		mg/L	
9615593	EMT	RPD	Orthophosphate (P)	2024/09/05	NC		%	20
9615594	EMT	Matrix Spike	Nitrate + Nitrite (N)	2024/09/05		NC	%	80 - 120
9615594	EMT	Spiked Blank	Nitrate + Nitrite (N)	2024/09/05		97	%	80 - 120
9615594	EMT	Method Blank	Nitrate + Nitrite (N)	2024/09/05	<0.050		mg/L	
9615594	EMT	RPD	Nitrate + Nitrite (N)	2024/09/05	0.90		%	20
9615597	EMT	Matrix Spike	Nitrite (N)	2024/09/05		96	%	80 - 120
9615597	EMT	Spiked Blank	Nitrite (N)	2024/09/05		100	%	80 - 120
9615597	EMT	Method Blank	Nitrite (N)	2024/09/05	<0.010		mg/L	
9615597	EMT	RPD	Nitrite (N)	2024/09/05	NC		%	20
9615672	ACK	Matrix Spike	Total Organic Carbon (C)	2024/09/04		100	%	85 - 115
9615672	ACK	Spiked Blank	Total Organic Carbon (C)	2024/09/04		109	%	80 - 120
9615672	ACK	Method Blank	Total Organic Carbon (C)	2024/09/04	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9615672	ACK	RPD	Total Organic Carbon (C)	2024/09/04	NC		%	15
9615679	ACK	Matrix Spike	Total Organic Carbon (C)	2024/09/04		98	%	85 - 115
9615679	ACK	Spiked Blank	Total Organic Carbon (C)	2024/09/04		100	%	80 - 120
9615679	ACK	Method Blank	Total Organic Carbon (C)	2024/09/04	<0.50		mg/L	
9615679	ACK	RPD	Total Organic Carbon (C)	2024/09/04	0.33		%	15
9615686	ACK	Matrix Spike	Total Organic Carbon (C)	2024/09/04		99	%	85 - 115
9615686	ACK	Spiked Blank	Total Organic Carbon (C)	2024/09/04		101	%	80 - 120
9615686	ACK	Method Blank	Total Organic Carbon (C)	2024/09/04	<0.50		mg/L	
9615686	ACK	RPD	Total Organic Carbon (C)	2024/09/04	NC		%	15
9616213	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/09/04		82	%	80 - 120
9616213	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/09/04		96	%	80 - 120
9616213	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/09/04	<0.050		mg/L	
9616213	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2024/09/04	16		%	20
9616225	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/09/04		90	%	80 - 120
9616225	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/09/04		97	%	80 - 120
9616225	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/09/04	<0.050		mg/L	
9616225	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2024/09/04	NC		%	20
9616540	KMC	Spiked Blank	pH	2024/09/05		99	%	97 - 103
9616540	KMC	RPD	pH	2024/09/05	0.089		%	N/A
9616541	KMC	Spiked Blank	Conductivity	2024/09/05		95	%	80 - 120
9616541	KMC	Method Blank	Conductivity	2024/09/05	<1.0		uS/cm	
9616541	KMC	RPD	Conductivity	2024/09/05	0.23		%	10
9616544	KMC	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/09/05		100	%	80 - 120
9616544	KMC	Method Blank	Total Alkalinity (Total as CaCO3)	2024/09/05	<2.0		mg/L	
9616544	KMC	RPD	Total Alkalinity (Total as CaCO3)	2024/09/05	1.9		%	20
9616556	KMC	Spiked Blank	pH	2024/09/05		99	%	97 - 103
9616556	KMC	RPD	pH	2024/09/05	0.31		%	N/A
9616565	KMC	Spiked Blank	Conductivity	2024/09/05		95	%	80 - 120
9616565	KMC	Method Blank	Conductivity	2024/09/05	<1.0		uS/cm	
9616565	KMC	RPD	Conductivity	2024/09/05	2.0		%	10
9616567	KMC	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/09/05		99	%	80 - 120
9616567	KMC	Method Blank	Total Alkalinity (Total as CaCO3)	2024/09/05	<2.0		mg/L	
9616567	KMC	RPD	Total Alkalinity (Total as CaCO3)	2024/09/05	1.5		%	20
9616578	KMC	Spiked Blank	pH	2024/09/05		99	%	97 - 103
9616578	KMC	RPD [ABLU46-02]	pH	2024/09/05	1.3		%	N/A
9616596	KMC	Spiked Blank	Conductivity	2024/09/05		94	%	80 - 120
9616596	KMC	Method Blank	Conductivity	2024/09/05	<1.0		uS/cm	
9616596	KMC	RPD [ABLU46-02]	Conductivity	2024/09/05	0.65		%	10
9616598	KMC	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/09/05		99	%	80 - 120
9616598	KMC	Method Blank	Total Alkalinity (Total as CaCO3)	2024/09/05	<2.0		mg/L	
9616598	KMC	RPD [ABLU46-02]	Total Alkalinity (Total as CaCO3)	2024/09/05	1.6		%	20
9618219	JHY	Matrix Spike	Dissolved Aluminum (Al)	2024/09/05		NC	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/05		98	%	80 - 120
			Dissolved Arsenic (As)	2024/09/05		97	%	80 - 120
			Dissolved Barium (Ba)	2024/09/05		90	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/05		98	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/05		95	%	80 - 120
			Dissolved Boron (B)	2024/09/05		NC	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/05		100	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/05		NC	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/05		95	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/05		93	%	80 - 120
			Dissolved Copper (Cu)	2024/09/05		92	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Iron (Fe)	2024/09/05		100	%	80 - 120
			Dissolved Lead (Pb)	2024/09/05		94	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/05		NC	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/05		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/05		102	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/05		95	%	80 - 120
			Dissolved Phosphorus (P)	2024/09/05		103	%	80 - 120
			Dissolved Potassium (K)	2024/09/05		101	%	80 - 120
			Dissolved Selenium (Se)	2024/09/05		99	%	80 - 120
			Dissolved Silver (Ag)	2024/09/05		87	%	80 - 120
			Dissolved Sodium (Na)	2024/09/05		NC	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/05		NC	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/05		96	%	80 - 120
			Dissolved Tin (Sn)	2024/09/05		98	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/05		96	%	80 - 120
			Dissolved Uranium (U)	2024/09/05		101	%	80 - 120
			Dissolved Vanadium (V)	2024/09/05		98	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/05		95	%	80 - 120
9618219	JHY	Spiked Blank	Dissolved Aluminum (Al)	2024/09/05		98	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/05		99	%	80 - 120
			Dissolved Arsenic (As)	2024/09/05		98	%	80 - 120
			Dissolved Barium (Ba)	2024/09/05		99	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/05		97	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/05		95	%	80 - 120
			Dissolved Boron (B)	2024/09/05		99	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/05		98	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/05		101	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/05		97	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/05		96	%	80 - 120
			Dissolved Copper (Cu)	2024/09/05		97	%	80 - 120
			Dissolved Iron (Fe)	2024/09/05		103	%	80 - 120
			Dissolved Lead (Pb)	2024/09/05		96	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/05		104	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/05		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/05		103	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/05		98	%	80 - 120
			Dissolved Phosphorus (P)	2024/09/05		104	%	80 - 120
			Dissolved Potassium (K)	2024/09/05		104	%	80 - 120
			Dissolved Selenium (Se)	2024/09/05		100	%	80 - 120
			Dissolved Silver (Ag)	2024/09/05		95	%	80 - 120
			Dissolved Sodium (Na)	2024/09/05		106	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/05		96	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/05		96	%	80 - 120
			Dissolved Tin (Sn)	2024/09/05		98	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/05		99	%	80 - 120
			Dissolved Uranium (U)	2024/09/05		99	%	80 - 120
			Dissolved Vanadium (V)	2024/09/05		101	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/05		100	%	80 - 120
9618219	JHY	Method Blank	Dissolved Aluminum (Al)	2024/09/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/09/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/09/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/09/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/09/05	<0.10		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Bismuth (Bi)	2024/09/05	<2.0		ug/L	
			Dissolved Boron (B)	2024/09/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/09/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/09/05	<100		ug/L	
			Dissolved Chromium (Cr)	2024/09/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/09/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/09/05	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/09/05	<50		ug/L	
			Dissolved Lead (Pb)	2024/09/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/09/05	<100		ug/L	
			Dissolved Manganese (Mn)	2024/09/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/09/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/09/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/09/05	<100		ug/L	
			Dissolved Potassium (K)	2024/09/05	<100		ug/L	
			Dissolved Selenium (Se)	2024/09/05	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/09/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/09/05	<100		ug/L	
			Dissolved Strontium (Sr)	2024/09/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/09/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/09/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/09/05	<2.0		ug/L	
			Dissolved Uranium (U)	2024/09/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/09/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/09/05	<5.0		ug/L	
9618219	JHY	RPD	Dissolved Aluminum (Al)	2024/09/05	1.2		%	20
			Dissolved Antimony (Sb)	2024/09/05	NC		%	20
			Dissolved Arsenic (As)	2024/09/05	1.3		%	20
			Dissolved Barium (Ba)	2024/09/05	2.1		%	20
			Dissolved Beryllium (Be)	2024/09/05	3.1		%	20
			Dissolved Bismuth (Bi)	2024/09/05	NC		%	20
			Dissolved Boron (B)	2024/09/05	0.78		%	20
			Dissolved Cadmium (Cd)	2024/09/05	0.86		%	20
			Dissolved Calcium (Ca)	2024/09/05	0.45		%	20
			Dissolved Chromium (Cr)	2024/09/05	NC		%	20
			Dissolved Cobalt (Co)	2024/09/05	3.3		%	20
			Dissolved Copper (Cu)	2024/09/05	2.0		%	20
			Dissolved Iron (Fe)	2024/09/05	0.19		%	20
			Dissolved Lead (Pb)	2024/09/05	NC		%	20
			Dissolved Magnesium (Mg)	2024/09/05	0.75		%	20
			Dissolved Manganese (Mn)	2024/09/05	0.83		%	20
			Dissolved Molybdenum (Mo)	2024/09/05	NC		%	20
			Dissolved Nickel (Ni)	2024/09/05	1.7		%	20
			Dissolved Phosphorus (P)	2024/09/05	NC		%	20
			Dissolved Potassium (K)	2024/09/05	0.58		%	20
			Dissolved Selenium (Se)	2024/09/05	NC		%	20
			Dissolved Silver (Ag)	2024/09/05	NC		%	20
			Dissolved Sodium (Na)	2024/09/05	2.4		%	20
			Dissolved Strontium (Sr)	2024/09/05	1.2		%	20
			Dissolved Thallium (Tl)	2024/09/05	NC		%	20
			Dissolved Tin (Sn)	2024/09/05	NC		%	20
			Dissolved Titanium (Ti)	2024/09/05	NC		%	20
			Dissolved Uranium (U)	2024/09/05	6.9		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Vanadium (V)	2024/09/05	NC		%	20
			Dissolved Zinc (Zn)	2024/09/05	0.32		%	20
9618235	MOA	Matrix Spike [ABLU50-02]	Dissolved Aluminum (Al)	2024/09/05		96	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/05		101	%	80 - 120
			Dissolved Arsenic (As)	2024/09/05		98	%	80 - 120
			Dissolved Barium (Ba)	2024/09/05		94	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/05		100	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/05		98	%	80 - 120
			Dissolved Boron (B)	2024/09/05		96	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/05		99	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/05		98	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/05		96	%	80 - 120
			Dissolved Copper (Cu)	2024/09/05		98	%	80 - 120
			Dissolved Iron (Fe)	2024/09/05		98	%	80 - 120
			Dissolved Lead (Pb)	2024/09/05		97	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/05		100	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/05		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/05		103	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/05		98	%	80 - 120
			Dissolved Phosphorus (P)	2024/09/05		104	%	80 - 120
			Dissolved Potassium (K)	2024/09/05		103	%	80 - 120
			Dissolved Selenium (Se)	2024/09/05		98	%	80 - 120
			Dissolved Silver (Ag)	2024/09/05		98	%	80 - 120
			Dissolved Sodium (Na)	2024/09/05		98	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/05		98	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/05		99	%	80 - 120
			Dissolved Tin (Sn)	2024/09/05		99	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/05		98	%	80 - 120
			Dissolved Uranium (U)	2024/09/05		106	%	80 - 120
			Dissolved Vanadium (V)	2024/09/05		99	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/05		102	%	80 - 120
9618235	MOA	Spiked Blank	Dissolved Aluminum (Al)	2024/09/05		99	%	80 - 120
			Dissolved Antimony (Sb)	2024/09/05		100	%	80 - 120
			Dissolved Arsenic (As)	2024/09/05		98	%	80 - 120
			Dissolved Barium (Ba)	2024/09/05		97	%	80 - 120
			Dissolved Beryllium (Be)	2024/09/05		98	%	80 - 120
			Dissolved Bismuth (Bi)	2024/09/05		96	%	80 - 120
			Dissolved Boron (B)	2024/09/05		93	%	80 - 120
			Dissolved Cadmium (Cd)	2024/09/05		97	%	80 - 120
			Dissolved Calcium (Ca)	2024/09/05		100	%	80 - 120
			Dissolved Chromium (Cr)	2024/09/05		97	%	80 - 120
			Dissolved Cobalt (Co)	2024/09/05		97	%	80 - 120
			Dissolved Copper (Cu)	2024/09/05		99	%	80 - 120
			Dissolved Iron (Fe)	2024/09/05		103	%	80 - 120
			Dissolved Lead (Pb)	2024/09/05		97	%	80 - 120
			Dissolved Magnesium (Mg)	2024/09/05		103	%	80 - 120
			Dissolved Manganese (Mn)	2024/09/05		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/09/05		99	%	80 - 120
			Dissolved Nickel (Ni)	2024/09/05		99	%	80 - 120
			Dissolved Phosphorus (P)	2024/09/05		103	%	80 - 120
			Dissolved Potassium (K)	2024/09/05		104	%	80 - 120
			Dissolved Selenium (Se)	2024/09/05		97	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Silver (Ag)	2024/09/05		97	%	80 - 120
			Dissolved Sodium (Na)	2024/09/05		100	%	80 - 120
			Dissolved Strontium (Sr)	2024/09/05		100	%	80 - 120
			Dissolved Thallium (Tl)	2024/09/05		97	%	80 - 120
			Dissolved Tin (Sn)	2024/09/05		99	%	80 - 120
			Dissolved Titanium (Ti)	2024/09/05		103	%	80 - 120
			Dissolved Uranium (U)	2024/09/05		105	%	80 - 120
			Dissolved Vanadium (V)	2024/09/05		100	%	80 - 120
			Dissolved Zinc (Zn)	2024/09/05		100	%	80 - 120
9618235	MOA	Method Blank	Dissolved Aluminum (Al)	2024/09/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/09/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/09/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/09/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/09/05	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2024/09/05	<2.0		ug/L	
			Dissolved Boron (B)	2024/09/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/09/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/09/05	<100		ug/L	
			Dissolved Chromium (Cr)	2024/09/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/09/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/09/05	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/09/05	<50		ug/L	
			Dissolved Lead (Pb)	2024/09/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/09/05	<100		ug/L	
			Dissolved Manganese (Mn)	2024/09/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/09/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/09/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/09/05	<100		ug/L	
			Dissolved Potassium (K)	2024/09/05	<100		ug/L	
			Dissolved Selenium (Se)	2024/09/05	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/09/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/09/05	<100		ug/L	
			Dissolved Strontium (Sr)	2024/09/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/09/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/09/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/09/05	<2.0		ug/L	
			Dissolved Uranium (U)	2024/09/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/09/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/09/05	<5.0		ug/L	
9618235	MOA	RPD [ABLU50-02]	Dissolved Aluminum (Al)	2024/09/05	NC		%	20
			Dissolved Antimony (Sb)	2024/09/05	NC		%	20
			Dissolved Arsenic (As)	2024/09/05	NC		%	20
			Dissolved Barium (Ba)	2024/09/05	0.81		%	20
			Dissolved Beryllium (Be)	2024/09/05	NC		%	20
			Dissolved Bismuth (Bi)	2024/09/05	NC		%	20
			Dissolved Boron (B)	2024/09/05	NC		%	20
			Dissolved Cadmium (Cd)	2024/09/05	7.4		%	20
			Dissolved Calcium (Ca)	2024/09/05	0.81		%	20
			Dissolved Chromium (Cr)	2024/09/05	NC		%	20
			Dissolved Cobalt (Co)	2024/09/05	0.25		%	20
			Dissolved Copper (Cu)	2024/09/05	0.085		%	20
			Dissolved Iron (Fe)	2024/09/05	NC		%	20
			Dissolved Lead (Pb)	2024/09/05	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Magnesium (Mg)	2024/09/05	1.5		%	20
			Dissolved Manganese (Mn)	2024/09/05	0.66		%	20
			Dissolved Molybdenum (Mo)	2024/09/05	NC		%	20
			Dissolved Nickel (Ni)	2024/09/05	5.2		%	20
			Dissolved Phosphorus (P)	2024/09/05	NC		%	20
			Dissolved Potassium (K)	2024/09/05	0.41		%	20
			Dissolved Selenium (Se)	2024/09/05	NC		%	20
			Dissolved Silver (Ag)	2024/09/05	NC		%	20
			Dissolved Sodium (Na)	2024/09/05	0.62		%	20
			Dissolved Strontium (Sr)	2024/09/05	2.8		%	20
			Dissolved Thallium (Tl)	2024/09/05	NC		%	20
			Dissolved Tin (Sn)	2024/09/05	NC		%	20
			Dissolved Titanium (Ti)	2024/09/05	NC		%	20
			Dissolved Uranium (U)	2024/09/05	NC		%	20
			Dissolved Vanadium (V)	2024/09/05	NC		%	20
			Dissolved Zinc (Zn)	2024/09/05	1.1		%	20
9619404	M2C	QC Standard	Turbidity	2024/09/05		99	%	80 - 120
9619404	M2C	Spiked Blank	Turbidity	2024/09/05		104	%	80 - 120
9619404	M2C	Method Blank	Turbidity	2024/09/05	<0.10		NTU	
9619404	M2C	RPD [ABLU55-01]	Turbidity	2024/09/05	2.3		%	20
9622195	M2C	QC Standard	Turbidity	2024/09/06		98	%	80 - 120
9622195	M2C	Spiked Blank	Turbidity	2024/09/06		102	%	80 - 120
9622195	M2C	Method Blank	Turbidity	2024/09/06	<0.10		NTU	
9622195	M2C	RPD [ABLU53-01]	Turbidity	2024/09/06	1.1		%	20
9622206	M2C	QC Standard	Turbidity	2024/09/06		95	%	80 - 120
9622206	M2C	Spiked Blank	Turbidity	2024/09/06		104	%	80 - 120
9622206	M2C	Method Blank	Turbidity	2024/09/06	<0.10		NTU	
9622206	M2C	RPD	Turbidity	2024/09/06	3.3		%	20
9625708	M2C	QC Standard	Turbidity	2024/09/09		109	%	80 - 120
9625708	M2C	Spiked Blank	Turbidity	2024/09/09		106	%	80 - 120
9625708	M2C	Method Blank	Turbidity	2024/09/09	<0.10		NTU	
9625708	M2C	RPD	Turbidity	2024/09/09	13		%	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery is within QC acceptance limits. < 10 % of compounds in multi-component analysis in violation.

(2) Poor spike recovery due to probable sample matrix interference.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ernlie Publicover, Scientific Specialist

Janah Rhyno, Scientific Specialist

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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C4R0855
2024/08/30 09:20

Bureau Veritas
200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel: (902) 420-0203 Toll-free 800-563-6266 Fax (902) 420-8612 www.bvna.com

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name	GHD	Quotation #	C40091	Bureau Veritas Job #	Bottle Order #:
Contact Name	Accounts Payable	Contact Name	Glen Merkley/Sadie Jacobs-Peters	P.O. #	735-009799		1007056
Address	120 Western Parkway Bedford NS B4B 0V2	Address		Project #	12584960	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 802-4790 Fax	Project Name	Shaw Sandpit	C#1007056-01-01	Marie Muise
Email	AccountsPayableCDN@ghd.com	Email	glen.merkley@ghd.com,Sadie.jacobs-peters@ghd.com	Site #			
				Sampled By	S. Manzoor/G. Perrine		

Regulatory Criteria

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater/Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions: "F" = Field Filtered

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Total Suspended Solids	At. RCAp-MS Dissolved (FieldFilt) in W	# of Bottles	Comments / Hazards / Other Required Analysis
1	SID#673497	SW1	29 Aug 24	1558	SW			X	X		5	
2	SID#673498	SW2	29 Aug 24	1634	SW			X	X		5	
3	SID#673499	SW3						X	X			
4	SID#673500	SW4						X	X			
5	SID#673501	SW5						X	X			
6	SID#673502	SW DUP	29 Aug 24	~~1515~~	SW			X	X		5	
7	SID#673503	MW1		1515	GW	X				X	4	
8	SID#673504	MW2		1453	GW	X				X		
9	SID#673505	MW3		1432	GW	X				X		
10	SID#673506	MW4	29 Aug 24	~~1307~~ 1209	GW	X				X		

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

BEDF-2024-08-1542

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Saad Manzoor	24/08/29	1843						3.5.2 / 0.0.0	Yes / No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Bureau Veritas Yellow: Client

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Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name	GHD	Quotation #	C40091	Bureau Veritas Job #	Bottle Order #:
Contact Name	Accounts Payable	Contact Name	Glen Merkley/Sadie Jacobs-Peters	P.O. #	735-009799		1007056
Address	120 Western Parkway Bedford NS B4B 0V2	Address		Project #	12584960	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 802-4790 Fax:	Project Name	SNCW Sandpit	C#1007056-02-01	Marie Muise
Email	AccountsPayableCDN@ghd.com	Email	glen.merkley@ghd.com,Sadie.jacobs-peters@ghd.com	Site #			
				Sampled By	S. Manzoor / G. Perrine		

Regulatory Criteria

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions: "F" = Field Filtered

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Total Suspended Solids	At RCAp-MS Dissolved (FieldFilt) in W	# of Bottles	Comments / Hazards / Other Required Analysis
1	SID#673507	MW5	29 Aug 24	1302	GW	X				X	4	
2	SID#673508	MW6	" " "	1406	GW		X			X	4	
3	SID#673509	MW7								X		
4	SID#673510	MWDUP	29 Aug 24		GW		X			X	4	
5		MW8	" " "	1010	"		X			X	4	
6		MW9	" " "	1109	"	X				X	4	
7												
8												
9												
10												

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Saad Manzoor	24/08/29	1843					☐	3.5.2/0.0.0	☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Bureau Veritas Yellow: Client

Ice - yes

Your P.O. #: 735-009799
Your Project #: 12584960
Your C.O.C. #: C#1015035-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/11/08
Report #: R8396754
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y5693
Received: 2024/11/01, 14:52

Sample Matrix: Ground Water
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	13	N/A	2024/11/07	N/A	SM 24 4500-CO2 D
Alkalinity	13	N/A	2024/11/06	ATL SOP 00142	SM 24 2320 B
Chloride	13	N/A	2024/11/06	ATL SOP 00014	SM 24 4500-Cl- E m
Colour	13	N/A	2024/11/06	ATL SOP 00020	SM 24 2120C m
Conductance - water	13	N/A	2024/11/06	ATL SOP 00004	SM 24 2510B m
Hardness (calculated as CaCO3)	8	N/A	2024/11/06	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2024/11/07	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2024/11/08	ATL SOP 00048	Auto Calc
Metals Water Diss. MS- Field Filtered	4	N/A	2024/11/05	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS- Field Filtered	4	N/A	2024/11/06	ATL SOP 00058	EPA 6020B R2 m
Metals Water Total MS	4	2024/11/05	2024/11/05	ATL SOP 00058	EPA 6020B R2 m
Metals Water Total MS	1	2024/11/07	2024/11/07	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	13	N/A	2024/11/08	N/A	Auto Calc.
Anion and Cation Sum	13	N/A	2024/11/08	N/A	Auto Calc.
Nitrogen Ammonia - water	12	N/A	2024/11/07	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water	1	N/A	2024/11/08	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	13	N/A	2024/11/06	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	13	N/A	2024/11/06	ATL SOP 00017	SM 24 4500-NO2- B m
Nitrogen - Nitrate (as N)	13	N/A	2024/11/07	ATL SOP 00018	ASTM D3867-16
pH (1)	13	N/A	2024/11/06	ATL SOP 00003	SM 24 4500-H+ B m
Phosphorus - ortho	13	N/A	2024/11/06	ATL SOP 00021	SM 24 4500-P E m
Sat. pH and Langelier Index (@ 20C)	13	N/A	2024/11/08	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	13	N/A	2024/11/08	ATL SOP 00049	Auto Calc.
Reactive Silica	13	N/A	2024/11/06	ATL SOP 00022	EPA 366.0 m
Sulphate	13	N/A	2024/11/06	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	13	N/A	2024/11/08	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	6	N/A	2024/11/06	ATL SOP 00203	SM 24 5310B m
Organic carbon - Total (TOC) (2)	7	N/A	2024/11/07	ATL SOP 00203	SM 24 5310B m
Total Suspended Solids	5	2024/11/05	2024/11/06	ATL SOP 00007	SM 24 2540D m
Turbidity	13	N/A	2024/11/07	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Your P.O. #: 735-009799
Your Project #: 12584960
Your C.O.C. #: C#1015035-01-01

Attention: Glen Merkley

GHD Limited
120 Western Parkway
Bedford, NS
CANADA B4B 0V2

Report Date: 2024/11/08
Report #: R8396754
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4Y5693
Received: 2024/11/01, 14:52

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The APHA Standard Method requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Bureau Veritas
08 Nov 2024 15:54:19

Please direct all questions regarding this Certificate of Analysis to:
Marie Muise, Key Account Specialist
Email: Marie.MUISE@bureauveritas.com
Phone# (902)420-0203 Ext:253

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTH99				AHTH99			
Sampling Date		2024/10/31 12:56				2024/10/31 12:56			
COC Number		C#1015035-01-01				C#1015035-01-01			
	UNITS	SW1	RDL	MDL	QC Batch	SW1 Lab-Dup	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.610	N/A	N/A	9743283				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	20	1.0	0.20	9743276				
Calculated TDS	mg/L	44	1.0	0.20	9743290				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9743276				
Cation Sum	me/L	0.710	N/A	N/A	9743283				
Hardness (CaCO3)	mg/L	23	1.0	1.0	9743280				
Ion Balance (% Difference)	%	7.58	N/A	N/A	9743282				
Langelier Index (@ 20C)	N/A	-1.96			9743286				
Langelier Index (@ 4C)	N/A	-2.21			9743289				
Nitrate (N)	mg/L	<0.050	0.050	N/A	9743284				
Saturation pH (@ 20C)	N/A	9.24			9743286				
Saturation pH (@ 4C)	N/A	9.49			9743289				
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	20	2.0	N/A	9748420	21	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	4.4	1.0	N/A	9748090				
Colour	TCU	40	5.0	N/A	9748134				
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9748136				
Nitrite (N)	mg/L	<0.010	0.010	N/A	9748137				
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9751132				
Total Organic Carbon (C)	mg/L	5.3	0.50	N/A	9751321	4.9	0.50	N/A	9751321
Orthophosphate (P)	mg/L	0.015	0.010	N/A	9748135				
pH	pH	7.28			9748412	7.38			9748412
Reactive Silica (SiO2)	mg/L	9.2	0.50	N/A	9748133				
Total Suspended Solids	mg/L	1.8	1.0	N/A	9746030				
Dissolved Sulphate (SO4)	mg/L	3.9	2.0	N/A	9748132				
Turbidity	NTU	1.0	0.10	0.10	9751110				
Conductivity	uS/cm	70	1.0	N/A	9748418	70	1.0	N/A	9748418

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Bureau Veritas Job #: C4Y5693
Report Date: 2024/11/08

GHD Limited
Client Project #: 12584960
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI00		AHTI01		AHTI02			
Sampling Date		2024/10/31 13:18		2024/10/31 13:52		2024/10/31 14:33			
COC Number		C#1015035-01-01		C#1015035-01-01		C#1015035-01-01			
	UNITS	SW2	QC Batch	SW3	QC Batch	SW4	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.840	9743283	0.600	9743283	0.770	N/A	N/A	9743283
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	33	9743276	20	9743276	29	1.0	0.20	9743276
Calculated TDS	mg/L	57	9743290	44	9743290	57	1.0	0.20	9743290
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	9743276	<1.0	9743276	<1.0	1.0	0.20	9743276
Cation Sum	me/L	0.850	9743283	0.670	9743283	0.920	N/A	N/A	9743283
Hardness (CaCO3)	mg/L	28	9743280	21	9743280	31	1.0	1.0	9743280
Ion Balance (% Difference)	%	0.590	9743282	5.51	9743282	8.88	N/A	N/A	9743282
Langelier Index (@ 20C)	N/A	-1.45	9743286	-1.97	9743286	-1.60			9743286
Langelier Index (@ 4C)	N/A	-1.70	9743289	-2.22	9743289	-1.85			9743289
Nitrate (N)	mg/L	<0.050	9743284	<0.050	9743284	<0.050	0.050	N/A	9743337
Saturation pH (@ 20C)	N/A	8.93	9743286	9.22	9743286	8.94			9743286
Saturation pH (@ 4C)	N/A	9.18	9743289	9.48	9743289	9.19			9743289
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	33	9748420	20	9748420	29	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	3.9	9748090	4.0	9748090	4.6	1.0	N/A	9748090
Colour	TCU	17	9748134	18	9748134	21	5.0	N/A	9748134
Nitrate + Nitrite (N)	mg/L	<0.050	9748136	<0.050	9748136	<0.050	0.050	N/A	9748136
Nitrite (N)	mg/L	<0.010	9748137	<0.010	9748137	<0.010	0.010	N/A	9748137
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	9751132	<0.050	9751128	0.17	0.050	N/A	9751128
Total Organic Carbon (C)	mg/L	2.1	9749031	2.4	9749039	2.8	0.50	N/A	9749031
Orthophosphate (P)	mg/L	<0.010	9748135	<0.010	9748135	<0.010	0.010	N/A	9748135
pH	pH	7.48	9748412	7.25	9748412	7.34			9748412
Reactive Silica (SiO2)	mg/L	13	9748133	10	9748133	14	0.50	N/A	9748133
Total Suspended Solids	mg/L	<1.0 (1)	9746030	1.4	9746030	<1.0	1.0	N/A	9746030
Dissolved Sulphate (SO4)	mg/L	3.3	9748132	4.0	9748132	2.4	2.0	N/A	9748132
Turbidity	NTU	1.9	9751094	1.7	9751110	0.87	0.10	0.10	9751110
Conductivity	uS/cm	81	9748418	66	9748418	86	1.0	N/A	9748418

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Non-homogenous material excluded from sample.

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Bureau Veritas Job #: C4Y5693
Report Date: 2024/11/08

GHD Limited
Client Project #: 12584960
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI03				AHTI04			
Sampling Date		2024/10/31				2024/10/31 12:33			
COC Number		C#1015035-01-01				C#1015035-01-01			
	UNITS	SW DUP	RDL	MDL	QC Batch	MW1	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.730	N/A	N/A	9743283	1.04	N/A	N/A	9743283
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	28	1.0	0.20	9743276	39	1.0	0.20	9743276
Calculated TDS	mg/L	52	1.0	0.20	9743290	73	1.0	0.20	9743290
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9743276	<1.0	1.0	0.20	9743276
Cation Sum	me/L	0.820	N/A	N/A	9743283	1.17	N/A	N/A	9743283
Hardness (CaCO3)	mg/L	28	1.0	1.0	9743336	35	1.0	1.0	9743280
Ion Balance (% Difference)	%	5.81	N/A	N/A	9743282	5.88	N/A	N/A	9743282
Langelier Index (@ 20C)	N/A	-1.49			9743286	-0.695			9743286
Langelier Index (@ 4C)	N/A	-1.74			9743289	-0.946			9743289
Nitrate (N)	mg/L	<0.050	0.050	N/A	9743337	0.069	0.050	N/A	9743284
Saturation pH (@ 20C)	N/A	9.00			9743286	8.65			9743286
Saturation pH (@ 4C)	N/A	9.25			9743289	8.90			9743289
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	28	2.0	N/A	9748420	40	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	4.0	1.0	N/A	9748090	3.9	1.0	N/A	9748090
Colour	TCU	12	5.0	N/A	9748134	<5.0	5.0	N/A	9748134
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9748136	0.069	0.050	N/A	9748136
Nitrite (N)	mg/L	<0.010	0.010	N/A	9748137	<0.010	0.010	N/A	9748137
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9751132	<0.050	0.050	N/A	9751132
Total Organic Carbon (C)	mg/L	2.1	0.50	N/A	9749039	<0.50	0.50	N/A	9749039
Orthophosphate (P)	mg/L	<0.010	0.010	N/A	9748135	0.035	0.010	N/A	9748135
pH	pH	7.51			9748412	7.96			9748412
Reactive Silica (SiO2)	mg/L	13	0.50	N/A	9748133	14	0.50	N/A	9748133
Total Suspended Solids	mg/L	<1.0	1.0	N/A	9746030				
Dissolved Sulphate (SO4)	mg/L	2.7	2.0	N/A	9748132	6.2	2.0	N/A	9748132
Turbidity	NTU	1.6	0.10	0.10	9751110	5.4	0.10	0.10	9751094
Conductivity	uS/cm	82	1.0	N/A	9748418	120	1.0	N/A	9748418

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4Y5693
Report Date: 2024/11/08

GHD Limited
Client Project #: 12584960
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI05		AHTI06		AHTI07			
Sampling Date		2024/10/31 12:16		2024/10/31 11:31		2024/10/31 10:38			
COC Number		C#1015035-01-01		C#1015035-01-01		C#1015035-01-01			
	UNITS	MW2	QC Batch	MW3	QC Batch	MW4	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.330	9743283	0.360	9743283	1.23	N/A	N/A	9743283
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	7.7	9743276	7.5	9743276	51	1.0	0.20	9743276
Calculated TDS	mg/L	30	9743290	31	9743290	77	1.0	0.20	9743290
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	9743276	<1.0	9743276	<1.0	1.0	0.20	9743276
Cation Sum	me/L	0.340	9743283	0.410	9743283	1.34	N/A	N/A	9743283
Hardness (CaCO3)	mg/L	9.0	9743280	11	9743280	52	1.0	1.0	9743280
Ion Balance (% Difference)	%	1.49	9743282	6.49	9743282	4.28	N/A	N/A	9743282
Langelier Index (@ 20C)	N/A	-3.69	9743286	-3.09	9743286	-0.898			9743286
Langelier Index (@ 4C)	N/A	-3.95	9743289	-3.34	9743289	-1.15			9743289
Nitrate (N)	mg/L	<0.050	9743284	<0.050	9743284	0.070	0.050	N/A	9743284
Saturation pH (@ 20C)	N/A	10.2	9743286	9.96	9743286	8.44			9743286
Saturation pH (@ 4C)	N/A	10.4	9743289	10.2	9743289	8.70			9743289
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	7.7	9748420	7.5	9748420	51	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	3.9	9748090	4.9	9748090	4.7	1.0	N/A	9748090
Colour	TCU	<5.0	9748134	<5.0	9748134	<5.0	5.0	N/A	9748134
Nitrate + Nitrite (N)	mg/L	<0.050	9748136	<0.050	9748136	0.070	0.050	N/A	9748136
Nitrite (N)	mg/L	<0.010	9748137	<0.010	9748137	<0.010	0.010	N/A	9748137
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	9751132	<0.050	9751132	<0.050	0.050	N/A	9751132
Total Organic Carbon (C)	mg/L	0.80	9749039	1.4	9749031	0.75	0.50	N/A	9749039
Orthophosphate (P)	mg/L	0.010	9748135	0.025	9748135	0.015	0.010	N/A	9748135
pH	pH	6.50	9748412	6.87	9748412	7.55			9748412
Reactive Silica (SiO2)	mg/L	11	9748133	9.5	9748133	12	0.50	N/A	9748133
Dissolved Sulphate (SO4)	mg/L	3.4	9748132	3.5	9748132	3.7	2.0	N/A	9748132
Turbidity	NTU	13	9751110	20	9751094	21	0.10	0.10	9751104
Conductivity	uS/cm	41	9748418	46	9748418	130	1.0	N/A	9748418

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI08				AHTI08			
Sampling Date		2024/10/31 11:08				2024/10/31 11:08			
COC Number		C#1015035-01-01				C#1015035-01-01			
	UNITS	MW5	RDL	MDL	QC Batch	MW5 Lab-Dup	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.270	N/A	N/A	9743283				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	4.1	1.0	0.20	9743276				
Calculated TDS	mg/L	23	1.0	0.20	9743290				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9743276				
Cation Sum	me/L	0.290	N/A	N/A	9743283				
Hardness (CaCO3)	mg/L	6.0	1.0	1.0	9743280				
Ion Balance (% Difference)	%	3.57	N/A	N/A	9743282				
Langelier Index (@ 20C)	N/A	-4.20			9743286				
Langelier Index (@ 4C)	N/A	-4.45			9743289				
Nitrate (N)	mg/L	<0.050	0.050	N/A	9743284				
Saturation pH (@ 20C)	N/A	10.6			9743286				
Saturation pH (@ 4C)	N/A	10.8			9743289				
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	4.1	2.0	N/A	9748433				
Dissolved Chloride (Cl-)	mg/L	4.4	1.0	N/A	9748090				
Colour	TCU	<5.0	5.0	N/A	9748134				
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9748136				
Nitrite (N)	mg/L	<0.010	0.010	N/A	9748137				
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9751132				
Total Organic Carbon (C)	mg/L	0.81	0.50	N/A	9749031	0.86	0.50	N/A	9749031
Orthophosphate (P)	mg/L	0.10	0.010	N/A	9748135				
pH	pH	6.39			9748423				
Reactive Silica (SiO2)	mg/L	6.4	0.50	N/A	9748133				
Dissolved Sulphate (SO4)	mg/L	2.9	2.0	N/A	9748132				
Turbidity	NTU	14	0.10	0.10	9751094				
Conductivity	uS/cm	36	1.0	N/A	9748427				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Bureau Veritas Job #: C4Y5693
Report Date: 2024/11/08

GHD Limited
Client Project #: 12584960
Your P.O. #: 735-009799

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI09				AHTI10			
Sampling Date		2024/10/31				2024/10/31 09:44			
COC Number		C#1015035-01-01				C#1015035-01-01			
	UNITS	MWDUP	RDL	MDL	QC Batch	MW9	RDL	MDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.280	N/A	N/A	9743283	0.480	N/A	N/A	9743283
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	4.8	1.0	0.20	9743276	12	1.0	0.20	9743276
Calculated TDS	mg/L	28	1.0	0.20	9743290	38	1.0	0.20	9743290
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9743276	<1.0	1.0	0.20	9743276
Cation Sum	me/L	0.410	N/A	N/A	9743283	0.510	N/A	N/A	9743283
Hardness (CaCO3)	mg/L	11	1.0	1.0	9743280	15	1.0	1.0	9743280
Ion Balance (% Difference)	%	18.8	N/A	N/A	9743282	3.03	N/A	N/A	9743282
Langelier Index (@ 20C)	N/A	-3.27			9743286	-2.55			9743286
Langelier Index (@ 4C)	N/A	-3.52			9743289	-2.80			9743289
Nitrate (N)	mg/L	<0.050	0.050	N/A	9743284	0.16	0.050	N/A	9743284
Saturation pH (@ 20C)	N/A	10.2			9743286	9.60			9743286
Saturation pH (@ 4C)	N/A	10.4			9743289	9.85			9743289
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	4.8	2.0	N/A	9748420	12	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	4.9	1.0	N/A	9748090	5.2	1.0	N/A	9748090
Colour	TCU	<5.0	5.0	N/A	9748134	<5.0	5.0	N/A	9748134
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9748136	0.16	0.050	N/A	9748136
Nitrite (N)	mg/L	<0.010	0.010	N/A	9748137	<0.010	0.010	N/A	9748137
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9751132	<0.050	0.050	N/A	9751132
Total Organic Carbon (C)	mg/L	1.2	0.50	N/A	9749039	<5.0 (1)	5.0	N/A	9749031
Orthophosphate (P)	mg/L	0.026	0.010	N/A	9748135	0.016	0.010	N/A	9748135
pH	pH	6.91			9748412	7.05			9748412
Reactive Silica (SiO2)	mg/L	9.3	0.50	N/A	9748133	10	0.50	N/A	9748133
Dissolved Sulphate (SO4)	mg/L	2.2	2.0	N/A	9748132	3.7	2.0	N/A	9748132
Turbidity	NTU	14	0.10	0.10	9751094	350	1.0	1.0	9751110
Conductivity	uS/cm	46	1.0	N/A	9748418	54	1.0	N/A	9748418

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		AHTI11			
Sampling Date		2024/10/31 10:10			
COC Number		C#1015035-01-01			
	UNITS	MW8	RDL	MDL	QC Batch
Calculated Parameters					
Anion Sum	me/L	1.02	N/A	N/A	9743283
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	41	1.0	0.20	9743276
Calculated TDS	mg/L	62	1.0	0.20	9743290
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	0.20	9743276
Cation Sum	me/L	1.02	N/A	N/A	9743283
Hardness (CaCO3)	mg/L	37	1.0	1.0	9743280
Ion Balance (% Difference)	%	0.00	N/A	N/A	9743282
Langelier Index (@ 20C)	N/A	-0.959			9743286
Langelier Index (@ 4C)	N/A	-1.21			9743289
Nitrate (N)	mg/L	<0.050	0.050	N/A	9743284
Saturation pH (@ 20C)	N/A	8.62			9743286
Saturation pH (@ 4C)	N/A	8.87			9743289
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L	41	2.0	N/A	9748420
Dissolved Chloride (Cl-)	mg/L	4.8	1.0	N/A	9748090
Colour	TCU	<5.0	5.0	N/A	9748134
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	N/A	9748136
Nitrite (N)	mg/L	<0.010	0.010	N/A	9748137
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	N/A	9751132
Total Organic Carbon (C)	mg/L	0.76	0.50	N/A	9749031
Orthophosphate (P)	mg/L	0.023	0.010	N/A	9748135
pH	pH	7.66			9748412
Reactive Silica (SiO2)	mg/L	8.8	0.50	N/A	9748133
Dissolved Sulphate (SO4)	mg/L	2.7	2.0	N/A	9748132
Turbidity	NTU	11	0.10	0.10	9751110
Conductivity	uS/cm	110	1.0	N/A	9748418

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ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		AHTH99		AHTI00		AHTI01			
Sampling Date		2024/10/31 12:56		2024/10/31 13:18		2024/10/31 13:52			
COC Number		C#1015035-01-01		C#1015035-01-01		C#1015035-01-01			
	UNITS	SW1	QC Batch	SW2	QC Batch	SW3	RDL	MDL	QC Batch
Metals									
Total Aluminum (Al)	ug/L	71	9745214	22	9751057	27	5.0	N/A	9745543
Total Antimony (Sb)	ug/L	<1.0	9745214	<1.0	9751057	<1.0	1.0	N/A	9745543
Total Arsenic (As)	ug/L	<1.0	9745214	<1.0	9751057	<1.0	1.0	N/A	9745543
Total Barium (Ba)	ug/L	8.2	9745214	5.7	9751057	3.9	1.0	N/A	9745543
Total Beryllium (Be)	ug/L	<0.10	9745214	<0.10	9751057	<0.10	0.10	N/A	9745543
Total Bismuth (Bi)	ug/L	<2.0	9745214	<2.0	9751057	<2.0	2.0	N/A	9745543
Total Boron (B)	ug/L	<50	9745214	<50	9751057	<50	50	N/A	9745543
Total Cadmium (Cd)	ug/L	0.011	9745214	<0.010	9751057	<0.010	0.010	N/A	9745543
Total Calcium (Ca)	ug/L	5800	9745214	7400	9751057	5900	100	N/A	9745543
Total Chromium (Cr)	ug/L	<1.0	9745214	<1.0	9751057	<1.0	1.0	N/A	9745543
Total Cobalt (Co)	ug/L	<0.40	9745214	<0.40	9751057	<0.40	0.40	N/A	9745543
Total Copper (Cu)	ug/L	<0.50	9745214	<0.50	9751057	<0.50	0.50	N/A	9745543
Total Iron (Fe)	ug/L	110	9745214	340	9751057	500	50	N/A	9745543
Total Lead (Pb)	ug/L	<0.50	9745214	<0.50	9751057	<0.50	0.50	N/A	9745543
Total Magnesium (Mg)	ug/L	2100	9745214	2400	9751057	1600	100	N/A	9745543
Total Manganese (Mn)	ug/L	4.9	9745214	90	9751057	62	2.0	N/A	9745543
Total Molybdenum (Mo)	ug/L	<2.0	9745214	<2.0	9751057	<2.0	2.0	N/A	9745543
Total Nickel (Ni)	ug/L	<2.0	9745214	<2.0	9751057	<2.0	2.0	N/A	9745543
Total Phosphorus (P)	ug/L	<100	9745214	<100	9751057	<100	100	N/A	9745543
Total Potassium (K)	ug/L	810	9745214	760	9751057	1200	100	N/A	9745543
Total Selenium (Se)	ug/L	<0.50	9745214	<0.50	9751057	<0.50	0.50	N/A	9745543
Total Silver (Ag)	ug/L	<0.10	9745214	<0.10	9751057	<0.10	0.10	N/A	9745543
Total Sodium (Na)	ug/L	5200	9745214	5700	9751057	4600	100	N/A	9745543
Total Strontium (Sr)	ug/L	35	9745214	40	9751057	25	2.0	N/A	9745543
Total Thallium (Tl)	ug/L	<0.10	9745214	<0.10	9751057	<0.10	0.10	N/A	9745543
Total Tin (Sn)	ug/L	<2.0	9745214	<2.0	9751057	<2.0	2.0	N/A	9745543
Total Titanium (Ti)	ug/L	2.1	9745214	<2.0	9751057	4.2	2.0	N/A	9745543
Total Uranium (U)	ug/L	<0.10	9745214	<0.10	9751057	<0.10	0.10	N/A	9745543
Total Vanadium (V)	ug/L	<2.0	9745214	<2.0	9751057	<2.0	2.0	N/A	9745543
Total Zinc (Zn)	ug/L	<5.0	9745214	<5.0	9751057	<5.0	5.0	N/A	9745543

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QC Batch = Quality Control Batch
N/A = Not Applicable

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ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		AHTI02		AHTI03			
Sampling Date		2024/10/31 14:33		2024/10/31			
COC Number		C#1015035-01-01		C#1015035-01-01			
	UNITS	SW4	QC Batch	SW DUP	RDL	MDL	QC Batch
Metals							
Total Aluminum (Al)	ug/L	20	9745214	21	5.0	N/A	9745543
Total Antimony (Sb)	ug/L	<1.0	9745214	<1.0	1.0	N/A	9745543
Total Arsenic (As)	ug/L	<1.0	9745214	<1.0	1.0	N/A	9745543
Total Barium (Ba)	ug/L	6.7	9745214	5.4	1.0	N/A	9745543
Total Beryllium (Be)	ug/L	<0.10	9745214	<0.10	0.10	N/A	9745543
Total Bismuth (Bi)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Boron (B)	ug/L	<50	9745214	<50	50	N/A	9745543
Total Cadmium (Cd)	ug/L	<0.010	9745214	<0.010	0.010	N/A	9745543
Total Calcium (Ca)	ug/L	8100	9745214	7300	100	N/A	9745543
Total Chromium (Cr)	ug/L	<1.0	9745214	<1.0	1.0	N/A	9745543
Total Cobalt (Co)	ug/L	<0.40	9745214	<0.40	0.40	N/A	9745543
Total Copper (Cu)	ug/L	<0.50	9745214	<0.50	0.50	N/A	9745543
Total Iron (Fe)	ug/L	250	9745214	300	50	N/A	9745543
Total Lead (Pb)	ug/L	<0.50	9745214	<0.50	0.50	N/A	9745543
Total Magnesium (Mg)	ug/L	2700	9745214	2300	100	N/A	9745543
Total Manganese (Mn)	ug/L	61	9745214	79	2.0	N/A	9745543
Total Molybdenum (Mo)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Nickel (Ni)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Phosphorus (P)	ug/L	<100	9745214	<100	100	N/A	9745543
Total Potassium (K)	ug/L	810	9745214	740	100	N/A	9745543
Total Selenium (Se)	ug/L	<0.50	9745214	<0.50	0.50	N/A	9745543
Total Silver (Ag)	ug/L	<0.10	9745214	<0.10	0.10	N/A	9745543
Total Sodium (Na)	ug/L	5700	9745214	5400	100	N/A	9745543
Total Strontium (Sr)	ug/L	42	9745214	39	2.0	N/A	9745543
Total Thallium (Tl)	ug/L	<0.10	9745214	<0.10	0.10	N/A	9745543
Total Tin (Sn)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Titanium (Ti)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Uranium (U)	ug/L	<0.10	9745214	<0.10	0.10	N/A	9745543
Total Vanadium (V)	ug/L	<2.0	9745214	<2.0	2.0	N/A	9745543
Total Zinc (Zn)	ug/L	<5.0	9745214	<5.0	5.0	N/A	9745543

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ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		AHTI04	AHTI05	AHTI06	AHTI07			
Sampling Date		2024/10/31 12:33	2024/10/31 12:16	2024/10/31 11:31	2024/10/31 10:38			
COC Number		C#1015035-01-01	C#1015035-01-01	C#1015035-01-01	C#1015035-01-01			
	UNITS	MW1	MW2	MW3	MW4	RDL	MDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	<5.0	18	<5.0	<5.0	5.0	N/A	9745551
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	N/A	9745551
Dissolved Arsenic (As)	ug/L	13	<1.0	<1.0	<1.0	1.0	N/A	9745551
Dissolved Barium (Ba)	ug/L	9.3	7.7	3.3	140	1.0	N/A	9745551
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	N/A	9745551
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9745551
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	50	N/A	9745551
Dissolved Cadmium (Cd)	ug/L	<0.010	0.018	0.022	0.017	0.010	N/A	9745551
Dissolved Calcium (Ca)	ug/L	12000	1600	2800	15000	100	N/A	9745551
Dissolved Chromium (Cr)	ug/L	1.3	<1.0	<1.0	<1.0	1.0	N/A	9745551
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	3.1	0.40	N/A	9745551
Dissolved Copper (Cu)	ug/L	<0.50	0.72	0.96	3.3	0.50	N/A	9745551
Dissolved Iron (Fe)	ug/L	<50	89	<50	<50	50	N/A	9745551
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	N/A	9745551
Dissolved Magnesium (Mg)	ug/L	1200	1200	970	3600	100	N/A	9745551
Dissolved Manganese (Mn)	ug/L	<2.0	32	3.5	160	2.0	N/A	9745551
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9745551
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	2.2	2.0	N/A	9745551
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	100	N/A	9745551
Dissolved Potassium (K)	ug/L	340	500	890	940	100	N/A	9745551
Dissolved Selenium (Se)	ug/L	0.52	<0.50	<0.50	<0.50	0.50	N/A	9745551
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	N/A	9745551
Dissolved Sodium (Na)	ug/L	11000	3300	3800	6200	100	N/A	9745551
Dissolved Strontium (Sr)	ug/L	23	10	14	91	2.0	N/A	9745551
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	N/A	9745551
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9745551
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9745551
Dissolved Uranium (U)	ug/L	1.0	<0.10	<0.10	<0.10	0.10	N/A	9745551
Dissolved Vanadium (V)	ug/L	16	<2.0	<2.0	<2.0	2.0	N/A	9745551
Dissolved Zinc (Zn)	ug/L	<5.0	6.7	<5.0	12	5.0	N/A	9745551

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N/A = Not Applicable

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ELEMENTS BY ICP/MS (GROUND WATER)

Bureau Veritas ID		AHTI08	AHTI09	AHTI10	AHTI11			
Sampling Date		2024/10/31 11:08	2024/10/31	2024/10/31 09:44	2024/10/31 10:10			
COC Number		C#1015035-01-01	C#1015035-01-01	C#1015035-01-01	C#1015035-01-01			
	UNITS	MW5	MWDUP	MW9	MW8	RDL	MDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	11	<5.0	<5.0	<5.0	5.0	N/A	9748292
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	N/A	9748292
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	1.1	1.0	N/A	9748292
Dissolved Barium (Ba)	ug/L	11	3.3	4.3	6.9	1.0	N/A	9748292
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	N/A	9748292
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9748292
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	50	N/A	9748292
Dissolved Cadmium (Cd)	ug/L	0.012	0.032	<0.010	<0.010	0.010	N/A	9748292
Dissolved Calcium (Ca)	ug/L	1200	2700	4200	12000	100	N/A	9748292
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	N/A	9748292
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	N/A	9748292
Dissolved Copper (Cu)	ug/L	2.6	1.1	<0.50	<0.50	0.50	N/A	9748292
Dissolved Iron (Fe)	ug/L	<50	<50	<50	<50	50	N/A	9748292
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	N/A	9748292
Dissolved Magnesium (Mg)	ug/L	750	950	1200	1600	100	N/A	9748292
Dissolved Manganese (Mn)	ug/L	3.2	4.2	<2.0	71	2.0	N/A	9748292
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	9.8	2.0	N/A	9748292
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9748292
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	100	N/A	9748292
Dissolved Potassium (K)	ug/L	660	920	720	1600	100	N/A	9748292
Dissolved Selenium (Se)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	N/A	9748292
Dissolved Silver (Ag)	ug/L	0.15	<0.10	<0.10	<0.10	0.10	N/A	9748292
Dissolved Sodium (Na)	ug/L	3600	3900	4400	5700	100	N/A	9748292
Dissolved Strontium (Sr)	ug/L	7.0	15	20	58	2.0	N/A	9748292
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	N/A	9748292
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9748292
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9748292
Dissolved Uranium (U)	ug/L	<0.10	<0.10	<0.10	0.44	0.10	N/A	9748292
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	N/A	9748292
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	6.8	<5.0	5.0	N/A	9748292

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N/A = Not Applicable

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C
Package 2	2.3°C

Sample AHTH99 [SW1] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI01 [SW3] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI02 [SW4] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI03 [SW DUP] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI04 [MW1] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI05 [MW2] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample AHTI06 [MW3] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI07 [MW4] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample AHTI08 [MW5] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample AHTI09 [MWDUP] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent. RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AHTI10 [MW9] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample AHTI11 [MW8] : ortho-Phosphate > Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9745214	MTZ	Matrix Spike	Total Aluminum (Al)	2024/11/05		101	%	80 - 120
			Total Antimony (Sb)	2024/11/05		100	%	80 - 120
			Total Arsenic (As)	2024/11/05		100	%	80 - 120
			Total Barium (Ba)	2024/11/05		94	%	80 - 120
			Total Beryllium (Be)	2024/11/05		94	%	80 - 120
			Total Bismuth (Bi)	2024/11/05		99	%	80 - 120
			Total Boron (B)	2024/11/05		93	%	80 - 120
			Total Cadmium (Cd)	2024/11/05		95	%	80 - 120
			Total Calcium (Ca)	2024/11/05		102	%	80 - 120
			Total Chromium (Cr)	2024/11/05		94	%	80 - 120
			Total Cobalt (Co)	2024/11/05		96	%	80 - 120
			Total Copper (Cu)	2024/11/05		95	%	80 - 120
			Total Iron (Fe)	2024/11/05		105	%	80 - 120
			Total Lead (Pb)	2024/11/05		NC	%	80 - 120
			Total Magnesium (Mg)	2024/11/05		110	%	80 - 120
			Total Manganese (Mn)	2024/11/05		100	%	80 - 120
			Total Molybdenum (Mo)	2024/11/05		101	%	80 - 120
			Total Nickel (Ni)	2024/11/05		100	%	80 - 120
			Total Phosphorus (P)	2024/11/05		108	%	80 - 120
			Total Potassium (K)	2024/11/05		98	%	80 - 120
			Total Selenium (Se)	2024/11/05		103	%	80 - 120
			Total Silver (Ag)	2024/11/05		99	%	80 - 120
			Total Sodium (Na)	2024/11/05		105	%	80 - 120
			Total Strontium (Sr)	2024/11/05		101	%	80 - 120
			Total Thallium (Tl)	2024/11/05		102	%	80 - 120
			Total Tin (Sn)	2024/11/05		103	%	80 - 120
			Total Titanium (Ti)	2024/11/05		94	%	80 - 120
			Total Uranium (U)	2024/11/05		101	%	80 - 120
			Total Vanadium (V)	2024/11/05		101	%	80 - 120
			Total Zinc (Zn)	2024/11/05		96	%	80 - 120
9745214	MTZ	Spiked Blank	Total Aluminum (Al)	2024/11/05		103	%	80 - 120
			Total Antimony (Sb)	2024/11/05		102	%	80 - 120
			Total Arsenic (As)	2024/11/05		100	%	80 - 120
			Total Barium (Ba)	2024/11/05		97	%	80 - 120
			Total Beryllium (Be)	2024/11/05		97	%	80 - 120
			Total Bismuth (Bi)	2024/11/05		104	%	80 - 120
			Total Boron (B)	2024/11/05		96	%	80 - 120
			Total Cadmium (Cd)	2024/11/05		95	%	80 - 120
			Total Calcium (Ca)	2024/11/05		102	%	80 - 120
			Total Chromium (Cr)	2024/11/05		96	%	80 - 120
			Total Cobalt (Co)	2024/11/05		96	%	80 - 120
			Total Copper (Cu)	2024/11/05		98	%	80 - 120
			Total Iron (Fe)	2024/11/05		107	%	80 - 120
			Total Lead (Pb)	2024/11/05		98	%	80 - 120
			Total Magnesium (Mg)	2024/11/05		111	%	80 - 120
			Total Manganese (Mn)	2024/11/05		102	%	80 - 120
			Total Molybdenum (Mo)	2024/11/05		102	%	80 - 120
			Total Nickel (Ni)	2024/11/05		102	%	80 - 120
			Total Phosphorus (P)	2024/11/05		108	%	80 - 120
			Total Potassium (K)	2024/11/05		98	%	80 - 120
			Total Selenium (Se)	2024/11/05		101	%	80 - 120
			Total Silver (Ag)	2024/11/05		97	%	80 - 120
			Total Sodium (Na)	2024/11/05		106	%	80 - 120
			Total Strontium (Sr)	2024/11/05		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Thallium (Tl)	2024/11/05		104	%	80 - 120
			Total Tin (Sn)	2024/11/05		103	%	80 - 120
			Total Titanium (Ti)	2024/11/05		99	%	80 - 120
			Total Uranium (U)	2024/11/05		104	%	80 - 120
			Total Vanadium (V)	2024/11/05		103	%	80 - 120
			Total Zinc (Zn)	2024/11/05		100	%	80 - 120
9745214	MTZ	Method Blank	Total Aluminum (Al)	2024/11/05	<5.0		ug/L	
			Total Antimony (Sb)	2024/11/05	<1.0		ug/L	
			Total Arsenic (As)	2024/11/05	<1.0		ug/L	
			Total Barium (Ba)	2024/11/05	<1.0		ug/L	
			Total Beryllium (Be)	2024/11/05	<0.10		ug/L	
			Total Bismuth (Bi)	2024/11/05	<2.0		ug/L	
			Total Boron (B)	2024/11/05	<50		ug/L	
			Total Cadmium (Cd)	2024/11/05	<0.010		ug/L	
			Total Calcium (Ca)	2024/11/05	<100		ug/L	
			Total Chromium (Cr)	2024/11/05	<1.0		ug/L	
			Total Cobalt (Co)	2024/11/05	<0.40		ug/L	
			Total Copper (Cu)	2024/11/05	<0.50		ug/L	
			Total Iron (Fe)	2024/11/05	<50		ug/L	
			Total Lead (Pb)	2024/11/05	<0.50		ug/L	
			Total Magnesium (Mg)	2024/11/05	<100		ug/L	
			Total Manganese (Mn)	2024/11/05	<2.0		ug/L	
			Total Molybdenum (Mo)	2024/11/05	<2.0		ug/L	
			Total Nickel (Ni)	2024/11/05	<2.0		ug/L	
			Total Phosphorus (P)	2024/11/05	<100		ug/L	
			Total Potassium (K)	2024/11/05	<100		ug/L	
			Total Selenium (Se)	2024/11/05	<0.50		ug/L	
			Total Silver (Ag)	2024/11/05	<0.10		ug/L	
			Total Sodium (Na)	2024/11/05	<100		ug/L	
			Total Strontium (Sr)	2024/11/05	<2.0		ug/L	
			Total Thallium (Tl)	2024/11/05	<0.10		ug/L	
			Total Tin (Sn)	2024/11/05	<2.0		ug/L	
			Total Titanium (Ti)	2024/11/05	<2.0		ug/L	
			Total Uranium (U)	2024/11/05	<0.10		ug/L	
			Total Vanadium (V)	2024/11/05	<2.0		ug/L	
			Total Zinc (Zn)	2024/11/05	<5.0		ug/L	
9745214	MTZ	RPD	Total Lead (Pb)	2024/11/05	0.21		%	20
9745543	MTZ	Matrix Spike	Total Aluminum (Al)	2024/11/05		NC	%	80 - 120
			Total Antimony (Sb)	2024/11/05		104	%	80 - 120
			Total Arsenic (As)	2024/11/05		100	%	80 - 120
			Total Barium (Ba)	2024/11/05		98	%	80 - 120
			Total Beryllium (Be)	2024/11/05		93	%	80 - 120
			Total Bismuth (Bi)	2024/11/05		100	%	80 - 120
			Total Boron (B)	2024/11/05		95	%	80 - 120
			Total Cadmium (Cd)	2024/11/05		100	%	80 - 120
			Total Calcium (Ca)	2024/11/05		101	%	80 - 120
			Total Chromium (Cr)	2024/11/05		118	%	80 - 120
			Total Cobalt (Co)	2024/11/05		99	%	80 - 120
			Total Copper (Cu)	2024/11/05		100	%	80 - 120
			Total Iron (Fe)	2024/11/05		NC	%	80 - 120
			Total Lead (Pb)	2024/11/05		97	%	80 - 120
			Total Magnesium (Mg)	2024/11/05		122 (1)	%	80 - 120
			Total Manganese (Mn)	2024/11/05		127 (1)	%	80 - 120
			Total Molybdenum (Mo)	2024/11/05		109	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Nickel (Ni)	2024/11/05		103	%	80 - 120
			Total Phosphorus (P)	2024/11/05		105	%	80 - 120
			Total Potassium (K)	2024/11/05		101	%	80 - 120
			Total Selenium (Se)	2024/11/05		100	%	80 - 120
			Total Silver (Ag)	2024/11/05		99	%	80 - 120
			Total Sodium (Na)	2024/11/05		NC	%	80 - 120
			Total Strontium (Sr)	2024/11/05		101	%	80 - 120
			Total Thallium (Tl)	2024/11/05		100	%	80 - 120
			Total Tin (Sn)	2024/11/05		111	%	80 - 120
			Total Titanium (Ti)	2024/11/05		133 (1)	%	80 - 120
			Total Uranium (U)	2024/11/05		107	%	80 - 120
			Total Vanadium (V)	2024/11/05		106	%	80 - 120
			Total Zinc (Zn)	2024/11/05		101	%	80 - 120
9745543	MTZ	Spiked Blank	Total Aluminum (Al)	2024/11/05		102	%	80 - 120
			Total Antimony (Sb)	2024/11/05		101	%	80 - 120
			Total Arsenic (As)	2024/11/05		99	%	80 - 120
			Total Barium (Ba)	2024/11/05		97	%	80 - 120
			Total Beryllium (Be)	2024/11/05		93	%	80 - 120
			Total Bismuth (Bi)	2024/11/05		100	%	80 - 120
			Total Boron (B)	2024/11/05		94	%	80 - 120
			Total Cadmium (Cd)	2024/11/05		101	%	80 - 120
			Total Calcium (Ca)	2024/11/05		101	%	80 - 120
			Total Chromium (Cr)	2024/11/05		98	%	80 - 120
			Total Cobalt (Co)	2024/11/05		100	%	80 - 120
			Total Copper (Cu)	2024/11/05		100	%	80 - 120
			Total Iron (Fe)	2024/11/05		105	%	80 - 120
			Total Lead (Pb)	2024/11/05		98	%	80 - 120
			Total Magnesium (Mg)	2024/11/05		107	%	80 - 120
			Total Manganese (Mn)	2024/11/05		99	%	80 - 120
			Total Molybdenum (Mo)	2024/11/05		103	%	80 - 120
			Total Nickel (Ni)	2024/11/05		101	%	80 - 120
			Total Phosphorus (P)	2024/11/05		105	%	80 - 120
			Total Potassium (K)	2024/11/05		101	%	80 - 120
			Total Selenium (Se)	2024/11/05		100	%	80 - 120
			Total Silver (Ag)	2024/11/05		100	%	80 - 120
			Total Sodium (Na)	2024/11/05		101	%	80 - 120
			Total Strontium (Sr)	2024/11/05		101	%	80 - 120
			Total Thallium (Tl)	2024/11/05		100	%	80 - 120
			Total Tin (Sn)	2024/11/05		102	%	80 - 120
			Total Titanium (Ti)	2024/11/05		97	%	80 - 120
			Total Uranium (U)	2024/11/05		107	%	80 - 120
			Total Vanadium (V)	2024/11/05		101	%	80 - 120
			Total Zinc (Zn)	2024/11/05		100	%	80 - 120
9745543	MTZ	Method Blank	Total Aluminum (Al)	2024/11/05	<5.0		ug/L	
			Total Antimony (Sb)	2024/11/05	<1.0		ug/L	
			Total Arsenic (As)	2024/11/05	<1.0		ug/L	
			Total Barium (Ba)	2024/11/05	<1.0		ug/L	
			Total Beryllium (Be)	2024/11/05	<0.10		ug/L	
			Total Bismuth (Bi)	2024/11/05	<2.0		ug/L	
			Total Boron (B)	2024/11/05	<50		ug/L	
			Total Cadmium (Cd)	2024/11/05	<0.010		ug/L	
			Total Calcium (Ca)	2024/11/05	<100		ug/L	
			Total Chromium (Cr)	2024/11/05	<1.0		ug/L	
			Total Cobalt (Co)	2024/11/05	<0.40		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Copper (Cu)	2024/11/05	<0.50		ug/L	
			Total Iron (Fe)	2024/11/05	<50		ug/L	
			Total Lead (Pb)	2024/11/05	<0.50		ug/L	
			Total Magnesium (Mg)	2024/11/05	<100		ug/L	
			Total Manganese (Mn)	2024/11/05	<2.0		ug/L	
			Total Molybdenum (Mo)	2024/11/05	<2.0		ug/L	
			Total Nickel (Ni)	2024/11/05	<2.0		ug/L	
			Total Phosphorus (P)	2024/11/05	<100		ug/L	
			Total Potassium (K)	2024/11/05	<100		ug/L	
			Total Selenium (Se)	2024/11/05	<0.50		ug/L	
			Total Silver (Ag)	2024/11/05	<0.10		ug/L	
			Total Sodium (Na)	2024/11/05	<100		ug/L	
			Total Strontium (Sr)	2024/11/05	<2.0		ug/L	
			Total Thallium (Tl)	2024/11/05	<0.10		ug/L	
			Total Tin (Sn)	2024/11/05	<2.0		ug/L	
			Total Titanium (Ti)	2024/11/05	<2.0		ug/L	
			Total Uranium (U)	2024/11/05	<0.10		ug/L	
			Total Vanadium (V)	2024/11/05	<2.0		ug/L	
			Total Zinc (Zn)	2024/11/05	<5.0		ug/L	
9745543	MTZ	RPD	Total Antimony (Sb)	2024/11/06	NC		%	20
			Total Arsenic (As)	2024/11/06	NC		%	20
			Total Barium (Ba)	2024/11/06	4.0		%	20
			Total Beryllium (Be)	2024/11/06	NC		%	20
			Total Bismuth (Bi)	2024/11/06	NC		%	20
			Total Boron (B)	2024/11/06	NC		%	20
			Total Cadmium (Cd)	2024/11/06	NC		%	20
			Total Calcium (Ca)	2024/11/06	0.96		%	20
			Total Chromium (Cr)	2024/11/06	NC		%	20
			Total Cobalt (Co)	2024/11/06	NC		%	20
			Total Copper (Cu)	2024/11/06	NC		%	20
			Total Lead (Pb)	2024/11/06	0.15		%	20
			Total Magnesium (Mg)	2024/11/06	3.7		%	20
			Total Manganese (Mn)	2024/11/06	2.2		%	20
			Total Molybdenum (Mo)	2024/11/06	2.4		%	20
			Total Nickel (Ni)	2024/11/06	NC		%	20
			Total Phosphorus (P)	2024/11/06	NC		%	20
			Total Potassium (K)	2024/11/06	2.1		%	20
			Total Selenium (Se)	2024/11/06	4.5		%	20
			Total Silver (Ag)	2024/11/06	NC		%	20
			Total Sodium (Na)	2024/11/06	1.6		%	20
			Total Strontium (Sr)	2024/11/06	4.0		%	20
			Total Thallium (Tl)	2024/11/06	NC		%	20
			Total Tin (Sn)	2024/11/06	NC		%	20
			Total Uranium (U)	2024/11/06	5.0		%	20
			Total Vanadium (V)	2024/11/06	NC		%	20
			Total Zinc (Zn)	2024/11/06	0.51		%	20
9745551	MTZ	Matrix Spike	Dissolved Aluminum (Al)	2024/11/05		106	%	80 - 120
			Dissolved Antimony (Sb)	2024/11/05		98	%	80 - 120
			Dissolved Arsenic (As)	2024/11/05		101	%	80 - 120
			Dissolved Barium (Ba)	2024/11/05		98	%	80 - 120
			Dissolved Beryllium (Be)	2024/11/05		101	%	80 - 120
			Dissolved Bismuth (Bi)	2024/11/05		97	%	80 - 120
			Dissolved Boron (B)	2024/11/05		95	%	80 - 120
			Dissolved Cadmium (Cd)	2024/11/05		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Calcium (Ca)	2024/11/05		NC	%	80 - 120
			Dissolved Chromium (Cr)	2024/11/05		95	%	80 - 120
			Dissolved Cobalt (Co)	2024/11/05		96	%	80 - 120
			Dissolved Copper (Cu)	2024/11/05		95	%	80 - 120
			Dissolved Iron (Fe)	2024/11/05		105	%	80 - 120
			Dissolved Lead (Pb)	2024/11/05		98	%	80 - 120
			Dissolved Magnesium (Mg)	2024/11/05		108	%	80 - 120
			Dissolved Manganese (Mn)	2024/11/05		96	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/11/05		100	%	80 - 120
			Dissolved Nickel (Ni)	2024/11/05		99	%	80 - 120
			Dissolved Phosphorus (P)	2024/11/05		110	%	80 - 120
			Dissolved Potassium (K)	2024/11/05		99	%	80 - 120
			Dissolved Selenium (Se)	2024/11/05		102	%	80 - 120
			Dissolved Silver (Ag)	2024/11/05		88	%	80 - 120
			Dissolved Sodium (Na)	2024/11/05		100	%	80 - 120
			Dissolved Strontium (Sr)	2024/11/05		NC	%	80 - 120
			Dissolved Thallium (Tl)	2024/11/05		100	%	80 - 120
			Dissolved Tin (Sn)	2024/11/05		101	%	80 - 120
			Dissolved Titanium (Ti)	2024/11/05		92	%	80 - 120
			Dissolved Uranium (U)	2024/11/05		108	%	80 - 120
			Dissolved Vanadium (V)	2024/11/05		100	%	80 - 120
			Dissolved Zinc (Zn)	2024/11/05		97	%	80 - 120
9745551	MTZ	Spiked Blank	Dissolved Aluminum (Al)	2024/11/05		104	%	80 - 120
			Dissolved Antimony (Sb)	2024/11/05		98	%	80 - 120
			Dissolved Arsenic (As)	2024/11/05		101	%	80 - 120
			Dissolved Barium (Ba)	2024/11/05		96	%	80 - 120
			Dissolved Beryllium (Be)	2024/11/05		99	%	80 - 120
			Dissolved Bismuth (Bi)	2024/11/05		101	%	80 - 120
			Dissolved Boron (B)	2024/11/05		94	%	80 - 120
			Dissolved Cadmium (Cd)	2024/11/05		97	%	80 - 120
			Dissolved Calcium (Ca)	2024/11/05		102	%	80 - 120
			Dissolved Chromium (Cr)	2024/11/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2024/11/05		97	%	80 - 120
			Dissolved Copper (Cu)	2024/11/05		98	%	80 - 120
			Dissolved Iron (Fe)	2024/11/05		107	%	80 - 120
			Dissolved Lead (Pb)	2024/11/05		97	%	80 - 120
			Dissolved Magnesium (Mg)	2024/11/05		110	%	80 - 120
			Dissolved Manganese (Mn)	2024/11/05		102	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/11/05		99	%	80 - 120
			Dissolved Nickel (Ni)	2024/11/05		101	%	80 - 120
			Dissolved Phosphorus (P)	2024/11/05		109	%	80 - 120
			Dissolved Potassium (K)	2024/11/05		100	%	80 - 120
			Dissolved Selenium (Se)	2024/11/05		101	%	80 - 120
			Dissolved Silver (Ag)	2024/11/05		98	%	80 - 120
			Dissolved Sodium (Na)	2024/11/05		106	%	80 - 120
			Dissolved Strontium (Sr)	2024/11/05		99	%	80 - 120
			Dissolved Thallium (Tl)	2024/11/05		99	%	80 - 120
			Dissolved Tin (Sn)	2024/11/05		96	%	80 - 120
			Dissolved Titanium (Ti)	2024/11/05		102	%	80 - 120
			Dissolved Uranium (U)	2024/11/05		106	%	80 - 120
			Dissolved Vanadium (V)	2024/11/05		101	%	80 - 120
			Dissolved Zinc (Zn)	2024/11/05		101	%	80 - 120
9745551	MTZ	Method Blank	Dissolved Aluminum (Al)	2024/11/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/11/05	<1.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Arsenic (As)	2024/11/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/11/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/11/05	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2024/11/05	<2.0		ug/L	
			Dissolved Boron (B)	2024/11/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/11/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/11/05	<100		ug/L	
			Dissolved Chromium (Cr)	2024/11/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/11/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/11/05	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/11/05	<50		ug/L	
			Dissolved Lead (Pb)	2024/11/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2024/11/05	<100		ug/L	
			Dissolved Manganese (Mn)	2024/11/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/11/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/11/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/11/05	<100		ug/L	
			Dissolved Potassium (K)	2024/11/05	<100		ug/L	
			Dissolved Selenium (Se)	2024/11/05	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/11/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/11/05	<100		ug/L	
			Dissolved Strontium (Sr)	2024/11/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/11/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/11/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/11/05	<2.0		ug/L	
			Dissolved Uranium (U)	2024/11/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/11/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/11/05	<5.0		ug/L	
9745551	MTZ	RPD	Dissolved Aluminum (Al)	2024/11/05	NC		%	20
			Dissolved Antimony (Sb)	2024/11/05	NC		%	20
			Dissolved Arsenic (As)	2024/11/05	NC		%	20
			Dissolved Barium (Ba)	2024/11/05	10		%	20
			Dissolved Beryllium (Be)	2024/11/05	NC		%	20
			Dissolved Bismuth (Bi)	2024/11/05	NC		%	20
			Dissolved Boron (B)	2024/11/05	NC		%	20
			Dissolved Cadmium (Cd)	2024/11/05	NC		%	20
			Dissolved Calcium (Ca)	2024/11/05	1.8		%	20
			Dissolved Chromium (Cr)	2024/11/05	NC		%	20
			Dissolved Cobalt (Co)	2024/11/05	NC		%	20
			Dissolved Copper (Cu)	2024/11/05	NC		%	20
			Dissolved Iron (Fe)	2024/11/05	1.7		%	20
			Dissolved Lead (Pb)	2024/11/05	NC		%	20
			Dissolved Magnesium (Mg)	2024/11/05	2.0		%	20
			Dissolved Manganese (Mn)	2024/11/05	1.2		%	20
			Dissolved Molybdenum (Mo)	2024/11/05	4.6		%	20
			Dissolved Nickel (Ni)	2024/11/05	NC		%	20
			Dissolved Phosphorus (P)	2024/11/05	NC		%	20
			Dissolved Potassium (K)	2024/11/05	3.4		%	20
			Dissolved Selenium (Se)	2024/11/05	NC		%	20
			Dissolved Silver (Ag)	2024/11/05	NC		%	20
			Dissolved Sodium (Na)	2024/11/05	1.5		%	20
			Dissolved Strontium (Sr)	2024/11/05	1.8		%	20
			Dissolved Thallium (Tl)	2024/11/05	NC		%	20
			Dissolved Tin (Sn)	2024/11/05	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Titanium (Ti)	2024/11/05	NC		%	20
			Dissolved Uranium (U)	2024/11/05	0.93		%	20
			Dissolved Vanadium (V)	2024/11/05	NC		%	20
			Dissolved Zinc (Zn)	2024/11/05	NC		%	20
9746030	DME	QC Standard	Total Suspended Solids	2024/11/06		99	%	80 - 120
9746030	DME	Method Blank	Total Suspended Solids	2024/11/06	<1.0		mg/L	
9746030	DME	RPD	Total Suspended Solids	2024/11/06	4.0		%	20
9748090	EMT	Matrix Spike	Dissolved Chloride (Cl-)	2024/11/06		NC	%	80 - 120
9748090	EMT	Spiked Blank	Dissolved Chloride (Cl-)	2024/11/06		91	%	80 - 120
9748090	EMT	Method Blank	Dissolved Chloride (Cl-)	2024/11/06	<1.0		mg/L	
9748090	EMT	RPD	Dissolved Chloride (Cl-)	2024/11/06	0.024		%	20
9748132	EMT	Matrix Spike	Dissolved Sulphate (SO4)	2024/11/06		93	%	80 - 120
9748132	EMT	Spiked Blank	Dissolved Sulphate (SO4)	2024/11/06		95	%	80 - 120
9748132	EMT	Method Blank	Dissolved Sulphate (SO4)	2024/11/06	<2.0		mg/L	
9748132	EMT	RPD	Dissolved Sulphate (SO4)	2024/11/06	NC		%	20
9748133	EMT	Matrix Spike	Reactive Silica (SiO2)	2024/11/06		NC	%	80 - 120
9748133	EMT	Spiked Blank	Reactive Silica (SiO2)	2024/11/06		89	%	80 - 120
9748133	EMT	Method Blank	Reactive Silica (SiO2)	2024/11/06	<0.50		mg/L	
9748133	EMT	RPD	Reactive Silica (SiO2)	2024/11/06	0.76		%	20
9748134	EMT	Spiked Blank	Colour	2024/11/06		97	%	80 - 120
9748134	EMT	Method Blank	Colour	2024/11/06	<5.0		TCU	
9748134	EMT	RPD	Colour	2024/11/06	1.9		%	20
9748135	EMT	Matrix Spike	Orthophosphate (P)	2024/11/06		85	%	80 - 120
9748135	EMT	Spiked Blank	Orthophosphate (P)	2024/11/06		96	%	80 - 120
9748135	EMT	Method Blank	Orthophosphate (P)	2024/11/06	<0.010		mg/L	
9748135	EMT	RPD	Orthophosphate (P)	2024/11/06	NC		%	20
9748136	EMT	Matrix Spike	Nitrate + Nitrite (N)	2024/11/06		89	%	80 - 120
9748136	EMT	Spiked Blank	Nitrate + Nitrite (N)	2024/11/06		97	%	80 - 120
9748136	EMT	Method Blank	Nitrate + Nitrite (N)	2024/11/06	<0.050		mg/L	
9748136	EMT	RPD	Nitrate + Nitrite (N)	2024/11/06	NC		%	20
9748137	EMT	Matrix Spike	Nitrite (N)	2024/11/06		101	%	80 - 120
9748137	EMT	Spiked Blank	Nitrite (N)	2024/11/06		98	%	80 - 120
9748137	EMT	Method Blank	Nitrite (N)	2024/11/06	<0.010		mg/L	
9748137	EMT	RPD	Nitrite (N)	2024/11/06	NC		%	20
9748292	MTZ	Matrix Spike	Dissolved Aluminum (Al)	2024/11/06		103	%	80 - 120
			Dissolved Antimony (Sb)	2024/11/06		102	%	80 - 120
			Dissolved Arsenic (As)	2024/11/06		101	%	80 - 120
			Dissolved Barium (Ba)	2024/11/06		97	%	80 - 120
			Dissolved Beryllium (Be)	2024/11/06		104	%	80 - 120
			Dissolved Bismuth (Bi)	2024/11/06		97	%	80 - 120
			Dissolved Boron (B)	2024/11/06		103	%	80 - 120
			Dissolved Cadmium (Cd)	2024/11/06		106	%	80 - 120
			Dissolved Calcium (Ca)	2024/11/06		NC	%	80 - 120
			Dissolved Chromium (Cr)	2024/11/06		100	%	80 - 120
			Dissolved Cobalt (Co)	2024/11/06		95	%	80 - 120
			Dissolved Copper (Cu)	2024/11/06		93	%	80 - 120
			Dissolved Iron (Fe)	2024/11/06		101	%	80 - 120
			Dissolved Lead (Pb)	2024/11/06		97	%	80 - 120
			Dissolved Magnesium (Mg)	2024/11/06		NC	%	80 - 120
			Dissolved Manganese (Mn)	2024/11/06		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/11/06		107	%	80 - 120
			Dissolved Nickel (Ni)	2024/11/06		97	%	80 - 120
			Dissolved Phosphorus (P)	2024/11/06		107	%	80 - 120
			Dissolved Potassium (K)	2024/11/06		103	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Selenium (Se)	2024/11/06		102	%	80 - 120
			Dissolved Silver (Ag)	2024/11/06		100	%	80 - 120
			Dissolved Sodium (Na)	2024/11/06		NC	%	80 - 120
			Dissolved Strontium (Sr)	2024/11/06		NC	%	80 - 120
			Dissolved Thallium (Tl)	2024/11/06		99	%	80 - 120
			Dissolved Tin (Sn)	2024/11/06		103	%	80 - 120
			Dissolved Titanium (Ti)	2024/11/06		101	%	80 - 120
			Dissolved Uranium (U)	2024/11/06		107	%	80 - 120
			Dissolved Vanadium (V)	2024/11/06		104	%	80 - 120
			Dissolved Zinc (Zn)	2024/11/06		97	%	80 - 120
9748292	MTZ	Spiked Blank	Dissolved Aluminum (Al)	2024/11/06		105	%	80 - 120
			Dissolved Antimony (Sb)	2024/11/06		97	%	80 - 120
			Dissolved Arsenic (As)	2024/11/06		100	%	80 - 120
			Dissolved Barium (Ba)	2024/11/06		98	%	80 - 120
			Dissolved Beryllium (Be)	2024/11/06		101	%	80 - 120
			Dissolved Bismuth (Bi)	2024/11/06		99	%	80 - 120
			Dissolved Boron (B)	2024/11/06		101	%	80 - 120
			Dissolved Cadmium (Cd)	2024/11/06		105	%	80 - 120
			Dissolved Calcium (Ca)	2024/11/06		105	%	80 - 120
			Dissolved Chromium (Cr)	2024/11/06		101	%	80 - 120
			Dissolved Cobalt (Co)	2024/11/06		100	%	80 - 120
			Dissolved Copper (Cu)	2024/11/06		99	%	80 - 120
			Dissolved Iron (Fe)	2024/11/06		102	%	80 - 120
			Dissolved Lead (Pb)	2024/11/06		99	%	80 - 120
			Dissolved Magnesium (Mg)	2024/11/06		108	%	80 - 120
			Dissolved Manganese (Mn)	2024/11/06		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/11/06		102	%	80 - 120
			Dissolved Nickel (Ni)	2024/11/06		101	%	80 - 120
			Dissolved Phosphorus (P)	2024/11/06		106	%	80 - 120
			Dissolved Potassium (K)	2024/11/06		102	%	80 - 120
			Dissolved Selenium (Se)	2024/11/06		101	%	80 - 120
			Dissolved Silver (Ag)	2024/11/06		98	%	80 - 120
			Dissolved Sodium (Na)	2024/11/06		103	%	80 - 120
			Dissolved Strontium (Sr)	2024/11/06		101	%	80 - 120
			Dissolved Thallium (Tl)	2024/11/06		99	%	80 - 120
			Dissolved Tin (Sn)	2024/11/06		101	%	80 - 120
			Dissolved Titanium (Ti)	2024/11/06		101	%	80 - 120
			Dissolved Uranium (U)	2024/11/06		104	%	80 - 120
			Dissolved Vanadium (V)	2024/11/06		103	%	80 - 120
			Dissolved Zinc (Zn)	2024/11/06		101	%	80 - 120
9748292	MTZ	Method Blank	Dissolved Aluminum (Al)	2024/11/06	<5.0		ug/L	
			Dissolved Antimony (Sb)	2024/11/06	<1.0		ug/L	
			Dissolved Arsenic (As)	2024/11/06	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/11/06	<1.0		ug/L	
			Dissolved Beryllium (Be)	2024/11/06	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2024/11/06	<2.0		ug/L	
			Dissolved Boron (B)	2024/11/06	<50		ug/L	
			Dissolved Cadmium (Cd)	2024/11/06	<0.010		ug/L	
			Dissolved Calcium (Ca)	2024/11/06	<100		ug/L	
			Dissolved Chromium (Cr)	2024/11/06	<1.0		ug/L	
			Dissolved Cobalt (Co)	2024/11/06	<0.40		ug/L	
			Dissolved Copper (Cu)	2024/11/06	<0.50		ug/L	
			Dissolved Iron (Fe)	2024/11/06	<50		ug/L	
			Dissolved Lead (Pb)	2024/11/06	<0.50		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Magnesium (Mg)	2024/11/06	<100		ug/L	
			Dissolved Manganese (Mn)	2024/11/06	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2024/11/06	<2.0		ug/L	
			Dissolved Nickel (Ni)	2024/11/06	<2.0		ug/L	
			Dissolved Phosphorus (P)	2024/11/06	<100		ug/L	
			Dissolved Potassium (K)	2024/11/06	<100		ug/L	
			Dissolved Selenium (Se)	2024/11/06	<0.50		ug/L	
			Dissolved Silver (Ag)	2024/11/06	<0.10		ug/L	
			Dissolved Sodium (Na)	2024/11/06	<100		ug/L	
			Dissolved Strontium (Sr)	2024/11/06	<2.0		ug/L	
			Dissolved Thallium (Tl)	2024/11/06	<0.10		ug/L	
			Dissolved Tin (Sn)	2024/11/06	<2.0		ug/L	
			Dissolved Titanium (Ti)	2024/11/06	<2.0		ug/L	
			Dissolved Uranium (U)	2024/11/06	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/11/06	<2.0		ug/L	
			Dissolved Zinc (Zn)	2024/11/06	<5.0		ug/L	
9748292	MTZ	RPD	Dissolved Aluminum (Al)	2024/11/06	NC		%	20
			Dissolved Antimony (Sb)	2024/11/06	NC		%	20
			Dissolved Arsenic (As)	2024/11/06	NC		%	20
			Dissolved Barium (Ba)	2024/11/06	0.22		%	20
			Dissolved Beryllium (Be)	2024/11/06	NC		%	20
			Dissolved Bismuth (Bi)	2024/11/06	NC		%	20
			Dissolved Boron (B)	2024/11/06	NC		%	20
			Dissolved Cadmium (Cd)	2024/11/06	NC		%	20
			Dissolved Calcium (Ca)	2024/11/06	0.59		%	20
			Dissolved Chromium (Cr)	2024/11/06	NC		%	20
			Dissolved Cobalt (Co)	2024/11/06	NC		%	20
			Dissolved Copper (Cu)	2024/11/06	NC		%	20
			Dissolved Iron (Fe)	2024/11/06	NC		%	20
			Dissolved Lead (Pb)	2024/11/06	NC		%	20
			Dissolved Magnesium (Mg)	2024/11/06	0.032		%	20
			Dissolved Manganese (Mn)	2024/11/06	0.25		%	20
			Dissolved Molybdenum (Mo)	2024/11/06	NC		%	20
			Dissolved Nickel (Ni)	2024/11/06	NC		%	20
			Dissolved Phosphorus (P)	2024/11/06	NC		%	20
			Dissolved Potassium (K)	2024/11/06	2.2		%	20
			Dissolved Selenium (Se)	2024/11/06	NC		%	20
			Dissolved Silver (Ag)	2024/11/06	NC		%	20
			Dissolved Sodium (Na)	2024/11/06	0.0094		%	20
			Dissolved Strontium (Sr)	2024/11/06	0.45		%	20
			Dissolved Thallium (Tl)	2024/11/06	NC		%	20
			Dissolved Tin (Sn)	2024/11/06	NC		%	20
			Dissolved Titanium (Ti)	2024/11/06	NC		%	20
			Dissolved Uranium (U)	2024/11/06	4.2		%	20
			Dissolved Vanadium (V)	2024/11/06	NC		%	20
			Dissolved Zinc (Zn)	2024/11/06	NC		%	20
9748412	M2C	Spiked Blank	pH	2024/11/06		100	%	97 - 103
9748412	M2C	RPD [AHTH99-02]	pH	2024/11/06	1.5		%	N/A
9748418	M2C	Spiked Blank	Conductivity	2024/11/06		95	%	80 - 120
9748418	M2C	Method Blank	Conductivity	2024/11/06	<1.0		uS/cm	
9748418	M2C	RPD [AHTH99-02]	Conductivity	2024/11/06	0.15		%	10
9748420	M2C	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/11/06		96	%	80 - 120
9748420	M2C	Method Blank	Total Alkalinity (Total as CaCO3)	2024/11/06	<2.0		mg/L	
9748420	M2C	RPD [AHTH99-02]	Total Alkalinity (Total as CaCO3)	2024/11/06	1.5		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9748423	M2C	Spiked Blank	pH	2024/11/06		101	%	97 - 103
9748423	M2C	RPD	pH	2024/11/06	0.97		%	N/A
9748427	M2C	Spiked Blank	Conductivity	2024/11/06		94	%	80 - 120
9748427	M2C	Method Blank	Conductivity	2024/11/06	<1.0		uS/cm	
9748427	M2C	RPD	Conductivity	2024/11/06	1.1		%	10
9748433	M2C	Spiked Blank	Total Alkalinity (Total as CaCO3)	2024/11/06		96	%	80 - 120
9748433	M2C	Method Blank	Total Alkalinity (Total as CaCO3)	2024/11/06	<2.0		mg/L	
9748433	M2C	RPD	Total Alkalinity (Total as CaCO3)	2024/11/06	1.4		%	20
9749031	ACK	Matrix Spike [AHTI08-02]	Total Organic Carbon (C)	2024/11/06		100	%	85 - 115
9749031	ACK	Spiked Blank	Total Organic Carbon (C)	2024/11/06		101	%	80 - 120
9749031	ACK	Method Blank	Total Organic Carbon (C)	2024/11/06	<0.50		mg/L	
9749031	ACK	RPD [AHTI08-02]	Total Organic Carbon (C)	2024/11/06	6.5		%	15
9749039	ACK	Matrix Spike	Total Organic Carbon (C)	2024/11/07		101	%	85 - 115
9749039	ACK	Spiked Blank	Total Organic Carbon (C)	2024/11/06		101	%	80 - 120
9749039	ACK	Method Blank	Total Organic Carbon (C)	2024/11/06	<0.50		mg/L	
9749039	ACK	RPD	Total Organic Carbon (C)	2024/11/06	0.097		%	15
9751057	MTZ	Matrix Spike [AHTI00-04]	Total Aluminum (Al)	2024/11/07		96	%	80 - 120
			Total Antimony (Sb)	2024/11/07		100	%	80 - 120
			Total Arsenic (As)	2024/11/07		98	%	80 - 120
			Total Barium (Ba)	2024/11/07		96	%	80 - 120
			Total Beryllium (Be)	2024/11/07		98	%	80 - 120
			Total Bismuth (Bi)	2024/11/07		99	%	80 - 120
			Total Boron (B)	2024/11/07		96	%	80 - 120
			Total Cadmium (Cd)	2024/11/07		100	%	80 - 120
			Total Calcium (Ca)	2024/11/07		98	%	80 - 120
			Total Chromium (Cr)	2024/11/07		98	%	80 - 120
			Total Cobalt (Co)	2024/11/07		99	%	80 - 120
			Total Copper (Cu)	2024/11/07		98	%	80 - 120
			Total Iron (Fe)	2024/11/07		102	%	80 - 120
			Total Lead (Pb)	2024/11/07		97	%	80 - 120
			Total Magnesium (Mg)	2024/11/07		103	%	80 - 120
			Total Manganese (Mn)	2024/11/07		94	%	80 - 120
			Total Molybdenum (Mo)	2024/11/07		102	%	80 - 120
			Total Nickel (Ni)	2024/11/07		99	%	80 - 120
			Total Phosphorus (P)	2024/11/07		101	%	80 - 120
			Total Potassium (K)	2024/11/07		100	%	80 - 120
			Total Selenium (Se)	2024/11/07		99	%	80 - 120
			Total Silver (Ag)	2024/11/07		98	%	80 - 120
			Total Sodium (Na)	2024/11/07		98	%	80 - 120
			Total Strontium (Sr)	2024/11/07		98	%	80 - 120
			Total Thallium (Tl)	2024/11/07		99	%	80 - 120
			Total Tin (Sn)	2024/11/07		100	%	80 - 120
			Total Titanium (Ti)	2024/11/07		97	%	80 - 120
			Total Uranium (U)	2024/11/07		105	%	80 - 120
			Total Vanadium (V)	2024/11/07		101	%	80 - 120
			Total Zinc (Zn)	2024/11/07		99	%	80 - 120
9751057	MTZ	Spiked Blank	Total Aluminum (Al)	2024/11/07		99	%	80 - 120
			Total Antimony (Sb)	2024/11/07		102	%	80 - 120
			Total Arsenic (As)	2024/11/07		101	%	80 - 120
			Total Barium (Ba)	2024/11/07		100	%	80 - 120
			Total Beryllium (Be)	2024/11/07		100	%	80 - 120
			Total Bismuth (Bi)	2024/11/07		102	%	80 - 120
			Total Boron (B)	2024/11/07		98	%	80 - 120
			Total Cadmium (Cd)	2024/11/07		103	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Calcium (Ca)	2024/11/07		102	%	80 - 120
			Total Chromium (Cr)	2024/11/07		103	%	80 - 120
			Total Cobalt (Co)	2024/11/07		102	%	80 - 120
			Total Copper (Cu)	2024/11/07		102	%	80 - 120
			Total Iron (Fe)	2024/11/07		106	%	80 - 120
			Total Lead (Pb)	2024/11/07		100	%	80 - 120
			Total Magnesium (Mg)	2024/11/07		106	%	80 - 120
			Total Manganese (Mn)	2024/11/07		102	%	80 - 120
			Total Molybdenum (Mo)	2024/11/07		106	%	80 - 120
			Total Nickel (Ni)	2024/11/07		103	%	80 - 120
			Total Phosphorus (P)	2024/11/07		102	%	80 - 120
			Total Potassium (K)	2024/11/07		103	%	80 - 120
			Total Selenium (Se)	2024/11/07		99	%	80 - 120
			Total Silver (Ag)	2024/11/07		100	%	80 - 120
			Total Sodium (Na)	2024/11/07		103	%	80 - 120
			Total Strontium (Sr)	2024/11/07		102	%	80 - 120
			Total Thallium (Tl)	2024/11/07		102	%	80 - 120
			Total Tin (Sn)	2024/11/07		104	%	80 - 120
			Total Titanium (Ti)	2024/11/07		98	%	80 - 120
			Total Uranium (U)	2024/11/07		109	%	80 - 120
			Total Vanadium (V)	2024/11/07		103	%	80 - 120
			Total Zinc (Zn)	2024/11/07		102	%	80 - 120
9751057	MTZ	Method Blank	Total Aluminum (Al)	2024/11/07	<5.0		ug/L	
			Total Antimony (Sb)	2024/11/07	<1.0		ug/L	
			Total Arsenic (As)	2024/11/07	<1.0		ug/L	
			Total Barium (Ba)	2024/11/07	<1.0		ug/L	
			Total Beryllium (Be)	2024/11/07	<0.10		ug/L	
			Total Bismuth (Bi)	2024/11/07	<2.0		ug/L	
			Total Boron (B)	2024/11/07	<50		ug/L	
			Total Cadmium (Cd)	2024/11/07	<0.010		ug/L	
			Total Calcium (Ca)	2024/11/07	<100		ug/L	
			Total Chromium (Cr)	2024/11/07	<1.0		ug/L	
			Total Cobalt (Co)	2024/11/07	<0.40		ug/L	
			Total Copper (Cu)	2024/11/07	<0.50		ug/L	
			Total Iron (Fe)	2024/11/07	<50		ug/L	
			Total Lead (Pb)	2024/11/07	<0.50		ug/L	
			Total Magnesium (Mg)	2024/11/07	<100		ug/L	
			Total Manganese (Mn)	2024/11/07	<2.0		ug/L	
			Total Molybdenum (Mo)	2024/11/07	<2.0		ug/L	
			Total Nickel (Ni)	2024/11/07	<2.0		ug/L	
			Total Phosphorus (P)	2024/11/07	<100		ug/L	
			Total Potassium (K)	2024/11/07	<100		ug/L	
			Total Selenium (Se)	2024/11/07	<0.50		ug/L	
			Total Silver (Ag)	2024/11/07	<0.10		ug/L	
			Total Sodium (Na)	2024/11/07	<100		ug/L	
			Total Strontium (Sr)	2024/11/07	<2.0		ug/L	
			Total Thallium (Tl)	2024/11/07	<0.10		ug/L	
			Total Tin (Sn)	2024/11/07	<2.0		ug/L	
			Total Titanium (Ti)	2024/11/07	<2.0		ug/L	
			Total Uranium (U)	2024/11/07	<0.10		ug/L	
			Total Vanadium (V)	2024/11/07	<2.0		ug/L	
			Total Zinc (Zn)	2024/11/07	<5.0		ug/L	
9751057	MTZ	RPD	Total Lead (Pb)	2024/11/07	1.4		%	20
9751094	S6S	QC Standard	Turbidity	2024/11/07		107	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9751094	S6S	Spiked Blank	Turbidity	2024/11/07		101	%	80 - 120
9751094	S6S	Method Blank	Turbidity	2024/11/07	<0.10		NTU	
9751094	S6S	RPD	Turbidity	2024/11/07	2.2		%	20
9751104	S6S	QC Standard	Turbidity	2024/11/07		108	%	80 - 120
9751104	S6S	Spiked Blank	Turbidity	2024/11/07		100	%	80 - 120
9751104	S6S	Method Blank	Turbidity	2024/11/07	<0.10		NTU	
9751104	S6S	RPD	Turbidity	2024/11/07	1.3		%	20
9751110	M2C	QC Standard	Turbidity	2024/11/07		106	%	80 - 120
9751110	M2C	Spiked Blank	Turbidity	2024/11/07		100	%	80 - 120
9751110	M2C	Method Blank	Turbidity	2024/11/07	<0.10		NTU	
9751110	M2C	RPD	Turbidity	2024/11/07	0.62		%	20
9751128	MCN	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/11/07		99	%	80 - 120
9751128	MCN	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/11/07		93	%	80 - 120
9751128	MCN	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/11/07	<0.050		mg/L	
9751128	MCN	RPD	Nitrogen (Ammonia Nitrogen)	2024/11/07	6.6		%	20
9751132	EMT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2024/11/07		93	%	80 - 120
9751132	EMT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2024/11/07		97	%	80 - 120
9751132	EMT	Method Blank	Nitrogen (Ammonia Nitrogen)	2024/11/07	<0.050		mg/L	
9751132	EMT	RPD	Nitrogen (Ammonia Nitrogen)	2024/11/07	4.1		%	20
9751321	ACK	Matrix Spike [AHTH99-03]	Total Organic Carbon (C)	2024/11/07		99	%	85 - 115
9751321	ACK	Spiked Blank	Total Organic Carbon (C)	2024/11/07		99	%	80 - 120
9751321	ACK	Method Blank	Total Organic Carbon (C)	2024/11/07	<0.50		mg/L	
9751321	ACK	RPD [AHTH99-03]	Total Organic Carbon (C)	2024/11/07	8.4		%	15

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike exceeds acceptance limits, probable matrix interference.

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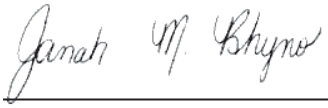
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ernlie Publicover, Scientific Specialist



Bureau Veritas Certified by Janah Rhyno, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

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2024/11/01 14:52

Bureau Veritas
200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-free:800-563-6266 Fax:(902) 420-8612 www.bvna.com

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name		Quotation #	C40091	Bureau Veritas Job #	Bottle Order #:
Contact Name	Accounts Payable 762	Contact Name	Glen Merkley/Sadie Jacobs-Peters	P.O. #	735-009799		1015035
Address	120 Western Parkway Bedford NS B4B 0V2	Address		Project #	12584960	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 802-4790 Fax:	Project Name		C#1015035-01-01	Marie Muise
Email	AccountsPayableCDN@ghd.com	Email	glen.merkley@ghd.com,Sadie.jacobs-peters@ghd.com	Site #			
				Sampled By			

Regulatory Criteria:

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Total Suspended Solids	At. RCAp-MS Dissolved (FieldFilt) in W	# of Bottles	Comments / Hazards / Other Required Analysis
1		SW1	Oct 31,2024	12:56	SW			X	X		5	
2		SW2	Oct 31,2024	13:18	SW			X	X		5	
3		SW3	Oct 31,2024	13:52	SW			X	X		5	
4		SW4	Oct 31,2024	14:33	SW			X	X		5	
5		SW5	Not sampled	—	SW			X	X		0	
6		SW DUP	✓	✓	SW			X	X		5	
7		MW1	Oct 31,2024	12:33	GW					X	4	
8		MW2	Oct 31,2024	12:16	GW					X	4	
9		MW3	Oct 31,2024	11:31	GW					X	4	
10		MW4	Oct 31,2024	10:38	GW					X	4	

BEDF-2024-11-074

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gilles (Gilles Perron)	24/11/01	1445	Kayla Kepron				☐	3/5 4/1,3/3	☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

lee - Yes

White: Bureau Veritas Yellow: Client

C4Y5693
2024/11/01 14:52

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Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name		Quotation #	C40091	Bureau Veritas Job #	Bottle Order #:
Contact Name	Accounts Payable 762	Contact Name	Glen Merkley/Sadie Jacobs-Peters	P.O. #	735-009799		1015035
Address	120 Western Parkway Bedford NS B4B 0V2	Address		Project #	12584960	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 802-4790 Fax:	Project Name		C#1015035-02-01	Marie Muise
Email	AccountsPayableCDN@ghd.com	Email	glen.merkley@ghd.com,Sadie.jacobs-peters@ghd.com	Site #			
				Sampled By			

Regulatory Criteria:

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Total Suspended Solids	At. RCAp-MS Dissolved (FieldFilt) in W	# of Bottles	Comments / Hazards / Other Required Analysis
1		MW5	Oct 31, 2024	11:08	GW					X	4	
2		MW6	Not sampled	—	GW					X	0	
3		MW7	Not sampled		GW					X	0	
4		MWDUP	✓	✓	GW					X	4	
5		MW9	Oct 31, 2024	9:44	GW						4	
6		MW8	Oct 31, 2024	10:10	GW						4	
7												
8												
9												
10												

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gilles (Gilles Perron)	24/11/01	1445					☐	3.9 4 / 4.3 3	☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

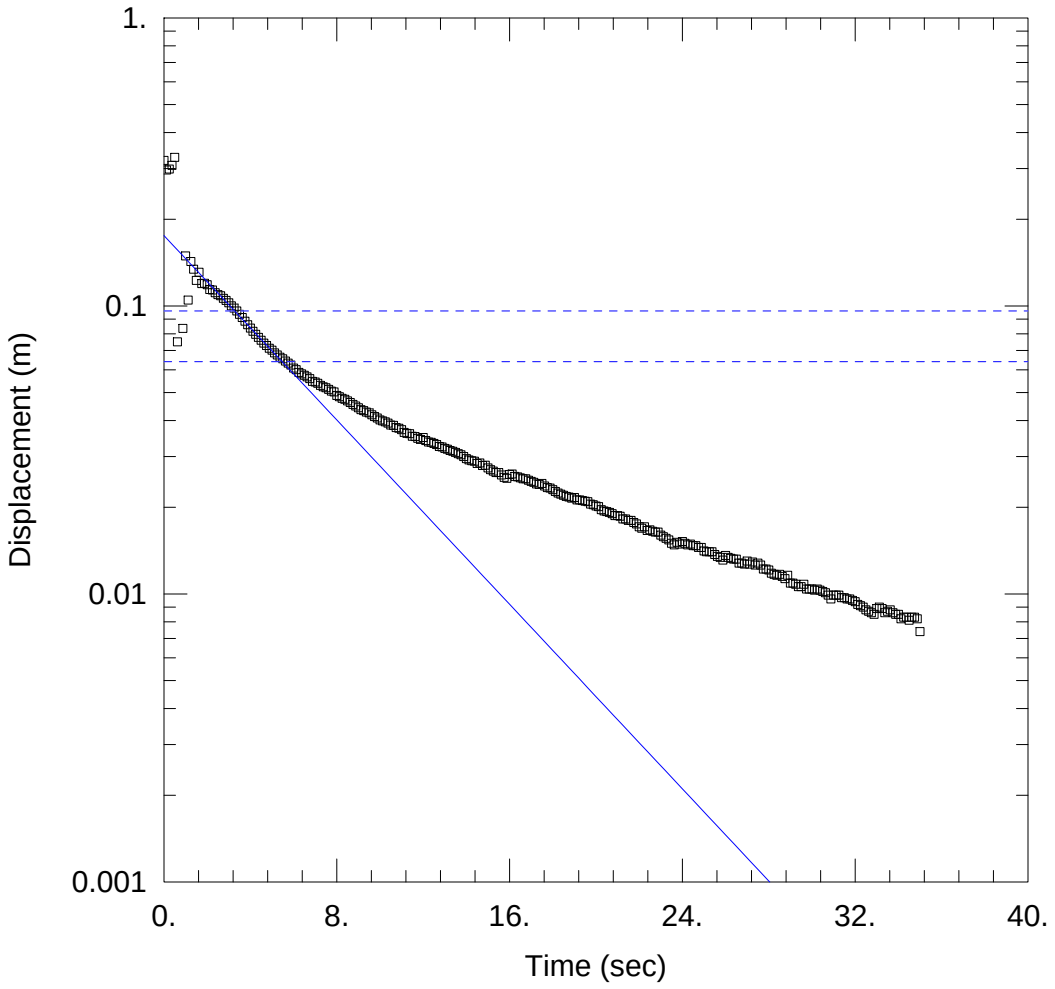
Ice - Yes

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Appendix D

Hydraulic Conductivity Test Results



MW-05 FALLING HEAD

Data Set: C:\Alans Files\Shaw\MW05 FH1.aqt
Date: 12/06/24 Time: 08:49:21

PROJECT INFORMATION

Company: GHD
Client: Shaw
Project: 12584960
Location: Middleton
Test Well: MW-05
Test Date: 11/08/2024

AQUIFER DATA

Saturated Thickness: 5.9 m Anisotropy Ratio (Kz/Kr): 1.

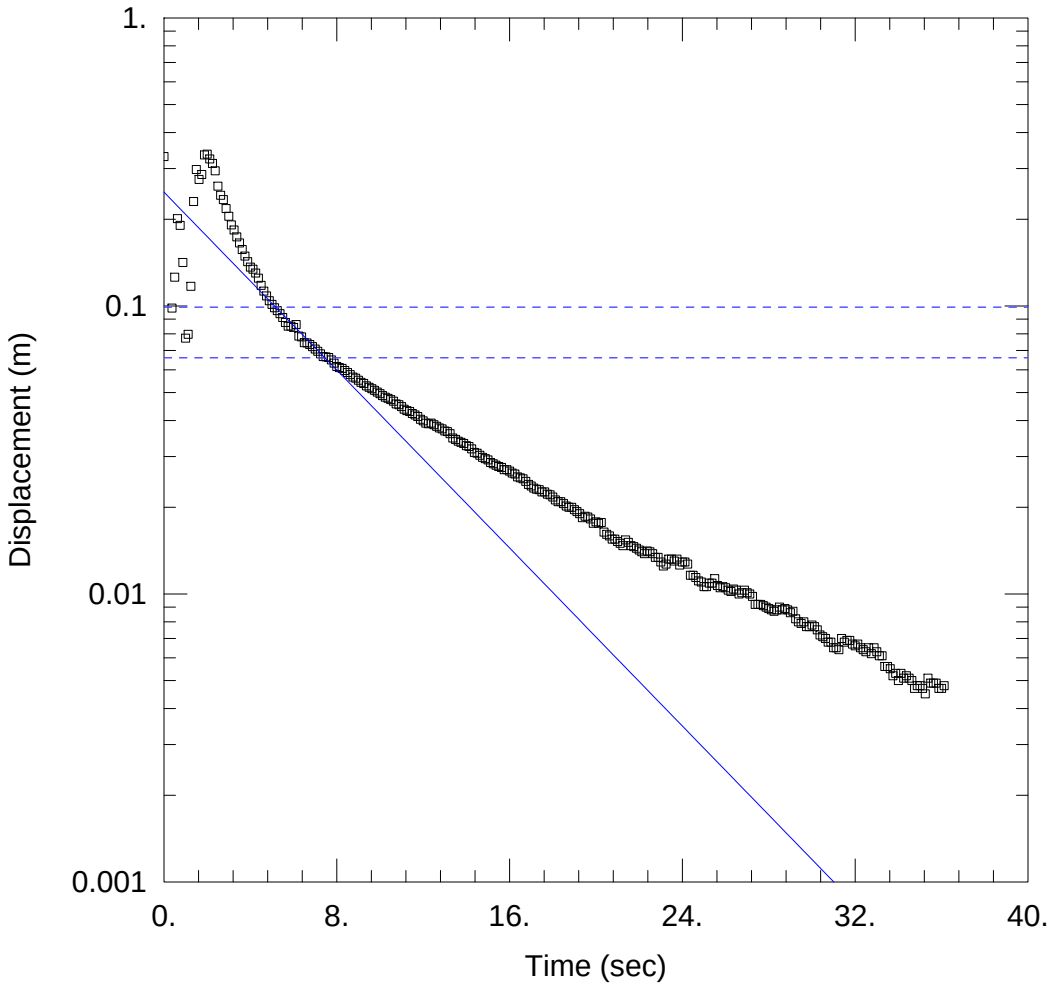
WELL DATA (MW-05)

Initial Displacement: 0.32 m
Total Well Penetration Depth: 5.9 m
Casing Radius: 0.025 m
Static Water Column Height: 5.9 m
Screen Length: 5.9 m
Well Radius: 0.025 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004179 cm/sec
y0 = 0.1754 m



MW-05 RISING HEAD #1

Data Set: C:\Alans Files\Shaw\MW05 RH1.aqt
Date: 12/06/24 Time: 08:49:05

PROJECT INFORMATION

Company: GHD
Client: Shaw
Project: 12584960
Location: Middleton
Test Well: MW-05
Test Date: 11/08/2024

AQUIFER DATA

Saturated Thickness: 5.9 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-05)

Initial Displacement: 0.33 m
Total Well Penetration Depth: 5.9 m
Casing Radius: 0.025 m
Static Water Column Height: 5.9 m
Screen Length: 5.9 m
Well Radius: 0.025 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004033 cm/sec
y0 = 0.2483 m