

APPENDIX F-1 2025 SITE-WIDE GROUND THERMAL MONITORING – ANNUAL REPORTING

Memo

To	Macoura Kone, PhD, PGeol., PGeo. Tanner Shapton, PEng	Client	B2Gold Back River Corp
From	Christopher Stevens, PhD	Project	CAPR004313
Reviewed	John Kurylo, MSc PEng	Date	March 20, 2026
Subject	Back River Project: 2025 Site-wide Ground Thermal Monitoring – Annual Reporting		

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1 Introduction

The Back River project (the Project) is an open pit and underground gold mining project in the West Kitikmeot region of Nunavut, approximately 520 km northeast of Yellowknife and 75 km south of Bathurst Inlet. The mine will consist of a Marine Laydown Area (MLA) at Bathurst Inlet and the mine located at the Goose property. The MLA serves as the primary resupply point for the mine. B2Gold Corporation (B2Gold) have been advancing construction at the Goose Property and MLA under their site Water License 2AM-BRP1831 – Amendment No. 1, issued by the Nunavut Water Board (NWB) on October 15, 2021.

Ground thermal monitoring of background and infrastructure is conducted to meet the terms and conditions agreed to in the project certificate. In particular, the Project Certificate Terms and Conditions #11 states that “During construction, the Proponent shall, on an annual basis, provide additional permafrost mapping information documented in fulfillment of this Term and Condition in the Proponent’s annual report to the Nunavut Impact Review Board.” This memorandum provides ground thermal monitoring that has been completed in 2024 and 2025.

2 Monitoring Program

2.1 Monitoring Plan

The site-wide ground thermal monitoring plan (the plan) is designed to ensure the effective collection, management, and reporting of ground temperature data from long-term monitoring stations (SRK 2026).

The ground temperature monitoring objectives include:

- Identifying natural climate-driven changes to the ground thermal regime and permafrost at background sites located outside of direct influence of mining activities; and

- Identifying changes to the ground thermal regime and permafrost from the mine infrastructure.

Key elements of the plan include planning for consistent ground temperature data collection to track permafrost conditions, data management to maintain quality and accuracy of the collected information, annual instrument inspection and maintenance at monitoring sites, and annual reporting to document the above-mentioned information and data findings to support decision-making related to permafrost monitoring at the project site.

2.2 Annual Reporting

An annual ground temperature monitoring report is issued with the annual geotechnical inspection report for the site.

The report is developed to:

- Report data collection for the year;
- Describe instrument maintenance or replacement that has occurred;
- Update graphical plots of the historic and recent measurements for the monitoring sites;
- Analysis of the ground temperature to identify changes in permafrost and long-term trends;
- Analysis of relevant climate parameters to support understanding of changes in permafrost; and
- Action plan for instrument repair or replacement for the upcoming year, as needed.

This annual report further examines archived drillhole datasets that characterize ground ice conditions at the site.

3 Site Conditions

3.1 Climate

The region around the Back River project is characterized by long dark winters, shorter summers and generally gently rolling topography. Typically, the ground is covered in snow from October (and as early as September) to June (sometimes snow melting earlier in mid to late May). Back River is subject to very cold weather and at times persistent Arctic winds, similar to other Northern Canadian sites.

In the winter the lakes and sea are covered with ice that can be greater than 2 m in thickness. This can allow for on-ice activities such as diamond drilling, winter ice road, and airstrip construction and use. The mean annual air temperature (MAAT) is around -10°C at the Goose Station. The mean annual precipitation ranges from around 270 to 430 mm (SRK 2021)

Meteorological data has been collected at the Goose Station (Lat. 65.54, Long. -106.41, Elev. 277 masl) since August 2004 and at the MLA Station (Lat. 66.65, Long. -107.69, Elev. 11 masl) since 2012. The stations are equipped with gauges to monitor air temperature, precipitation as rainfall and snowfall, solar radiation, wind speed, and wind direction (SRK 2021, Rescan 2014). Meteorological data

collected at these two stations will be used to support understanding of changes in ground temperature and permafrost.

3.2 Surficial and Bedrock Geology

Goose Property is characterized by low relief terrain with undulating or rolling landscapes, presented as a sequence of smooth, non-linear rises and hollows that are largely formed by glacial drumlines. Frost boils form micro-relief at the ground surface and have developed from repeated freeze thaw cycle at the site. Drainage is variable from well to poorly drained ground depending on local topography, surficial material, and permafrost. The MLA is located near sea level and characterized by gentle slopes and level plains that drain toward Bathurst Inlet.

Surficial geology at the project site is largely a reflection of the last advance of the North American Laurentide ice sheet during the Wisconsin Glaciation. The maximum extent of the continental glacier occurred approximately 21,000 years ago and began withdrawing from the Kitikmeot Region approximately 10,000 years ago.

The landscape is striated with overburden materials characteristic of a post-glacial environment. At the Goose property, the common surficial deposits include glacial till and drumlines. Glacial till consists of sand and variable amounts of silt and gravel. Drumlines also coarse sand, silt, and gravel compositions and are often associated with kettle lakes. Organic veneers (less than 1 m in depth) are also common, resulting from the accumulation of very slowly decomposing vegetation, typically in the wet lowlands.

The majority of the Goose Property is underlain by clastic meta-sedimentary rock types consisting of turbidites (greywacke and mudstone) of the Slave Province (Rescan 2013) Vol 5 EIS). This sequence is cut by felsic dikes and gabbroic dikes. From oldest to youngest, the sequence is composed of central greywacke, lower iron formation, middle mudstone, upper iron formation, and upper sediments. Exposed bedrock can be found throughout the Goose Property or immediately below a thin veneer of glacial sediments.

At the MLA, the surficial deposits include marine and morainal deposits. Marine and moraine deposits consist mainly of coarse sands. Poorly drained areas with accumulated organics may also have fine-grained soils and higher amounts of ground ice.

3.3 Ground Thermal Regime

Back River is located within a zone of Continuous permafrost, with an estimated 90 to 100% of the land area underlain by permafrost. Permafrost temperature has been measured to range from -4.7°C to -7.5°C at the Goose Property, with an average of -6.3°C (SRK 2015a). The seasonally thawed active layer ranges from approximately 1 to 4 m bgs. The greatest active layer depth occurs in areas with thin soil veneers above bedrock. The base of permafrost is estimated to range from 490 to 570 m bgs using the 0°C isotherm, with a reported geothermal gradient of 0.013 to 0.014°C/m (SRK 2015a). The local groundwater chemistry results in a freezing point depression and unfrozen taliks at the base of permafrost, also referred to as basal cryopegs.

4 Ground Thermal Monitoring

4.1 Overview

The site wide ground thermal monitoring plan provides the historic and recent ground temperature cables (GTCs) installed at the Goose Property and MLA (SRK 2025). Figure 1 shows the general arrangement of constructed and planned infrastructure at the Goose Property. This area has been instrumented with GTCs to characterize the ground thermal regime at “historic site” (installed prior to 2023) and “recent sites” (2023-present) (Figure 2). The status (function) of the GTCs at the Goose Property is shown in Figures 3. Several additional GTCs have historically been installed at the MLA and their current status is shown in Figures 4 and 5, respectively.

At the time of reporting, the historic sites are inactive with unknown instrument function, and no recent measurements have been made from the sites (Figures 3 and 5). Phase 1 audit of the instruments was completed by SRK in 2023. The Phase 1 audit included visual inspection the instrumentation (cable leads and data loggers) for damage at the Goose Property. The information was advanced to Campbell Scientific who is the instrument manufacturer for most of the historic instruments. Campbell Scientific concluded that historic measurements and programming would no longer be store on the data loggers due to depletion of the primary and secondary batteries. Ultimately it was determined that no salvageable stored memory was available in the historic dataloggers and any updates or repairs to these data loggers would be to collect new and forward-looking data only. The historic data that is available for each of the sites is provided in the *Back River Project: Site-wide Ground Thermal Monitoring Plan (Revision 01)* (SRK 2026).

Phase 2 of the instrument audit: B2Gold is in the process requesting proposals to install new background GTC and / or to confirm cable functionality and to repair or replace historic data loggers at a select number of accessible sites. B2Gold will review the proposals and develop a plan to install new suitable data collection at the Goose site. These sites will characterize the deep ground thermal regime to establish long-term changes in permafrost. The instruments are not well suited for monitoring the shallow ground thermal regime, active layer depth, and change in shallow permafrost temperature, due to the original purpose of the instruments. New background sites are therefore planned for installation to characterize the shallow ground thermal regime at background locations outside of the influence of mining infrastructure.

4.2 Monitoring Program Sites

A summary of the background and infrastructure monitoring sites that have been included in the site-wide ground thermal monitoring program is provided in Table 1. The monitoring sites represent a subset of the active GTCs that are used to monitoring geotechnical performance of the constructed infrastructure. The GTC sites that are included in the monitoring program will be expanded as additional mine infrastructure is constructed and following the 2025 instrument audit of the historic sites.

One recent monitoring site (24-GSE-678B) is active at the Goose Property nearby the Umwelt Pit and Underground (Figures 3 and 6). Ground temperature is measured and recorded every four hours using a data logger. The site will be used to monitoring the thermal influence of pit and underground mine on immediately surrounding permafrost. The surface extent of the GTC is not expected to provide background conditions due to thermal disturbance from surface activities at the site. Additional background monitoring sites will be located further from surface activities to provide a better indication of background changes in ground temperature and permafrost.

An additional five infrastructure monitoring sites have been included as part of annual monitoring at the Goose Property (Table 1). The infrastructure monitoring sites include three sites at the Primary Pond Dam (PP-VTC-550-US, PP-VTC-550-DS, PP-VTC-550-KT) which are located at Station 550 beneath the Upstream (US), Downstream (DS), and Key Trench (KT). The three sites are used to monitor the influence of the dam on the underlying permafrost foundation. Note that there is additional instrumentation installed at the Primary Pond Dam. A full overview of all monitoring data from the instrumentation in that dam, including the remaining GTCs, will be overviewed / reported in the annual Dam Safety Inspection (DSI) reports that will commence in 2026; note that Primary Pond Dam finished construction at the end of 2025 so the first DSI to occur in 2026. One additional infrastructure monitoring site is located at the Camp Pad (SRK-23-CPI-DH1) (Figure 3). The ground temperature cable is used to monitor ground temperature in the rock pad and permafrost foundation. The cable is manual measured at a specified minimum frequency of once each quarter.

At MLA, two infrastructure monitoring sites (MLA-TF-GTC-1 and MLA-TF-GTC-2) at the fuel tank pad (Figure 5). The sites are included in the monitoring program and are used to monitor temperature through the rock pad and permafrost foundation (Table 1, Figure 5). MLA-TF-GTC-1 is installed through the tank farm berm and foundation on the southwest side of the facility, where the berm is constructed on overburden. The second GTC (MLA-TF-GTC-2) is installed on the north edge of pad at Tank 5 and extends into the foundation.

Table 1: Ground Thermal Monitoring Sites

Location	Area	Site ID	Year	Northing	Easting	Status	Monitoring Type	GTC Length [m] (Approx.)
Goose Property	Umwelt Pit Area	24-GSE-678B	2024	7270839	430150	Active	Background	
	Primary Pond Dam	PP-VTC-550-US	2023	7271204	429848	Active	Infrastructure	15.5
		PP-VTC-550-KT	2023	7271180	429830	Active	Infrastructure	15.5
		PP-VTC-550-DS	2023	7271168	429821	Active	Infrastructure	15.5
	Camp Pad	SRK-23-CPI-DH1	2023	7270012	429952	Active	Infrastructure	13.4
MLA Property	Tank Farm	MLA-TF-GTC-1	2024	7393818	380820	Active	Infrastructure	21.0
		MLA-TF-GTC-2	2024	7393854	381065	Active	Infrastructure	15.3

4.3 Data Collection

Ground temperature data collection was completed using data loggers dedicated to each site or manual measurement periodically measured using a similar data logger (Table 2). The data is uploaded to the project site-wide ground thermal monitoring database, along with meteorological data collected at the Goose and MLA stations.

Attachment 2 provides the record of data collection for monitoring sites since their installation. The measurements are discussed in Section 5.

Table 2: Monitoring Site Type, Data Collection Method, and Measurement Frequency

Site ID	Year	Monitoring Type	Collection Method	Measurement Frequency
24-GSE-678B	2024	Background	Data Logger	Every 6 hrs
PP-VTC-550-US	2023	Infrastructure	Manual	Once a Quarter
PP-VTC-550-KT	2023	Infrastructure	Manual	Once a Quarter
PP-VTC-550-DS	2023	Infrastructure	Manual	Once a Quarter
SRK-23-CPI-DH1	2023	Infrastructure	Manual	Once a Quarter
MLA-TF-GTC-1	2024	Infrastructure	Data Logger	Every 6 hrs
MLA-TF-GTC-2	2024	Infrastructure	Data Logger	Every 6 hrs

Notes:

1. Year indicates the year of installation of the site
2. Background sites are expected to be influenced by natural changes
3. Infrastructure sites are expected to be influenced directly by infrastructure
4. Measurement frequency indicates the minimum required collection of data per the monitoring plan
5. Data logger installation planned for sites PP-VTC-550-US, PP-VTC-550-DS, and PP-VTC-550-KT after completion of dam

4.4 Instrument Performance and Data Quality

The data was reviewed to identify anomalous measurements. All data collected is included in the site-wide ground thermal database. Anomalous readings are then qualified in the database using our professional judgement and experience related to the ground thermal regime and permafrost. Abnormal readings are flagged within the database and not included in the annual analysis.

Table 3 summarizes the status of the instruments and data quality, and completeness based on the required measurement frequency. The status (function) of the sites is based on the following definitions.

Monitoring Site Status:

- Active – GTC is functional at time of reporting
- Inactive – GTC function is unknown at time of reporting
- Compromised (Repair) – GTC is not functional at time of reporting and requires repair
- Compromised – GTC is not functional and damaged beyond repair or not accessible

The overall quality of the data is determined using the following criteria:

Good Data Quality:

- Consistent and Reliable Readings: Temperature sensors provide stable and repeatable measurements over time.
- Minimal Data Gaps: The dataset has continuous records following the required measurement frequency with few or no missing values.

Poor Data Quality:

- Erratic or Unstable Readings: Temperature values fluctuate abnormally without justification.
- Significant Data Gaps: Large portions of the dataset are missing following the required measurement frequency.
- Instrumentation failure: The instrument (data logger or cable) experienced failure during year

Table 3: Monitoring Site Status and Data Quality and Completeness

Site ID	Status	Data Quality	Data Completeness
24-GSE-678B	Active	Good	Complete
PP-VTC-550-US	Active	Good	Complete
PP-VTC-550-KT	Active	Good	Complete
PP-VTC-550-DS	Active	Good	Complete
SRK-23-CPI-DH1	Active	Good	Complete
MLA-TF-GTC-1	Compromised (Repair)	Good	Incomplete
MLA-TF-GTC-2	Active	Good	Complete

Note:

1. Data completeness evaluated based on the minimum measurement frequency stated in the Monitoring Plan (SRK 2026).

5 Data Analysis

SRK has analyzed ground temperature data to meet the primary reporting described in the monitoring plan (SRK 2026). The analysis will be expanded as additional data is collected and additional sites are included in the monitoring program. The planned activities to improve and expand the monitoring program are described in Section 7.

5.1 Climate Data

B2Gold is in the process of aligning historic and recent meteorological station data that will be reported in the next annual monitoring report.

5.2 Goose Property

Umwelt Pit Area

Monitoring site 24-GSE-678B was installed as a background site near the Umwelt Pit. The ground temperature is monitored to evaluate changes to background permafrost nearby the pit and underground area. The location of site 24-GSE-678B and other recent (22-UMU004B) and historic (13-GSE-288, 13-GSE-279, 12-GSE-233C) sites is shown in Figure 6. Several of the sites have poor data quality that is not considered (Figure 7).

Figure 8 shows a comparison (correlation) of ground temperature measured at 24-GSE-678B with other nearby sites with good data quality. Site 24-GSE-678B has relatively similar ground temperature and depth to the base of permafrost when compared to historic measurements from site 13-GSE-279. There is notable difference in ground temperature with the upper 150 m which likely reflects long-term differences in the ground thermal regime between the two sites.

An attempt will be made to collect recent measurements from site 13-GSE-279. More recent measurements would be used to evaluate climate induced changes to permafrost between 2014 and present. Site 24-GSE-678B will be used for long-term monitoring of ground temperature adjacent to the pit. The lower portion of the GTC may be impacted by future underground mining, however, this is not expected to have an impact on the overall function of the cable at a shallower depth.

Primary Pond Dam (PP-VTC-550-US, PP-VTC-550-KT, PP-VTC-550-DS)

The Primary Pond Dam GTCs (PP-VTC-550-US, PP-VTC-550-KT, PP-VTC-550-DS) are vertically installed beneath the upstream (US), key trench (KT), and downstream (DS) (Figure 9). The cables extend into the foundation to monitor thermal influence of the structure on the underlying permafrost. Ground temperature is expected to vary across the three locations due to differences in thermal forcing from the upstream to downstream position of the dam.

Figure 9 shows the minimum and maximum annual ground temperature at the three monitoring sites. Ground temperature is variable between the sites as a function of the influence of dam fill and disturbance induced by ongoing construction of the dam. Permafrost temperature at an elevation of approximately 296 m varies from -4.2 to -5.3°C.

The upstream site (PP-VTC-550-US) shows the expected annual ground thermal regime beneath the toe, prior to retention of water. Over time, permafrost warming and thaw can be expected in response to the thermal influence of water in the pond. The downstream site (PP-VTC-550-DS) shows minimal annual change in ground temperature (minimal change in sensible heat). The limited amount of heat loss in the winter at this location may be due to snow accumulation and piling. This inference is based on our field observations. At site PP-VTC-550-KT, there is minor change in sensible heat beneath the key trench which is due to the overlying fill. Seasonal variation in ground temperature is limited to the fill material at this location. Longer term changes in temperature would be expected over time.

Camp Pad

The camp pad GTCs (SRK-23-CPI-DH1 & SRK-23-CPI-DH2) are vertically installed through the pad rock fill and underlying permafrost foundation (Figure 10). Permafrost is influenced by both the rock pad and surface infrastructure. Figure 10 shows the minimum and maximum temperature measured at the sites in 2024. Permafrost temperature is measured to be -6.8°C from lowermost sensor installed at 13.4 m bgs. The active layer depth is approximately 1.85 m bgs which is above the base of the rock pad.

5.3 MLA Property

At MLA, monitoring sites MLA-TF-GTC-1 and MLA-TF-GTC-2 have been installed to monitor temperature through the rock pad and permafrost foundation. At the time of reporting MLA-TF-GTC-1 is inactive and requires repair. Permafrost temperature is measured to be -4.3°C and -6.1°C at approximately 15 m bgs for MLA-TF-GTC-1 and MLA-TF-GTC-2, respectively.

6 Ground Ice

The following section has been included in the Annual Monitoring Report to summarize ground ice conditions at the Goose Property and MLA.

6.1 Drillhole Database

Geotechnical investigations to recover frozen overburden have included diamond drilling with brine and shallow split spoon sampling. These drilling methods have allowed for visual description of frozen soil to characterize ground ice type and content at the Goose Property and MLA. Three geotechnical investigations completed at the Goose Property (SRK 2015b; SRK 2018; SRK 2022) and an additional investigation at the MLA (SRK 2015c) are considered. Drillhole logs were compiled and analyzed to assess the variability in ground ice content and type.

Soil descriptions have been based on geotechnical logging of the recovered soil core using ASTM D2488-17 (ASTM 2017). Field descriptions of the material type have been confirmed with particle size distribution results completed on select samples in the laboratory. Ground ice type and visible estimation of excess ground ice content were based on ASTM D4083 (ASTM 2016).

Ground ice within overburden soil and bedrock is naturally heterogenous due to difference in material type, moisture content, and past and current thermal gradient of the ground. In general, fine-grained silt and clay are frost susceptible and favorable to ice segregation resulting from in-situ formation of ground ice. In contrast, coarse-grained sand and gravel deposits are less conducive to ice segregation; however, ground ice can still be present. Massive ground ice (ICE or ICE+Soil) may also be present in either fine or coarse-grained material due to burial of glacial ice, burial and recrystallization of snow patches, ice-wedges formed in thermal contraction cracks, or injection ice formed from pressurized groundwater.

6.2 Goose Property

Ground Ice Distribution

Drillholes with ground ice logs is shown in Figure 12. Ground ice content and type is spatially and stratigraphically variable at the property. Figure 13 shows ground ice content for all drillholes as a function of depth. The first one meter below the surface is typically lower ice content overburden within the active layer. A majority of the drillholes report ground ice content within the active layer to be 0 to 10%, however several are logged to be 20 to 30 percent. This lower ice content zone transitions to ice-rich overburden at the top of permafrost. Ice-rich overburden between 20 and 100% (ICE) is commonly logged from the top of permafrost to approximately 5 m at the site. Drillhole intervals below approximately 5 m are commonly characterized by ground ice content less than 15%. This does not exclude the possibility of deep-seated ground ice including massive ground ice (ICE or ICE+Soil) (Figure 14).

Massive ground ice that is logged as ICE or ICE+Soil may occur in the form of segregated ice lenses, ice wedges, injection ice, or buried glacial ice or snow patch ice. Figure 15 shows drillhole locations with massive ground ice. Massive ground ice thickness is variable over the depths sampled (Figure 14). The thickest bodies of massive ground ice have been intercepted from approximately 1.0 and 4.0 m bgs. The massive ice observed within this depth interval is commonly up to 1 m thick (Figure 14). Massive ice logged between approximately 4.0 to 5.5 m bgs was observed to be 0.5 m thick or less.

A histogram of the occurrence (number of intervals) of massive ice as a function of its thickness is shown in Figure 14. The highest occurrence intervals consist of massive ice less than 0.25 m thick, followed by similar occurrence of massive ice that is between 0.25 and 0.75 m thick (Figure 14). There are several drillholes with massive ground ice bodies that are between 0.75 and 1.0 m thick. Drillholes SRK-18-DH10 and SRK-21-DH03-PP located at the Primary Pond Dam have intersected massive ground ice that is approximately 2.5 and 3.5 thick, respectively.

The average ground ice content for each drillhole is provided in Figure 13. The average ice content has been weighted by interval thickness which reduces bias from one or more thin interval of very high ice content or thick interval of low ice content may have on the average value. The weighted average ice content is a more representative indication of drillholes with ice-rich vs. ice-poor overburden.

Figures 16 through 19 provide weighted average ice content for drillholes across the property. Several areas of the Property are described in greater detail below.

Primary Pond Area

The Primary Pond Dam extends across exposed bedrock, bedrock with thin overburden, and several bedrock depressions with relatively thick overburden soil. The three geotechnical investigations also confirmed that the foundation is characterized by relatively thin organics that are typically underlain by coarse-grained sand and gravel with intervals of boulders, followed by silt above the top of bedrock (Figure 20). Figure 21 provides the ground ice logs for the Primary Pond Area and nearby Saline Pond Area.

Visible ground ice more than 60% by volume has been observed to occur within the overburden soil. Relatively high ground ice content is associated with Vs, ICE, and ICE w/ Soil. There is not a clear association of ice content with primary material type (Figure 20). Additional ground ice logs for the Camp Pad Area and Umwelt Pit Area are provided in Figure 22., followed by the Goose Pit Area and Echo Pit Area (Figure 22).

Former Tailings Storage Facility Area

The former tailings storage facility area was primarily drilled in 2018 along the proposed dam alignment (Figure 19). Although this facility is no longer included in the current mine design, the relatively high density of drillholes, similar to those at the Primary Pond Dam, offers insight into the stratigraphic variations and spatial distribution of primary material types, as well as the type and content of ground ice. The overburden primarily consists of sand with intervals of gravel, cobbles, and silt. The highest ice content soil occurs within the upper 4-6 meters, which does not directly correlate with a particular soil type. Ice-rich overburden is common to areas that are relatively lower in elevation and poorly drained with organics (Figures 19 and 24). Figure 25 provides the ground ice logs for the west side and east side of the form facility dam alignment.

6.3 Marine Laydown Area

In 2015, a geotechnical investigation of the MLA area was completed using a portable Pionjar drill with split spoon sampler (SRK 2015c). foundation conditions were assessed using 11 shallow drill holes that allowed for continuous core recovery and subsequent sample collection for geotechnical characterization. A total of 11 drill holes were completed within the MLA at the four main infrastructure areas: Freight Storage Area, Fuel Storage Area, Camp Area, and Laydown Area. The maximum depth of drilling was 3.07 meters below ground surface (mbgs).

The field investigation was completed during summer conditions, so the active layer was at its maximum depth. Intact permafrost soils and massive ice were recovered beneath the active layer at the camp and laydown areas. The permafrost was observed to be stratified with random ice formations at these locations, including some massive ice within silty sand and lean clay soils.

At the MLA camp and laydown areas, the overburden soils were predominantly silty sands with lean clays (SM-CL). At the Freight Storage area by the shoreline, most of the overburden soils were well-graded silty sand with gravel (SM). The overburden soils at the fuel tank farm were found to consist mostly of coarse-grained materials such as silty sands with gravel (SW-SM).

Permafrost was observed to be stratified and random ice formations (Vs and Vr) predominantly in silty sand with lean clay soils. Some massive ice, with soil inclusions, was also recovered with the thickness of the massive ice varying between 0.05 m and 0.76 m.

7 Planned Future Activities

7.1 Future Planned Activities

The following section describes future activities that SRK understand are planned for the monitoring program at Back River Project.

- Installation of data loggers at sites SRK-23-CPI-DH1 (Goose camp site) to allow for changes in maximum thaw depth and permafrost temperature to be consistently monitored over time.
- A review of historic and recent meteorological station data should be completed for the Goose and MLA stations, followed by climate data analysis to support the future annual reporting.
- Phase 2 audit of the historic GTC sites closed out to confirm if any of the historic locations are salvageable (cable function and need for repair or replacement of data loggers). Although no historic data is available on the data loggers (this has been confirmed), the Phase 2 audit should consider to be completed by the instrument manufacturer (likely Campbell Scientific or RST) to confirm GTC function and if repair or replacement of the data loggers is possible. A select number of sites will be audited to determine the level of success with reestablishing the historic sites. If successful, additional GTCs will be visited and a portion of the historic site could potentially be used for long-term ground thermal monitoring.
- New background sites will be installed at the Goose Property and MLA to characterize the shallow ground thermal regime. New background monitoring sites would be located at representative locations to monitor changes to active layer and permafrost temperature over time. The new sites will be located a minimum of 30 m from planned or constructed infrastructure in small diameter PVC pipes. Each site would likely include a dedicated data logger to record temperature every 6 hrs.
- Development of an instrument standard operating procedures (SOPs) to ensure consistent and complete data collection.

8 Closure

The annual site wide ground thermal monitoring report has been developed in fulfillment of the Project Certificate Terms and Conditions #11. This annual report is accompanied by an update to the *Back River Project: Site-wide Ground Thermal Monitoring Plan (Revision 01)* (SRK 2026).

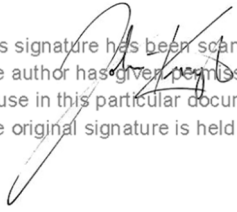
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Attachments:

Attachment 1 Figures
Attachment 2 Ground Temperature Data

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Attachment 1 Figures

Memo

To	Macoura Kone, PhD, PGeol., PGeo. Tanner Shapton, PEng	Client	B2Gold Back River Corp
From	Christopher Stevens, PhD	Project	CAPR004313
Reviewed	John Kurylo, MSc PEng	Date	March 20, 2026
Subject	Back River Project: 2025 Site-wide Ground Thermal Monitoring – Annual Reporting		

File name: BackRiverProject 2025_GroundThermal Monitoring_CAPR003102_Rev01_20260320.docx

1 Introduction

The Back River project (the Project) is an open pit and underground gold mining project in the West Kitikmeot region of Nunavut, approximately 520 km northeast of Yellowknife and 75 km south of Bathurst Inlet. The mine will consist of a Marine Laydown Area (MLA) at Bathurst Inlet and the mine located at the Goose property. The MLA serves as the primary resupply point for the mine. B2Gold Corporation (B2Gold) have been advancing construction at the Goose Property and MLA under their site Water License 2AM-BRP1831 – Amendment No. 1, issued by the Nunavut Water Board (NWB) on October 15, 2021.

Ground thermal monitoring of background and infrastructure is conducted to meet the terms and conditions agreed to in the project certificate. In particular, the Project Certificate Terms and Conditions #11 states that “During construction, the Proponent shall, on an annual basis, provide additional permafrost mapping information documented in fulfillment of this Term and Condition in the Proponent’s annual report to the Nunavut Impact Review Board.” This memorandum provides ground thermal monitoring that has been completed in 2024 and 2025.

2 Monitoring Program

2.1 Monitoring Plan

The site-wide ground thermal monitoring plan (the plan) is designed to ensure the effective collection, management, and reporting of ground temperature data from long-term monitoring stations (SRK 2026).

The ground temperature monitoring objectives include:

- Identifying natural climate-driven changes to the ground thermal regime and permafrost at background sites located outside of direct influence of mining activities; and

- Identifying changes to the ground thermal regime and permafrost from the mine infrastructure.

Key elements of the plan include planning for consistent ground temperature data collection to track permafrost conditions, data management to maintain quality and accuracy of the collected information, annual instrument inspection and maintenance at monitoring sites, and annual reporting to document the above-mentioned information and data findings to support decision-making related to permafrost monitoring at the project site.

2.2 Annual Reporting

An annual ground temperature monitoring report is issued with the annual geotechnical inspection report for the site.

The report is developed to:

- Report data collection for the year;
- Describe instrument maintenance or replacement that has occurred;
- Update graphical plots of the historic and recent measurements for the monitoring sites;
- Analysis of the ground temperature to identify changes in permafrost and long-term trends;
- Analysis of relevant climate parameters to support understanding of changes in permafrost; and
- Action plan for instrument repair or replacement for the upcoming year, as needed.

This annual report further examines archived drillhole datasets that characterize ground ice conditions at the site.

3 Site Conditions

3.1 Climate

The region around the Back River project is characterized by long dark winters, shorter summers and generally gently rolling topography. Typically, the ground is covered in snow from October (and as early as September) to June (sometimes snow melting earlier in mid to late May). Back River is subject to very cold weather and at times persistent Arctic winds, similar to other Northern Canadian sites.

In the winter the lakes and sea are covered with ice that can be greater than 2 m in thickness. This can allow for on-ice activities such as diamond drilling, winter ice road, and airstrip construction and use. The mean annual air temperature (MAAT) is around -10°C at the Goose Station. The mean annual precipitation ranges from around 270 to 430 mm (SRK 2021)

Meteorological data has been collected at the Goose Station (Lat. 65.54, Long. -106.41, Elev. 277 masl) since August 2004 and at the MLA Station (Lat. 66.65, Long. -107.69, Elev. 11 masl) since 2012. The stations are equipped with gauges to monitor air temperature, precipitation as rainfall and snowfall, solar radiation, wind speed, and wind direction (SRK 2021, Rescan 2014). Meteorological data

collected at these two stations will be used to support understanding of changes in ground temperature and permafrost.

3.2 Surficial and Bedrock Geology

Goose Property is characterized by low relief terrain with undulating or rolling landscapes, presented as a sequence of smooth, non-linear rises and hollows that are largely formed by glacial drumlines. Frost boils form micro-relief at the ground surface and have developed from repeated freeze thaw cycle at the site. Drainage is variable from well to poorly drained ground depending on local topography, surficial material, and permafrost. The MLA is located near sea level and characterized by gentle slopes and level plains that drain toward Bathurst Inlet.

Surficial geology at the project site is largely a reflection of the last advance of the North American Laurentide ice sheet during the Wisconsin Glaciation. The maximum extent of the continental glacier occurred approximately 21,000 years ago and began withdrawing from the Kitikmeot Region approximately 10,000 years ago.

The landscape is striated with overburden materials characteristic of a post-glacial environment. At the Goose property, the common surficial deposits include glacial till and drumlines. Glacial till consists of sand and variable amounts of silt and gravel. Drumlines also coarse sand, silt, and gravel compositions and are often associated with kettle lakes. Organic veneers (less than 1 m in depth) are also common, resulting from the accumulation of very slowly decomposing vegetation, typically in the wet lowlands.

The majority of the Goose Property is underlain by clastic meta-sedimentary rock types consisting of turbidites (greywacke and mudstone) of the Slave Province (Rescan 2013) Vol 5 EIS). This sequence is cut by felsic dikes and gabbroic dikes. From oldest to youngest, the sequence is composed of central greywacke, lower iron formation, middle mudstone, upper iron formation, and upper sediments. Exposed bedrock can be found throughout the Goose Property or immediately below a thin veneer of glacial sediments.

At the MLA, the surficial deposits include marine and morainal deposits. Marine and moraine deposits consist mainly of coarse sands. Poorly drained areas with accumulated organics may also have fine-grained soils and higher amounts of ground ice.

3.3 Ground Thermal Regime

Back River is located within a zone of Continuous permafrost, with an estimated 90 to 100% of the land area underlain by permafrost. Permafrost temperature has been measured to range from -4.7°C to -7.5°C at the Goose Property, with an average of -6.3°C (SRK 2015a). The seasonally thawed active layer ranges from approximately 1 to 4 m bgs. The greatest active layer depth occurs in areas with thin soil veneers above bedrock. The base of permafrost is estimated to range from 490 to 570 m bgs using the 0°C isotherm, with a reported geothermal gradient of 0.013 to 0.014°C/m (SRK 2015a). The local groundwater chemistry results in a freezing point depression and unfrozen taliks at the base of permafrost, also referred to as basal cryopegs.

4 Ground Thermal Monitoring

4.1 Overview

The site wide ground thermal monitoring plan provides the historic and recent ground temperature cables (GTCs) installed at the Goose Property and MLA (SRK 2025). Figure 1 shows the general arrangement of constructed and planned infrastructure at the Goose Property. This area has been instrumented with GTCs to characterize the ground thermal regime at “historic site” (installed prior to 2023) and “recent sites” (2023-present) (Figure 2). The status (function) of the GTCs at the Goose Property is shown in Figures 3. Several additional GTCs have historically been installed at the MLA and their current status is shown in Figures 4 and 5, respectively.

At the time of reporting, the historic sites are inactive with unknown instrument function, and no recent measurements have been made from the sites (Figures 3 and 5). Phase 1 audit of the instruments was completed by SRK in 2023. The Phase 1 audit included visual inspection the instrumentation (cable leads and data loggers) for damage at the Goose Property. The information was advanced to Campbell Scientific who is the instrument manufacturer for most of the historic instruments. Campbell Scientific concluded that historic measurements and programming would no longer be store on the data loggers due to depletion of the primary and secondary batteries. Ultimately it was determined that no salvageable stored memory was available in the historic dataloggers and any updates or repairs to these data loggers would be to collect new and forward-looking data only. The historic data that is available for each of the sites is provided in the *Back River Project: Site-wide Ground Thermal Monitoring Plan (Revision 01)* (SRK 2026).

Phase 2 of the instrument audit: B2Gold is in the process requesting proposals to install new background GTC and / or to confirm cable functionality and to repair or replace historic data loggers at a select number of accessible sites. B2Gold will review the proposals and develop a plan to install new suitable data collection at the Goose site. These sites will characterize the deep ground thermal regime to establish long-term changes in permafrost. The instruments are not well suited for monitoring the shallow ground thermal regime, active layer depth, and change in shallow permafrost temperature, due to the original purpose of the instruments. New background sites are therefore planned for installation to characterize the shallow ground thermal regime at background locations outside of the influence of mining infrastructure.

4.2 Monitoring Program Sites

A summary of the background and infrastructure monitoring sites that have been included in the site-wide ground thermal monitoring program is provided in Table 1. The monitoring sites represent a subset of the active GTCs that are used to monitoring geotechnical performance of the constructed infrastructure. The GTC sites that are included in the monitoring program will be expanded as additional mine infrastructure is constructed and following the 2025 instrument audit of the historic sites.

One recent monitoring site (24-GSE-678B) is active at the Goose Property nearby the Umwelt Pit and Underground (Figures 3 and 6). Ground temperature is measured and recorded every four hours using a data logger. The site will be used to monitoring the thermal influence of pit and underground mine on immediately surrounding permafrost. The surface extent of the GTC is not expected to provide background conditions due to thermal disturbance from surface activities at the site. Additional background monitoring sites will be located further from surface activities to provide a better indication of background changes in ground temperature and permafrost.

An additional five infrastructure monitoring sites have been included as part of annual monitoring at the Goose Property (Table 1). The infrastructure monitoring sites include three sites at the Primary Pond Dam (PP-VTC-550-US, PP-VTC-550-DS, PP-VTC-550-KT) which are located at Station 550 beneath the Upstream (US), Downstream (DS), and Key Trench (KT). The three sites are used to monitor the influence of the dam on the underlying permafrost foundation. Note that there is additional instrumentation installed at the Primary Pond Dam. A full overview of all monitoring data from the instrumentation in that dam, including the remaining GTCs, will be overviewed / reported in the annual Dam Safety Inspection (DSI) reports that will commence in 2026; note that Primary Pond Dam finished construction at the end of 2025 so the first DSI to occur in 2026. One additional infrastructure monitoring site is located at the Camp Pad (SRK-23-CPI-DH1) (Figure 3). The ground temperature cable is used to monitor ground temperature in the rock pad and permafrost foundation. The cable is manual measured at a specified minimum frequency of once each quarter.

At MLA, two infrastructure monitoring sites (MLA-TF-GTC-1 and MLA-TF-GTC-2) at the fuel tank pad (Figure 5). The sites are included in the monitoring program and are used to monitor temperature through the rock pad and permafrost foundation (Table 1, Figure 5). MLA-TF-GTC-1 is installed through the tank farm berm and foundation on the southwest side of the facility, where the berm is constructed on overburden. The second GTC (MLA-TF-GTC-2) is installed on the north edge of pad at Tank 5 and extends into the foundation.

Table 1: Ground Thermal Monitoring Sites

Location	Area	Site ID	Year	Northing	Easting	Status	Monitoring Type	GTC Length [m] (Approx.)
Goose Property	Umwelt Pit Area	24-GSE-678B	2024	7270839	430150	Active	Background	
	Primary Pond Dam	PP-VTC-550-US	2023	7271204	429848	Active	Infrastructure	15.5
		PP-VTC-550-KT	2023	7271180	429830	Active	Infrastructure	15.5
		PP-VTC-550-DS	2023	7271168	429821	Active	Infrastructure	15.5
	Camp Pad	SRK-23-CPI-DH1	2023	7270012	429952	Active	Infrastructure	13.4
MLA Property	Tank Farm	MLA-TF-GTC-1	2024	7393818	380820	Active	Infrastructure	21.0
		MLA-TF-GTC-2	2024	7393854	381065	Active	Infrastructure	15.3

4.3 Data Collection

Ground temperature data collection was completed using data loggers dedicated to each site or manual measurement periodically measured using a similar data logger (Table 2). The data is uploaded to the project site-wide ground thermal monitoring database, along with meteorological data collected at the Goose and MLA stations.

Attachment 2 provides the record of data collection for monitoring sites since their installation. The measurements are discussed in Section 5.

Table 2: Monitoring Site Type, Data Collection Method, and Measurement Frequency

Site ID	Year	Monitoring Type	Collection Method	Measurement Frequency
24-GSE-678B	2024	Background	Data Logger	Every 6 hrs
PP-VTC-550-US	2023	Infrastructure	Manual	Once a Quarter
PP-VTC-550-KT	2023	Infrastructure	Manual	Once a Quarter
PP-VTC-550-DS	2023	Infrastructure	Manual	Once a Quarter
SRK-23-CPI-DH1	2023	Infrastructure	Manual	Once a Quarter
MLA-TF-GTC-1	2024	Infrastructure	Data Logger	Every 6 hrs
MLA-TF-GTC-2	2024	Infrastructure	Data Logger	Every 6 hrs

Notes:

1. Year indicates the year of installation of the site
2. Background sites are expected to be influenced by natural changes
3. Infrastructure sites are expected to be influenced directly by infrastructure
4. Measurement frequency indicates the minimum required collection of data per the monitoring plan
5. Data logger installation planned for sites PP-VTC-550-US, PP-VTC-550-DS, and PP-VTC-550-KT after completion of dam

4.4 Instrument Performance and Data Quality

The data was reviewed to identify anomalous measurements. All data collected is included in the site-wide ground thermal database. Anomalous readings are then qualified in the database using our professional judgement and experience related to the ground thermal regime and permafrost. Abnormal readings are flagged within the database and not included in the annual analysis.

Table 3 summarizes the status of the instruments and data quality, and completeness based on the required measurement frequency. The status (function) of the sites is based on the following definitions.

Monitoring Site Status:

- Active – GTC is functional at time of reporting
- Inactive – GTC function is unknown at time of reporting
- Compromised (Repair) – GTC is not functional at time of reporting and requires repair
- Compromised – GTC is not functional and damaged beyond repair or not accessible

The overall quality of the data is determined using the following criteria:

Good Data Quality:

- Consistent and Reliable Readings: Temperature sensors provide stable and repeatable measurements over time.
- Minimal Data Gaps: The dataset has continuous records following the required measurement frequency with few or no missing values.

Poor Data Quality:

- Erratic or Unstable Readings: Temperature values fluctuate abnormally without justification.
- Significant Data Gaps: Large portions of the dataset are missing following the required measurement frequency.
- Instrumentation failure: The instrument (data logger or cable) experienced failure during year

Table 3: Monitoring Site Status and Data Quality and Completeness

Site ID	Status	Data Quality	Data Completeness
24-GSE-678B	Active	Good	Complete
PP-VTC-550-US	Active	Good	Complete
PP-VTC-550-KT	Active	Good	Complete
PP-VTC-550-DS	Active	Good	Complete
SRK-23-CPI-DH1	Active	Good	Complete
MLA-TF-GTC-1	Compromised (Repair)	Good	Incomplete
MLA-TF-GTC-2	Active	Good	Complete

Note:

1. Data completeness evaluated based on the minimum measurement frequency stated in the Monitoring Plan (SRK 2026).

5 Data Analysis

SRK has analyzed ground temperature data to meet the primary reporting described in the monitoring plan (SRK 2026). The analysis will be expanded as additional data is collected and additional sites are included in the monitoring program. The planned activities to improve and expand the monitoring program are described in Section 7.

5.1 Climate Data

B2Gold is in the process of aligning historic and recent meteorological station data that will be reported in the next annual monitoring report.

5.2 Goose Property

Umwelt Pit Area

Monitoring site 24-GSE-678B was installed as a background site near the Umwelt Pit. The ground temperature is monitored to evaluate changes to background permafrost nearby the pit and underground area. The location of site 24-GSE-678B and other recent (22-UMU004B) and historic (13-GSE-288, 13-GSE-279, 12-GSE-233C) sites is shown in Figure 6. Several of the sites have poor data quality that is not considered (Figure 7).

Figure 8 shows a comparison (correlation) of ground temperature measured at 24-GSE-678B with other nearby sites with good data quality. Site 24-GSE-678B has relatively similar ground temperature and depth to the base of permafrost when compared to historic measurements from site 13-GSE-279. There is notable difference in ground temperature with the upper 150 m which likely reflects long-term differences in the ground thermal regime between the two sites.

An attempt will be made to collect recent measurements from site 13-GSE-279. More recent measurements would be used to evaluate climate induced changes to permafrost between 2014 and present. Site 24-GSE-678B will be used for long-term monitoring of ground temperature adjacent to the pit. The lower portion of the GTC may be impacted by future underground mining, however, this is not expected to have an impact on the overall function of the cable at a shallower depth.

Primary Pond Dam (PP-VTC-550-US, PP-VTC-550-KT, PP-VTC-550-DS)

The Primary Pond Dam GTCs (PP-VTC-550-US, PP-VTC-550-KT, PP-VTC-550-DS) are vertically installed beneath the upstream (US), key trench (KT), and downstream (DS) (Figure 9). The cables extend into the foundation to monitor thermal influence of the structure on the underlying permafrost. Ground temperature is expected to vary across the three locations due to differences in thermal forcing from the upstream to downstream position of the dam.

Figure 9 shows the minimum and maximum annual ground temperature at the three monitoring sites. Ground temperature is variable between the sites as a function of the influence of dam fill and disturbance induced by ongoing construction of the dam. Permafrost temperature at an elevation of approximately 296 m varies from -4.2 to -5.3°C.

The upstream site (PP-VTC-550-US) shows the expected annual ground thermal regime beneath the toe, prior to retention of water. Over time, permafrost warming and thaw can be expected in response to the thermal influence of water in the pond. The downstream site (PP-VTC-550-DS) shows minimal annual change in ground temperature (minimal change in sensible heat). The limited amount of heat loss in the winter at this location may be due to snow accumulation and piling. This inference is based on our field observations. At site PP-VTC-550-KT, there is minor change in sensible heat beneath the key trench which is due to the overlying fill. Seasonal variation in ground temperature is limited to the fill material at this location. Longer term changes in temperature would be expected over time.

Camp Pad

The camp pad GTCs (SRK-23-CPI-DH1 & SRK-23-CPI-DH2) are vertically installed through the pad rock fill and underlying permafrost foundation (Figure 10). Permafrost is influenced by both the rock pad and surface infrastructure. Figure 10 shows the minimum and maximum temperature measured at the sites in 2024. Permafrost temperature is measured to be -6.8°C from lowermost sensor installed at 13.4 m bgs. The active layer depth is approximately 1.85 m bgs which is above the base of the rock pad.

5.3 MLA Property

At MLA, monitoring sites MLA-TF-GTC-1 and MLA-TF-GTC-2 have been installed to monitor temperature through the rock pad and permafrost foundation. At the time of reporting MLA-TF-GTC-1 is inactive and requires repair. Permafrost temperature is measured to be -4.3°C and -6.1°C at approximately 15 m bgs for MLA-TF-GTC-1 and MLA-TF-GTC-2, respectively.

6 Ground Ice

The following section has been included in the Annual Monitoring Report to summarize ground ice conditions at the Goose Property and MLA.

6.1 Drillhole Database

Geotechnical investigations to recover frozen overburden have included diamond drilling with brine and shallow split spoon sampling. These drilling methods have allowed for visual description of frozen soil to characterize ground ice type and content at the Goose Property and MLA. Three geotechnical investigations completed at the Goose Property (SRK 2015b; SRK 2018; SRK 2022) and an additional investigation at the MLA (SRK 2015c) are considered. Drillhole logs were compiled and analyzed to assess the variability in ground ice content and type.

Soil descriptions have been based on geotechnical logging of the recovered soil core using ASTM D2488-17 (ASTM 2017). Field descriptions of the material type have been confirmed with particle size distribution results completed on select samples in the laboratory. Ground ice type and visible estimation of excess ground ice content were based on ASTM D4083 (ASTM 2016).

Ground ice within overburden soil and bedrock is naturally heterogenous due to difference in material type, moisture content, and past and current thermal gradient of the ground. In general, fine-grained silt and clay are frost susceptible and favorable to ice segregation resulting from in-situ formation of ground ice. In contrast, coarse-grained sand and gravel deposits are less conducive to ice segregation; however, ground ice can still be present. Massive ground ice (ICE or ICE+Soil) may also be present in either fine or coarse-grained material due to burial of glacial ice, burial and recrystallization of snow patches, ice-wedges formed in thermal contraction cracks, or injection ice formed from pressurized groundwater.

6.2 Goose Property

Ground Ice Distribution

Drillholes with ground ice logs is shown in Figure 12. Ground ice content and type is spatially and stratigraphically variable at the property. Figure 13 shows ground ice content for all drillholes as a function of depth. The first one meter below the surface is typically lower ice content overburden within the active layer. A majority of the drillholes report ground ice content within the active layer to be 0 to 10%, however several are logged to be 20 to 30 percent. This lower ice content zone transitions to ice-rich overburden at the top of permafrost. Ice-rich overburden between 20 and 100% (ICE) is commonly logged from the top of permafrost to approximately 5 m at the site. Drillhole intervals below approximately 5 m are commonly characterized by ground ice content less than 15%. This does not exclude the possibility of deep-seated ground ice including massive ground ice (ICE or ICE+Soil) (Figure 14).

Massive ground ice that is logged as ICE or ICE+Soil may occur in the form of segregated ice lenses, ice wedges, injection ice, or buried glacial ice or snow patch ice. Figure 15 shows drillhole locations with massive ground ice. Massive ground ice thickness is variable over the depths sampled (Figure 14). The thickest bodies of massive ground ice have been intercepted from approximately 1.0 and 4.0 m bgs. The massive ice observed within this depth interval is commonly up to 1 m thick (Figure 14). Massive ice logged between approximately 4.0 to 5.5 m bgs was observed to be 0.5 m thick or less.

A histogram of the occurrence (number of intervals) of massive ice as a function of its thickness is shown in Figure 14. The highest occurrence intervals consist of massive ice less than 0.25 m thick, followed by similar occurrence of massive ice that is between 0.25 and 0.75 m thick (Figure 14). There are several drillholes with massive ground ice bodies that are between 0.75 and 1.0 m thick. Drillholes SRK-18-DH10 and SRK-21-DH03-PP located at the Primary Pond Dam have intersected massive ground ice that is approximately 2.5 and 3.5 thick, respectively.

The average ground ice content for each drillhole is provided in Figure 13. The average ice content has been weighted by interval thickness which reduces bias from one or more thin interval of very high ice content or thick interval of low ice content may have on the average value. The weighted average ice content is a more representative indication of drillholes with ice-rich vs. ice-poor overburden.

Figures 16 through 19 provide weighted average ice content for drillholes across the property. Several areas of the Property are described in greater detail below.

Primary Pond Area

The Primary Pond Dam extends across exposed bedrock, bedrock with thin overburden, and several bedrock depressions with relatively thick overburden soil. The three geotechnical investigations also confirmed that the foundation is characterized by relatively thin organics that are typically underlain by coarse-grained sand and gravel with intervals of boulders, followed by silt above the top of bedrock (Figure 20). Figure 21 provides the ground ice logs for the Primary Pond Area and nearby Saline Pond Area.

Visible ground ice more than 60% by volume has been observed to occur within the overburden soil. Relatively high ground ice content is associated with Vs, ICE, and ICE w/ Soil. There is not a clear association of ice content with primary material type (Figure 20). Additional ground ice logs for the Camp Pad Area and Umwelt Pit Area are provided in Figure 22., followed by the Goose Pit Area and Echo Pit Area (Figure 22).

Former Tailings Storage Facility Area

The former tailings storage facility area was primarily drilled in 2018 along the proposed dam alignment (Figure 19). Although this facility is no longer included in the current mine design, the relatively high density of drillholes, similar to those at the Primary Pond Dam, offers insight into the stratigraphic variations and spatial distribution of primary material types, as well as the type and content of ground ice. The overburden primarily consists of sand with intervals of gravel, cobbles, and silt. The highest ice content soil occurs within the upper 4-6 meters, which does not directly correlate with a particular soil type. Ice-rich overburden is common to areas that are relatively lower in elevation and poorly drained with organics (Figures 19 and 24). Figure 25 provides the ground ice logs for the west side and east side of the form facility dam alignment.

6.3 Marine Laydown Area

In 2015, a geotechnical investigation of the MLA area was completed using a portable Pionjar drill with split spoon sampler (SRK 2015c). foundation conditions were assessed using 11 shallow drill holes that allowed for continuous core recovery and subsequent sample collection for geotechnical characterization. A total of 11 drill holes were completed within the MLA at the four main infrastructure areas: Freight Storage Area, Fuel Storage Area, Camp Area, and Laydown Area. The maximum depth of drilling was 3.07 meters below ground surface (mbgs).

The field investigation was completed during summer conditions, so the active layer was at its maximum depth. Intact permafrost soils and massive ice were recovered beneath the active layer at the camp and laydown areas. The permafrost was observed to be stratified with random ice formations at these locations, including some massive ice within silty sand and lean clay soils.

At the MLA camp and laydown areas, the overburden soils were predominantly silty sands with lean clays (SM-CL). At the Freight Storage area by the shoreline, most of the overburden soils were well-graded silty sand with gravel (SM). The overburden soils at the fuel tank farm were found to consist mostly of coarse-grained materials such as silty sands with gravel (SW-SM).

Permafrost was observed to be stratified and random ice formations (Vs and Vr) predominantly in silty sand with lean clay soils. Some massive ice, with soil inclusions, was also recovered with the thickness of the massive ice varying between 0.05 m and 0.76 m.

7 Planned Future Activities

7.1 Future Planned Activities

The following section describes future activities that SRK understand are planned for the monitoring program at Back River Project.

- Installation of data loggers at sites SRK-23-CPI-DH1 (Goose camp site) to allow for changes in maximum thaw depth and permafrost temperature to be consistently monitored over time.
- A review of historic and recent meteorological station data should be completed for the Goose and MLA stations, followed by climate data analysis to support the future annual reporting.
- Phase 2 audit of the historic GTC sites closed out to confirm if any of the historic locations are salvageable (cable function and need for repair or replacement of data loggers). Although no historic data is available on the data loggers (this has been confirmed), the Phase 2 audit should consider to be completed by the instrument manufacturer (likely Campbell Scientific or RST) to confirm GTC function and if repair or replacement of the data loggers is possible. A select number of sites will be audited to determine the level of success with reestablishing the historic sites. If successful, additional GTCs will be visited and a portion of the historic site could potentially be used for long-term ground thermal monitoring.
- New background sites will be installed at the Goose Property and MLA to characterize the shallow ground thermal regime. New background monitoring sites would be located at representative locations to monitor changes to active layer and permafrost temperature over time. The new sites will be located a minimum of 30 m from planned or constructed infrastructure in small diameter PVC pipes. Each site would likely include a dedicated data logger to record temperature every 6 hrs.
- Development of an instrument standard operating procedures (SOPs) to ensure consistent and complete data collection.

8 Closure

The annual site wide ground thermal monitoring report has been developed in fulfillment of the Project Certificate Terms and Conditions #11. This annual report is accompanied by an update to the *Back River Project: Site-wide Ground Thermal Monitoring Plan (Revision 01)* (SRK 2026).

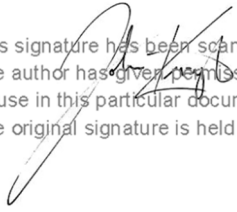
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Christopher Stevens, PhD
Associate (Permafrost and Infrastructure)

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John Kurylo, MSc, PEng
Principal Consultant (Geotechnical and Civil)

Attachments:

Attachment 1 Figures
Attachment 2 Ground Temperature Data

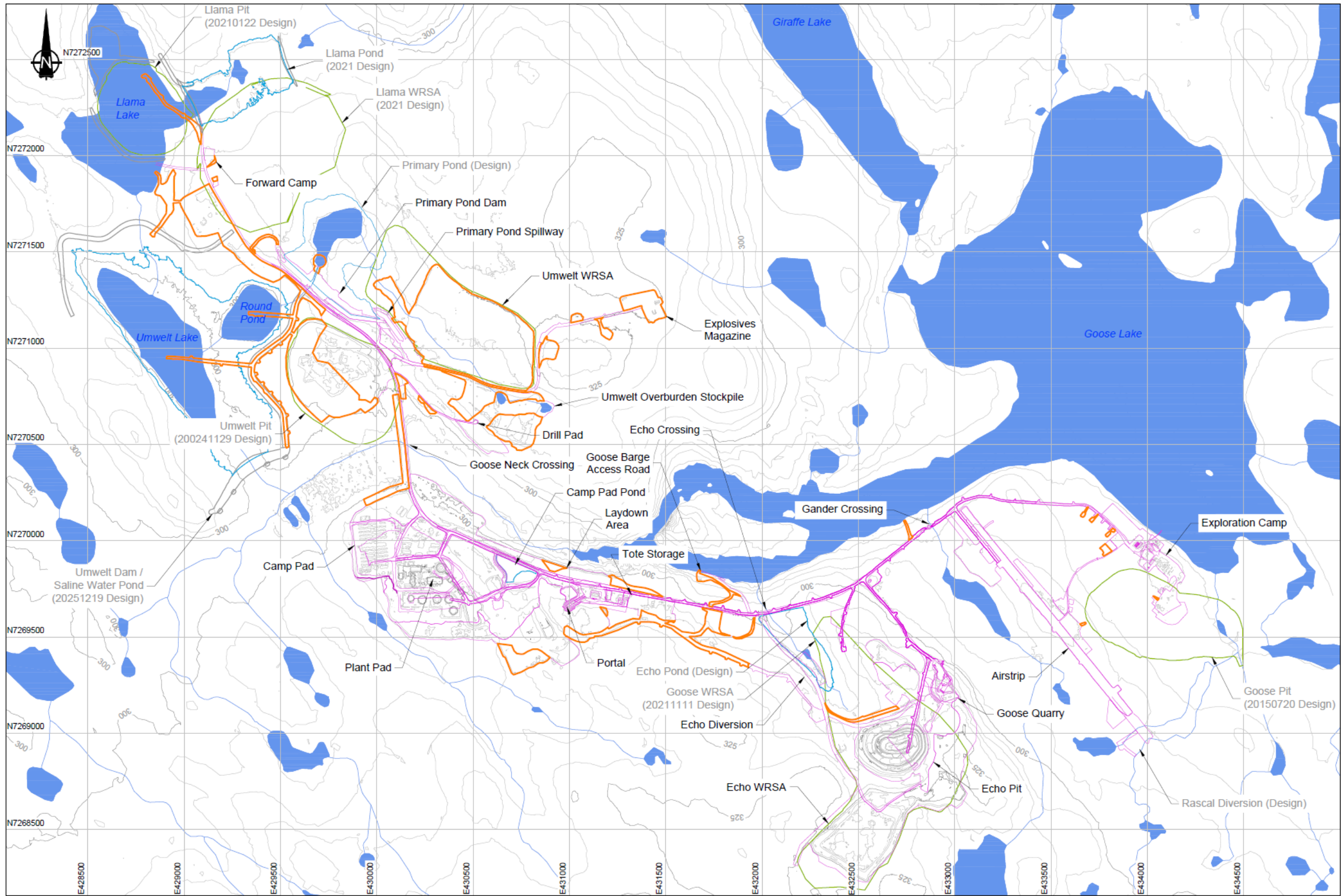
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The opinions expressed in this document have been based on the information available to SRK at the time of preparation. SRK has exercised all due care in reviewing information supplied by others for use on this project. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information, except to the extent that SRK was hired to verify the data.

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- SRK Consulting (Canada) Inc. 2015c. Marine Laydown Area – 2015 Overburden Geotechnical Investigation Program. Report prepared for Sabina Gold & Silver Corp. Project No. 1CS020.009.
- SRK Consulting (Canada) Inc. 2018. Goose Property - 2018 Overburden Geotechnical Investigation Program. DRAFT Report prepared for Sabina Gold & Silver Corp. Project No. 1CS020.016.
- SRK Consulting (Canada) Inc. 2021. Back River: Updated Feasibility Study – Hydrology Update. Prepared for Sabina Gold and Silver Corporation.
- SRK Consulting (Canada) Inc. 2022. 2021 Geotechnical Field Investigation. DRAFT Report prepared for Sabina Gold & Silver Corp. Project No. 1CS020.020.
- SRK Consulting (Canada) Inc. 2026. Back River Project: Site-wide Ground Thermal Monitoring Plan (Revision 01). Dated March 2026. Report submitted to B2Gold Corporation. Project No. NACAPR004313

Attachment 1 Figures

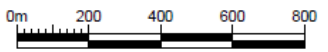


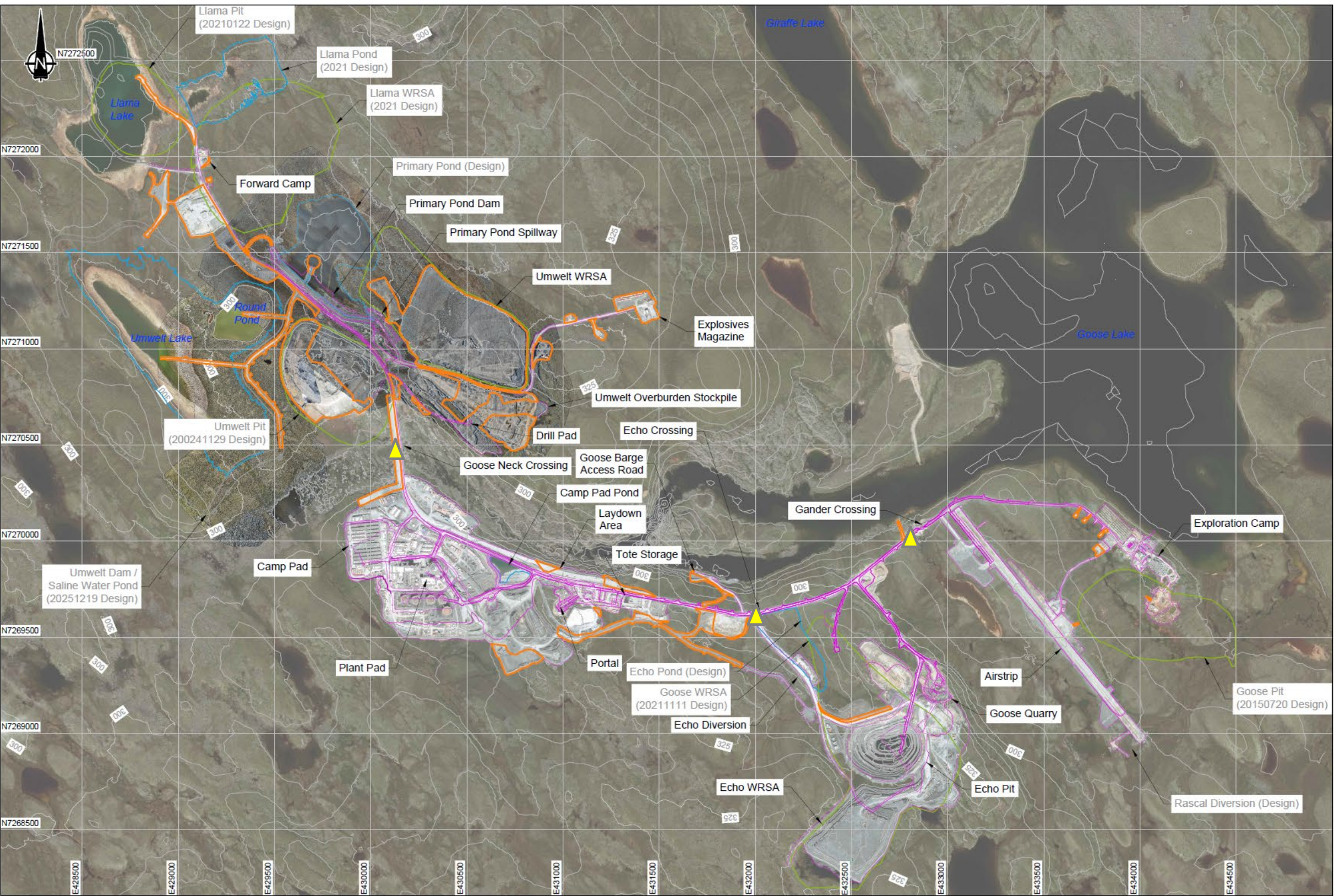
LEGEND

- Design Pit and Dump Infrastructure
- Design Infrastructure
- Previous As-Constructed Infrastructure
- 2025 As-Constructed Infrastructure

- NOTES**
- All units are in meters unless otherwise specified.
 - Contours are shown at 5.0 m intervals.

REFERENCES
NAD83 UTM Zone 13.





LEGEND

- Design Pit and Dump Infrastructure
- Design Infrastructure
- Previous As-Constructed Infrastructure
- 2025 As-Constructed Infrastructure

NOTES

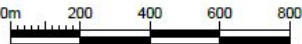
- All units are in meters unless otherwise specified.
- Contours are shown at 5.0 m intervals.

REFERENCES

NAD83 UTM Zone 13.
Aerial Imagery is compiled from:

- 20250816 Aerial Photo
- 20250817 Aerial Photo
- 20250909 Aerial Photo

Culvert Locations



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

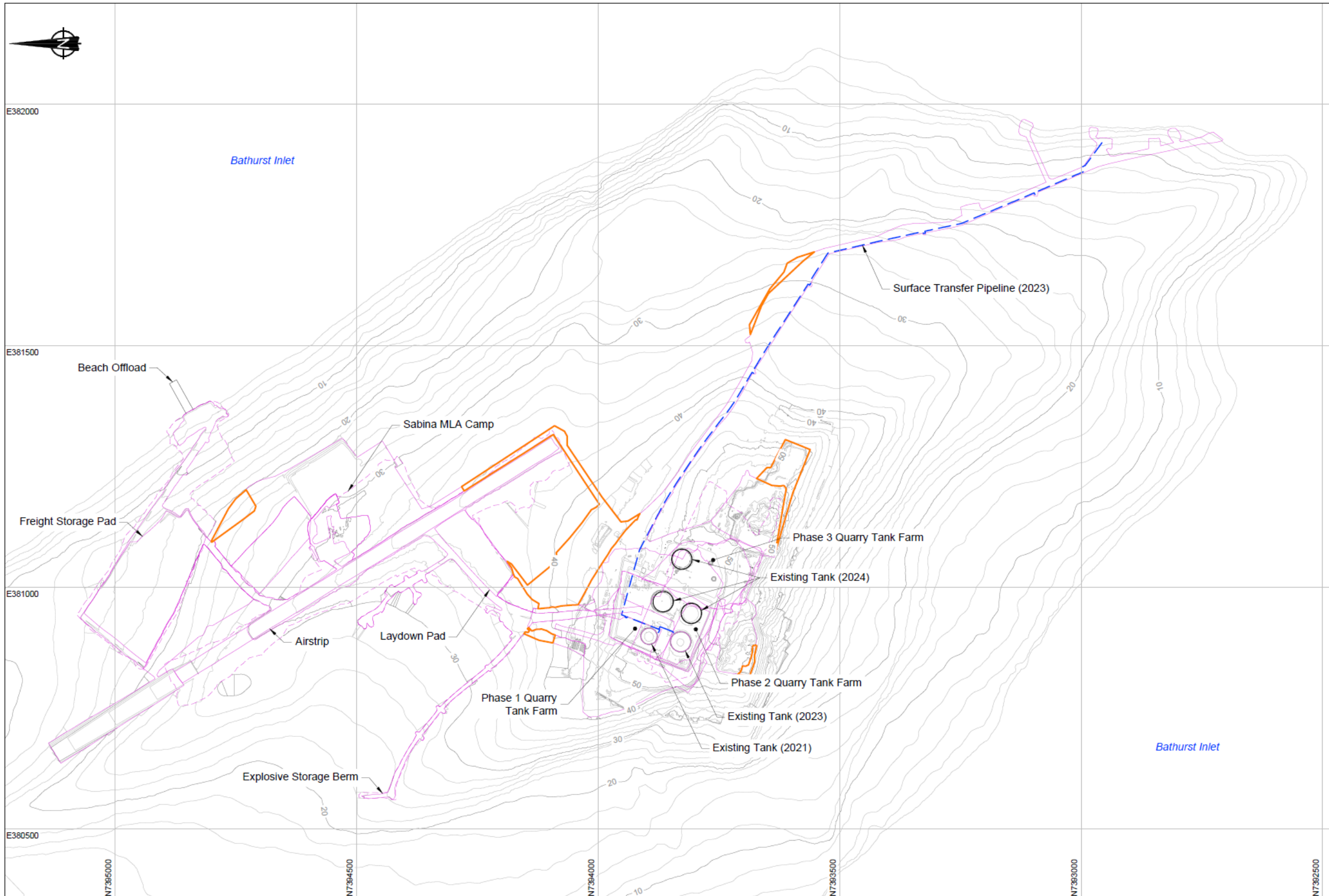


Back River Project

2025 Ground Thermal Monitoring Report

Goose Lake Site Plan View
with Imagery

Date: 2026-03-19
Approved: JBK
Figure: 2



LEGEND

- 2018 Initial Survey
- Previous As-Constructed Infrastructure
- 2025 As-Constructed Infrastructure

NOTES

1. All units are in meters unless otherwise specified.
2. Contours are shown at 2.0 m intervals.

REFERENCES

NAD83 UTM Zone 13.



2025 Ground Thermal Monitoring Report

Marine Laydown Area Plan View

Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

Back River Project

Date: 2026-03-19	Approved: JBK	Figure: 7
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LEGEND

- 2018 Initial Survey
- Previous As-Constructed Infrastructure
- 2025 As-Constructed Infrastructure

- NOTES**
- All units are in meters unless otherwise specified.
 - Contours are shown at 2.0 m intervals.

REFERENCES

NAD83 UTM Zone 13.
Aerial Imagery is compiled from:

- 20250802 Aerial Photo
- 20250816 Aerial Photo



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

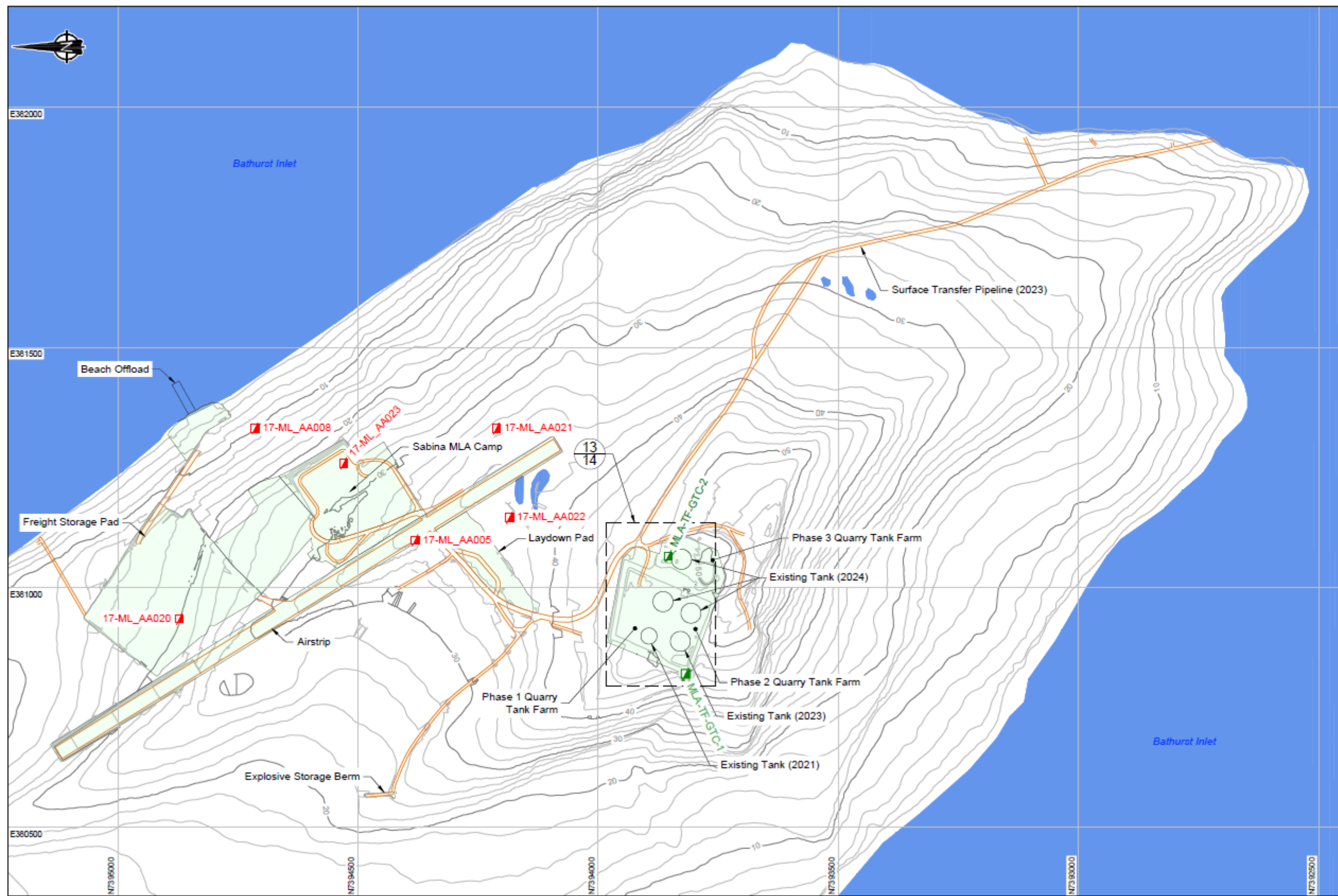


Back River Project

2025 Ground Thermal Monitoring Report

Marine Laydown Area Plan View with Imagery

Date: 2026-03-19	Approved: JBK	Figure: 8
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LEGEND

- Active GTC
- Compromised (Repair) GTC
- Compromised GTC
- Design Infrastructure
- Road
- Waterbody
- Facility Area

- NOTES**
1. All units are in meters unless otherwise specified.
 2. Contours are shown at 2.0 m intervals.
 3. Active refers to a GTC that is functional at the time of reporting.
 4. Inactive refers to a GTC whose function is unknown at the time of reporting.
 5. Compromised (Repair) refers to a GTC that is not functioning at time of reporting and required repair.
 6. Compromised refers to a GTC that is not functioning at time of reporting, and is damaged beyond repair or not accessible.

REFERENCES
NAD83 UTM Zone 13.



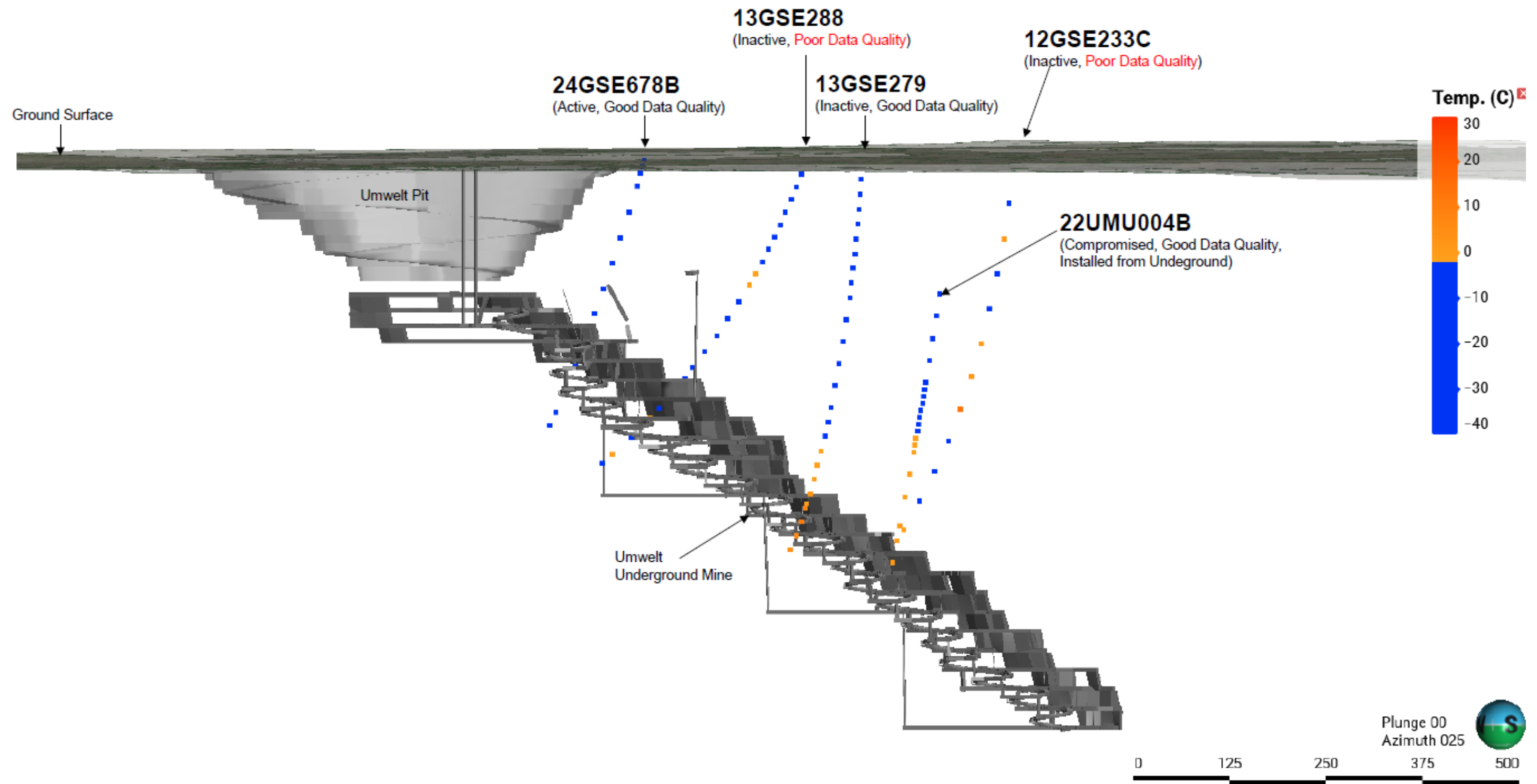
Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

Back River Project

2025 Ground Thermal Monitoring Report

Marine Laydown Area (MLA)GCGround
Temperature Cables Status

Date: 2026-03-19	Approved: JBK	Figure: 6
---------------------	------------------	---------------------

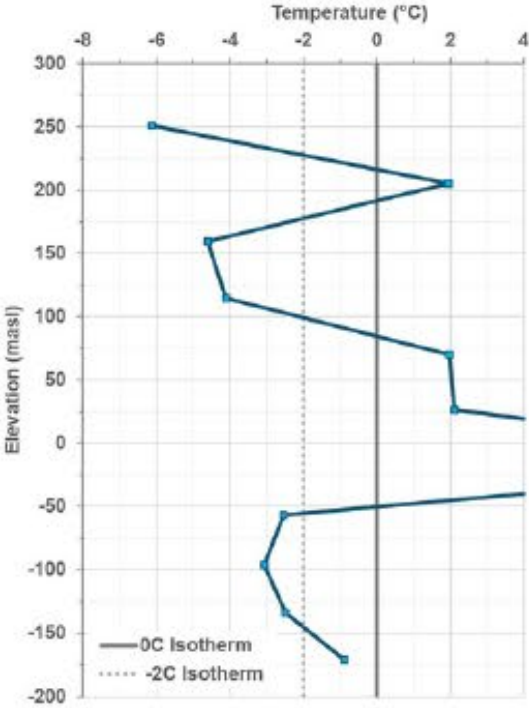


- Notes:
- 1. Ground temperature sensors indicated with color squares
 - 2. Blue representing temperature values -2°C or less.
 - 3. Temperature values warming than -2°C are assumed to be unfrozen based on the groundwater freezing point depression.

		2025 Ground Thermal Monitoring Report		
		Umwelt Pit and Underground Area - Historic and Recent GTCs		
		Date: 2026-03-19	Approved: JBK	Figure: 7
Job No: CAPR004313	Back River Project			
Filename: GroundThermalMonitoring_2025_Figures..pdf				

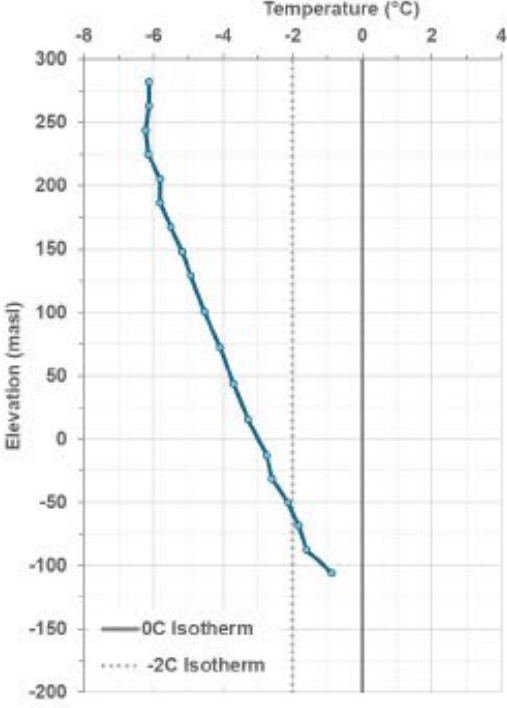
12-GSE-233C

Poor Data Quality



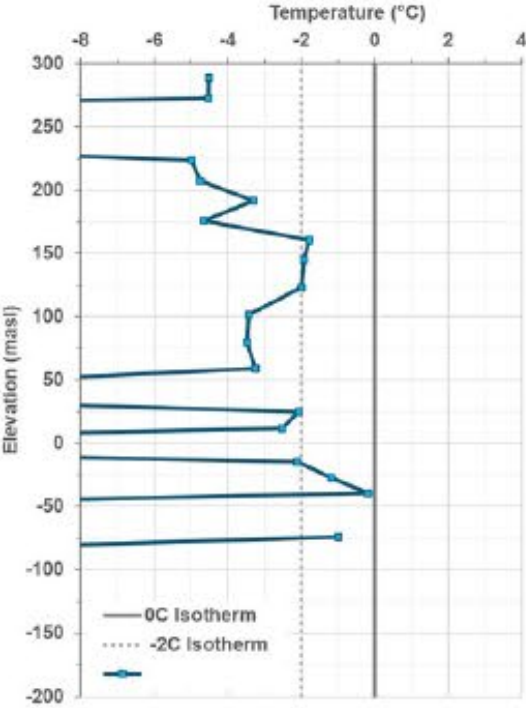
13-GSE-279

Good Data Quality
(Used in Analysis)



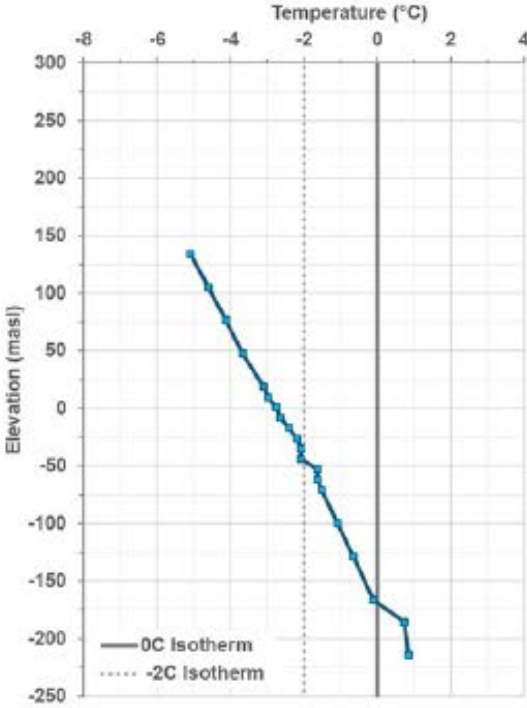
13-GSE-288

Poor Data Quality



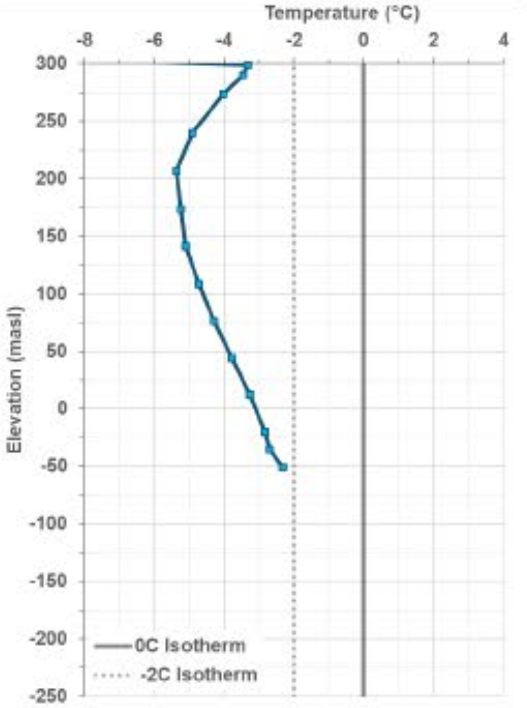
22-UMU004B

Good Data Quality
(Used in Analysis)



24-GSE-678B

Good Data Quality
(Used in Analysis)



Notes:
1. Location of ground temperature cable sites shown on Figure 7.



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

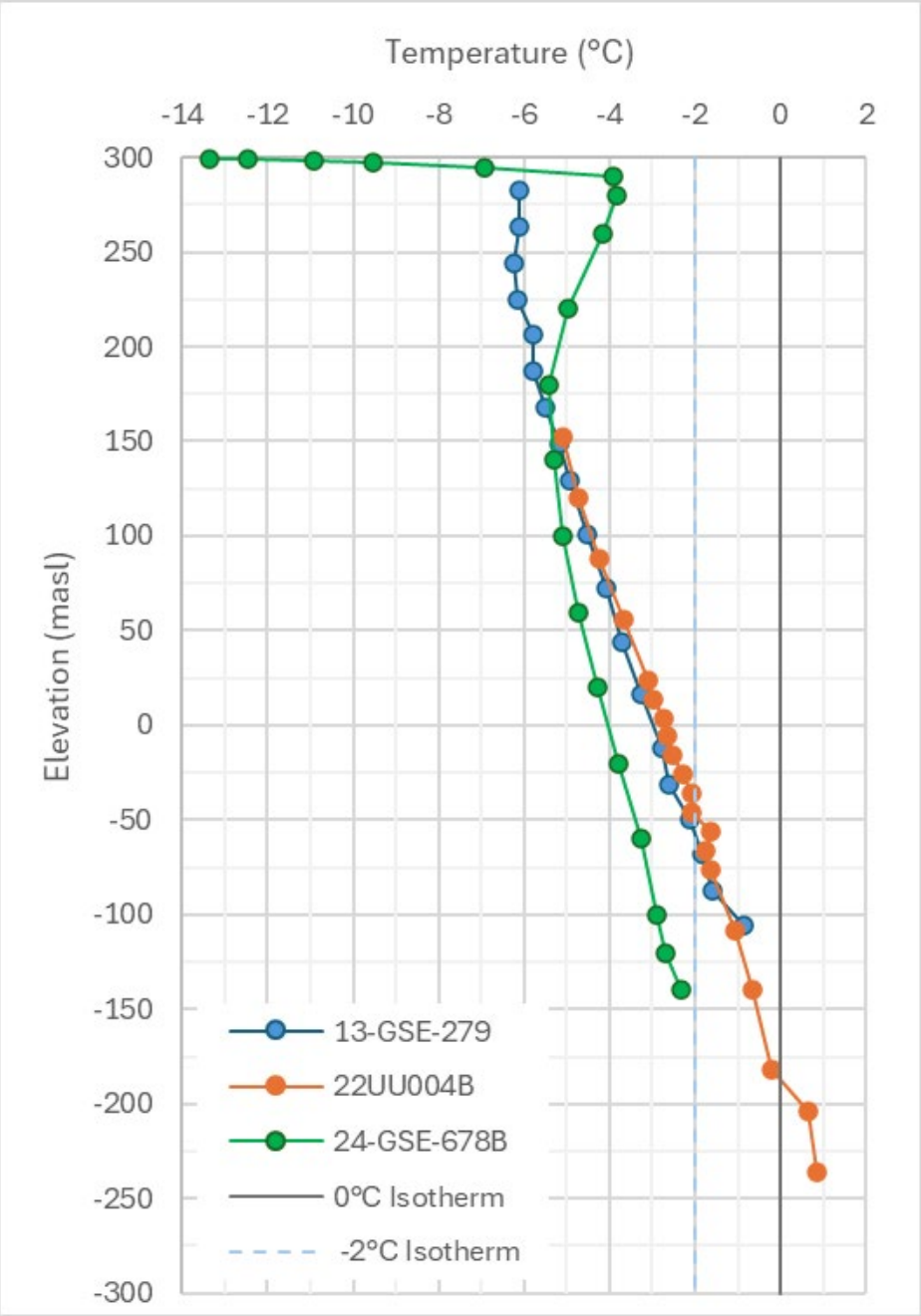


Back River Project

2025 Ground Thermal Monitoring Report

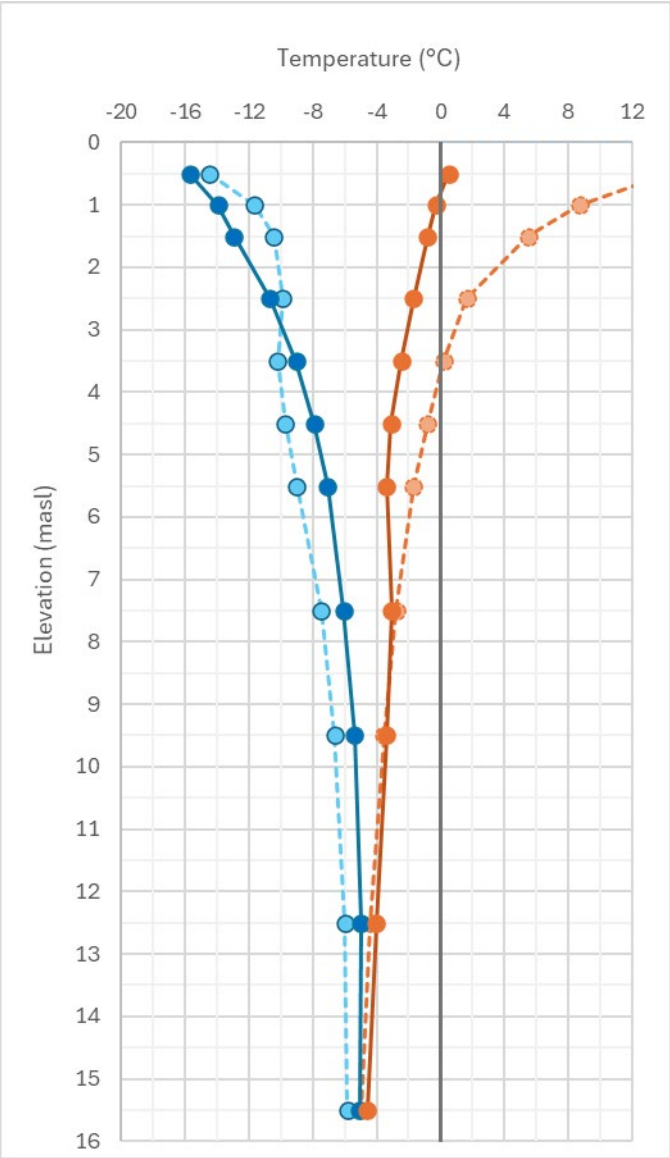
Umwelt Pit and Underground Area –
Historic and Recent Ground
Temperature Data

Date: 2026-03-19
Approved: JBK
Figure: 8

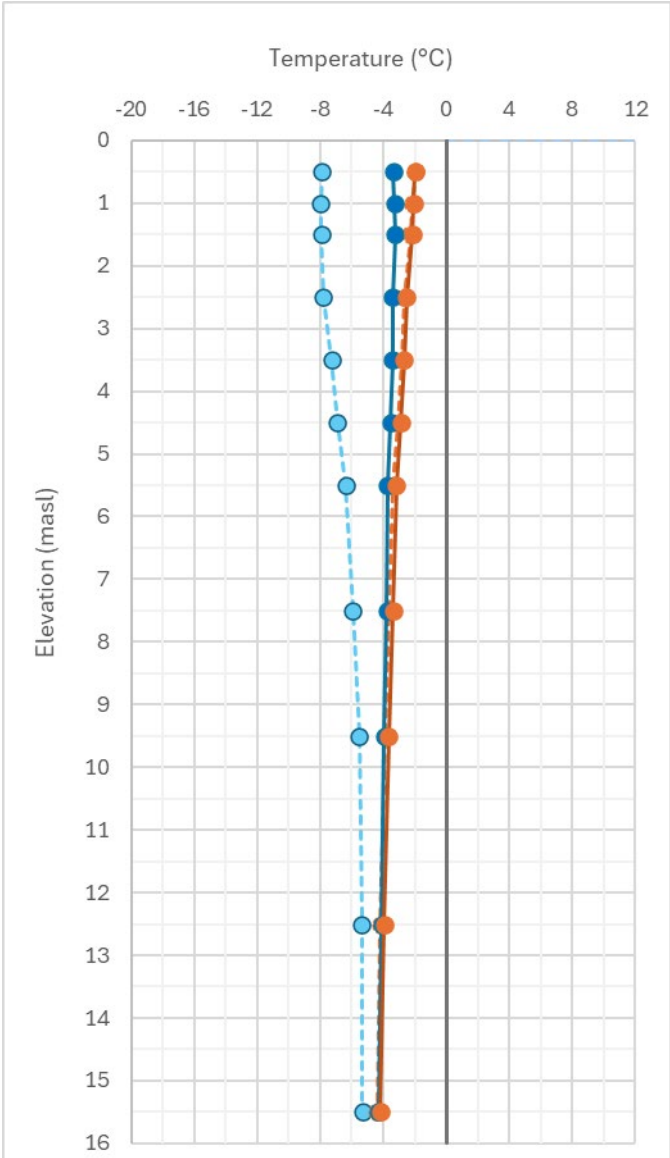


Notes:
1. Comparison of historic and recent ground temperature measurements collected near Umwelt Pit
2. Ground temperature at site 13-GSE-279 measured on Dec. 10, 2014, at 22-UMU004B measured on June 28, 2023, and at 24-GSE-678B measured on March 20, 2026.

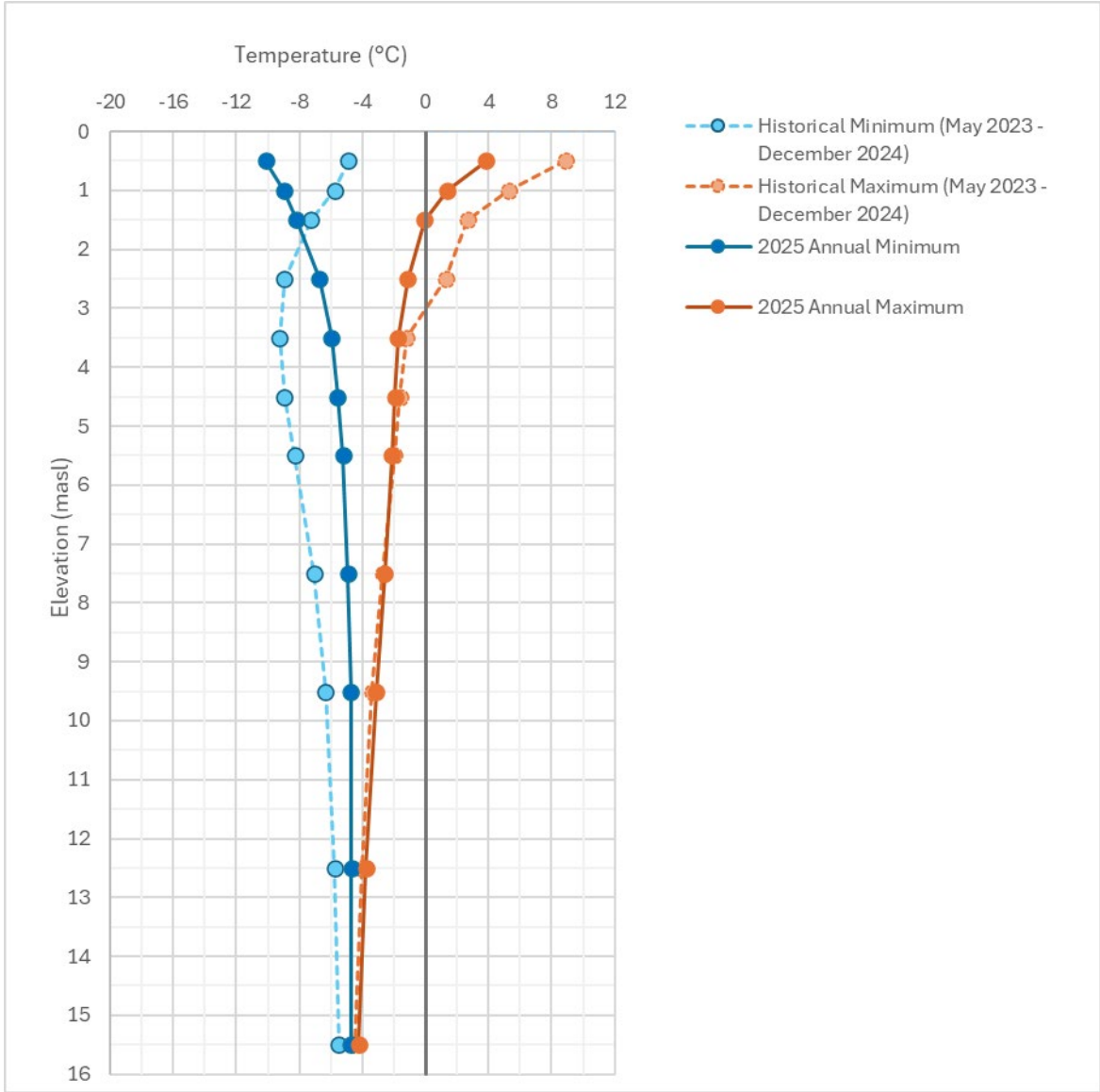
PP-VTC-550-US
(Upstream Toe)



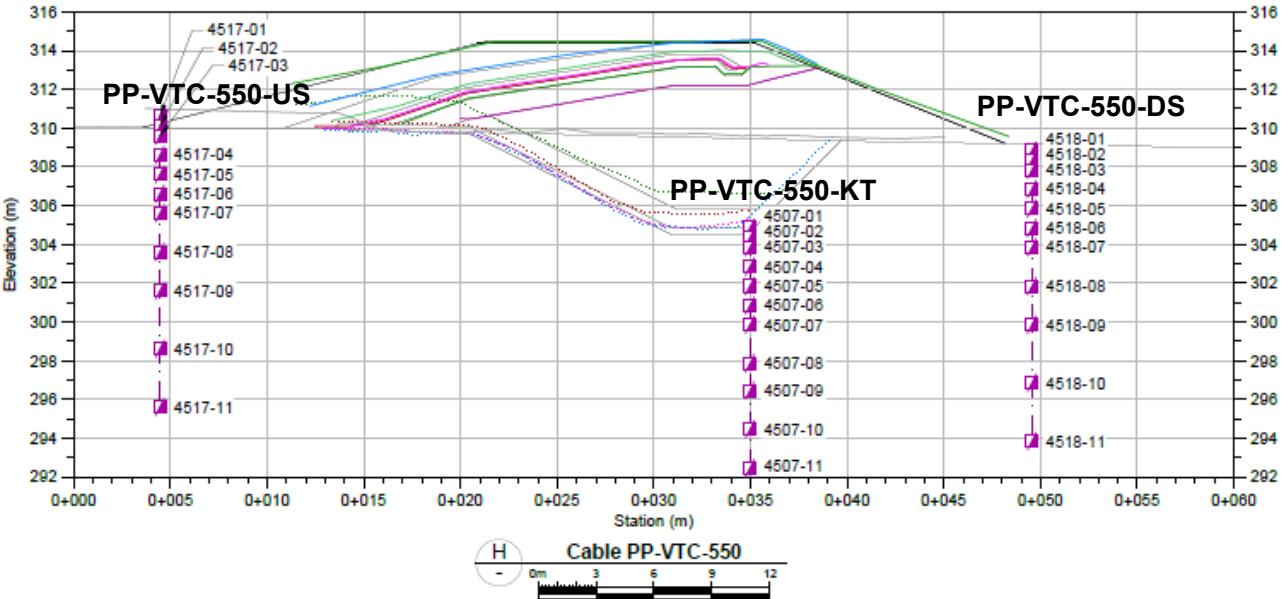
PP-VTC-550-KT
(Key Trench)



PP-VTC-550-DS
(Downstream Toe)

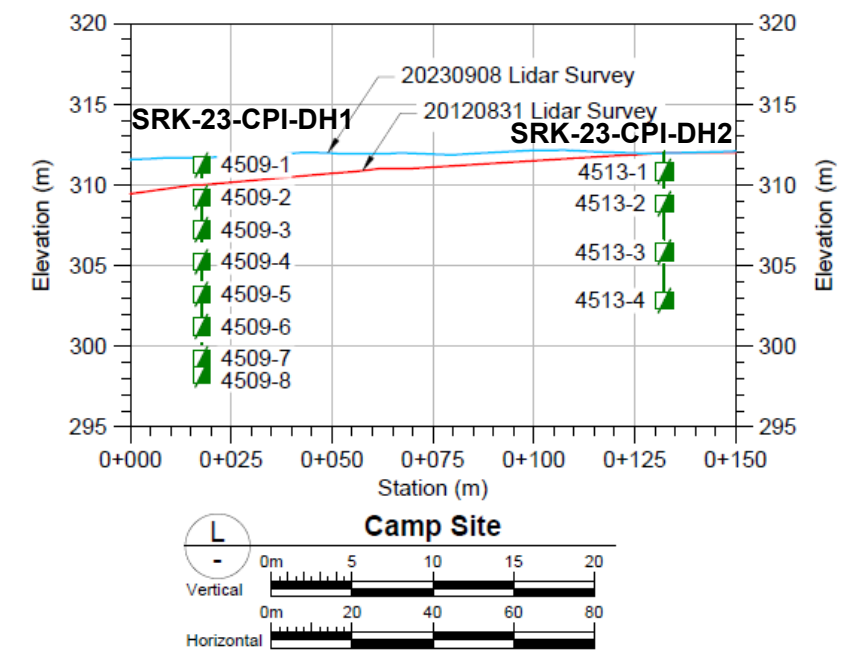
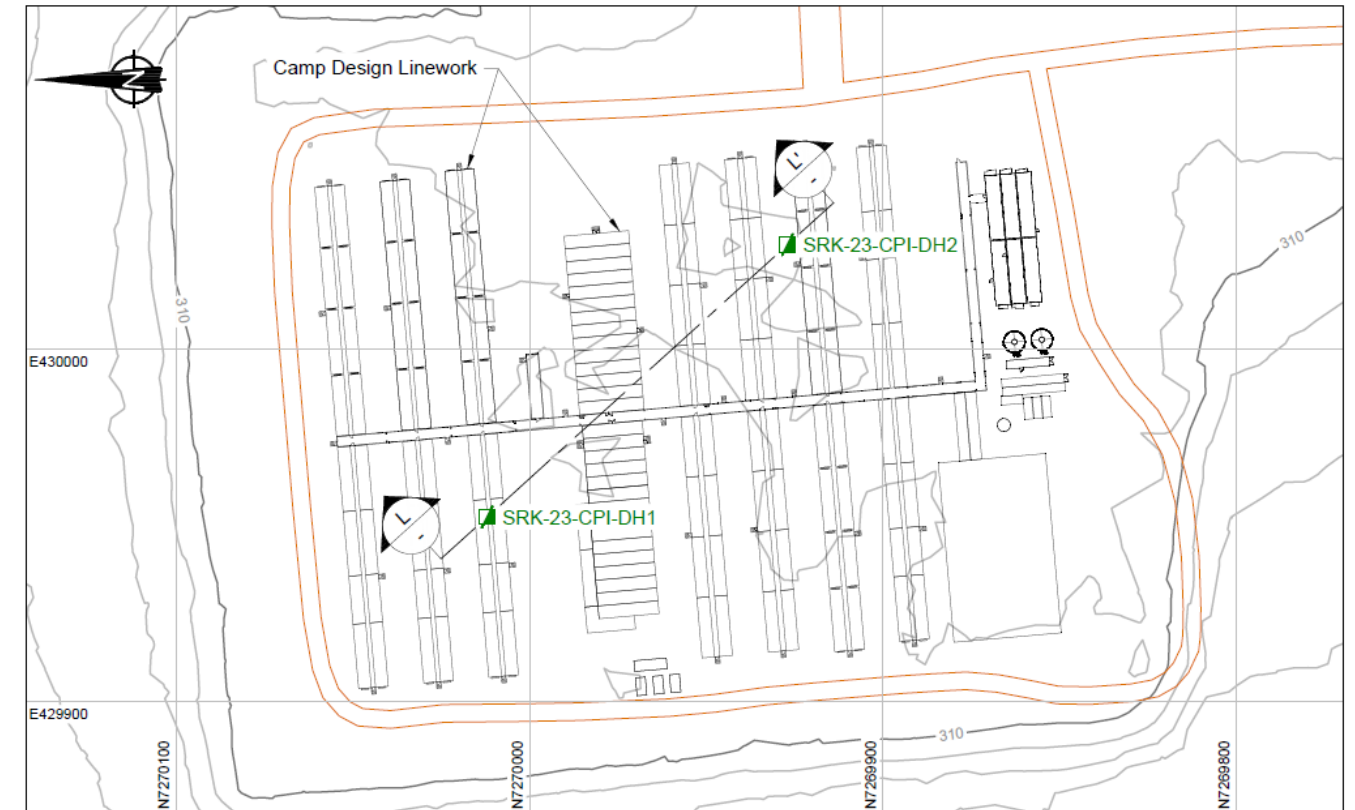
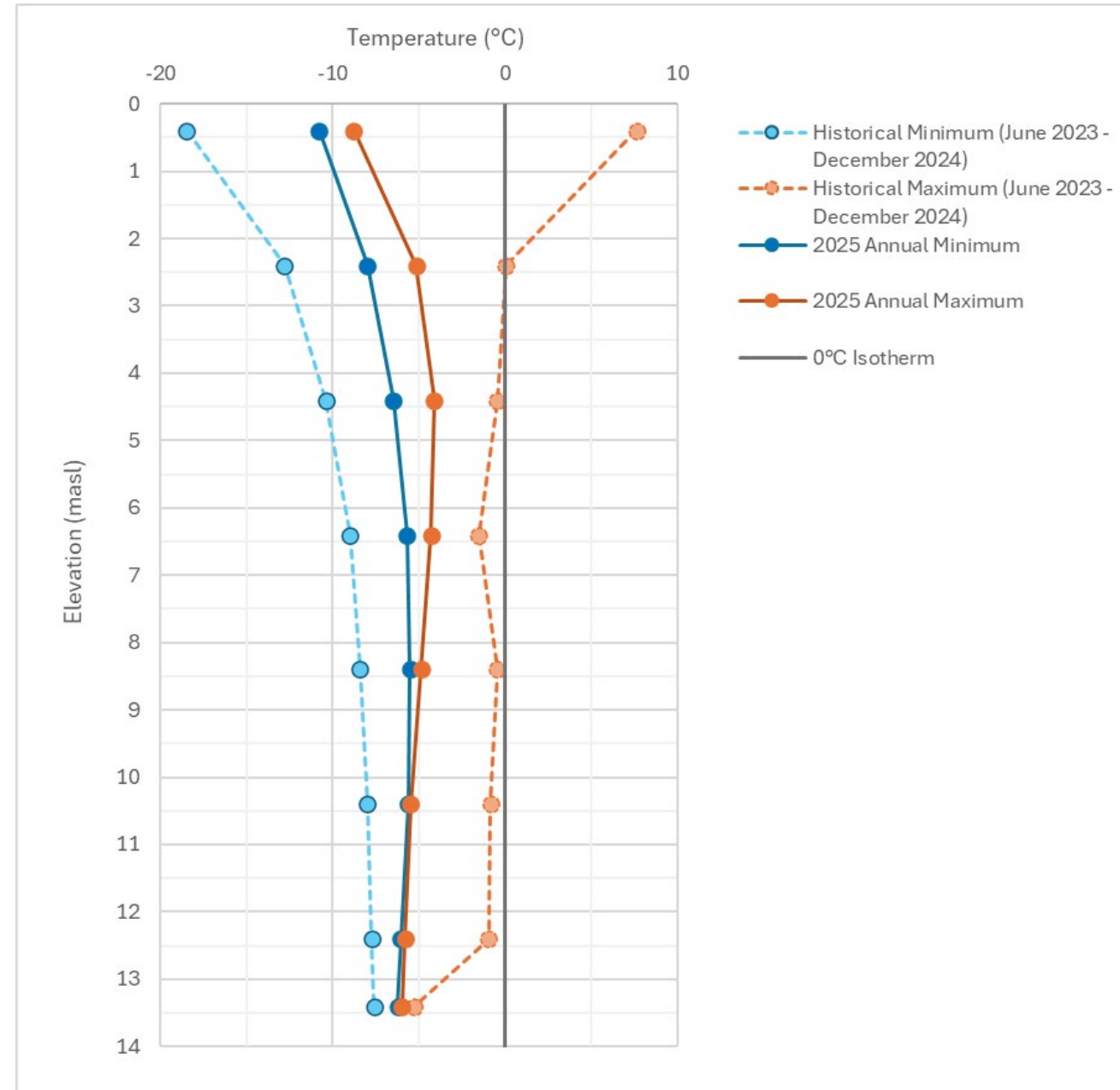


—○— Historical Minimum (May 2023 - December 2024)
- - -○- - - Historical Maximum (May 2023 - December 2024)
—●— 2025 Annual Minimum
—●— 2025 Annual Maximum



- Notes:
1. Ground temperature measured in the foundation at the Primary Pond Dam upstream toe, key trench, and downstream toe.
 2. Minimum and maximum annual ground temperature reported for 2025 and compared with historical measurements.
 3. 2025 annual minimum and maximum are presented for period from January 2025 to March 2026

SRK-23-CPI-DH1



Notes:

1. Ground temperature measured in the rock pad and foundation at the Camp Pad.
2. Minimum and maximum annual ground temperature reported for 2025 and compared with historical measurements.
3. 2025 data were collected from January 25 to March 28 only



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

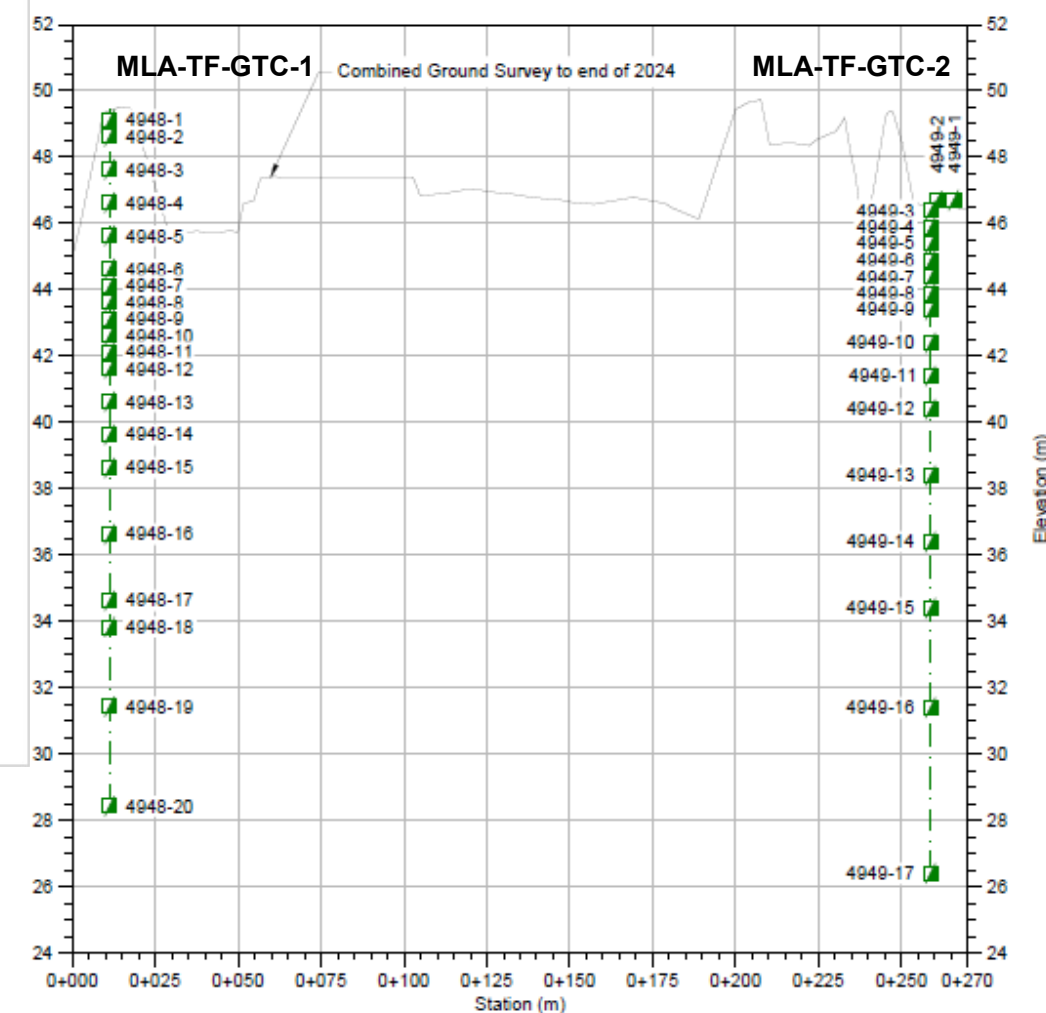
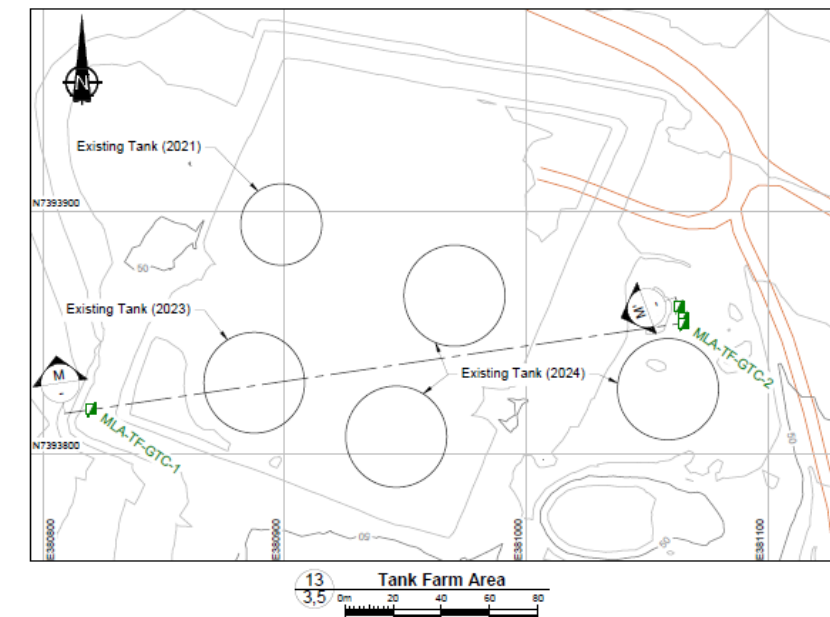
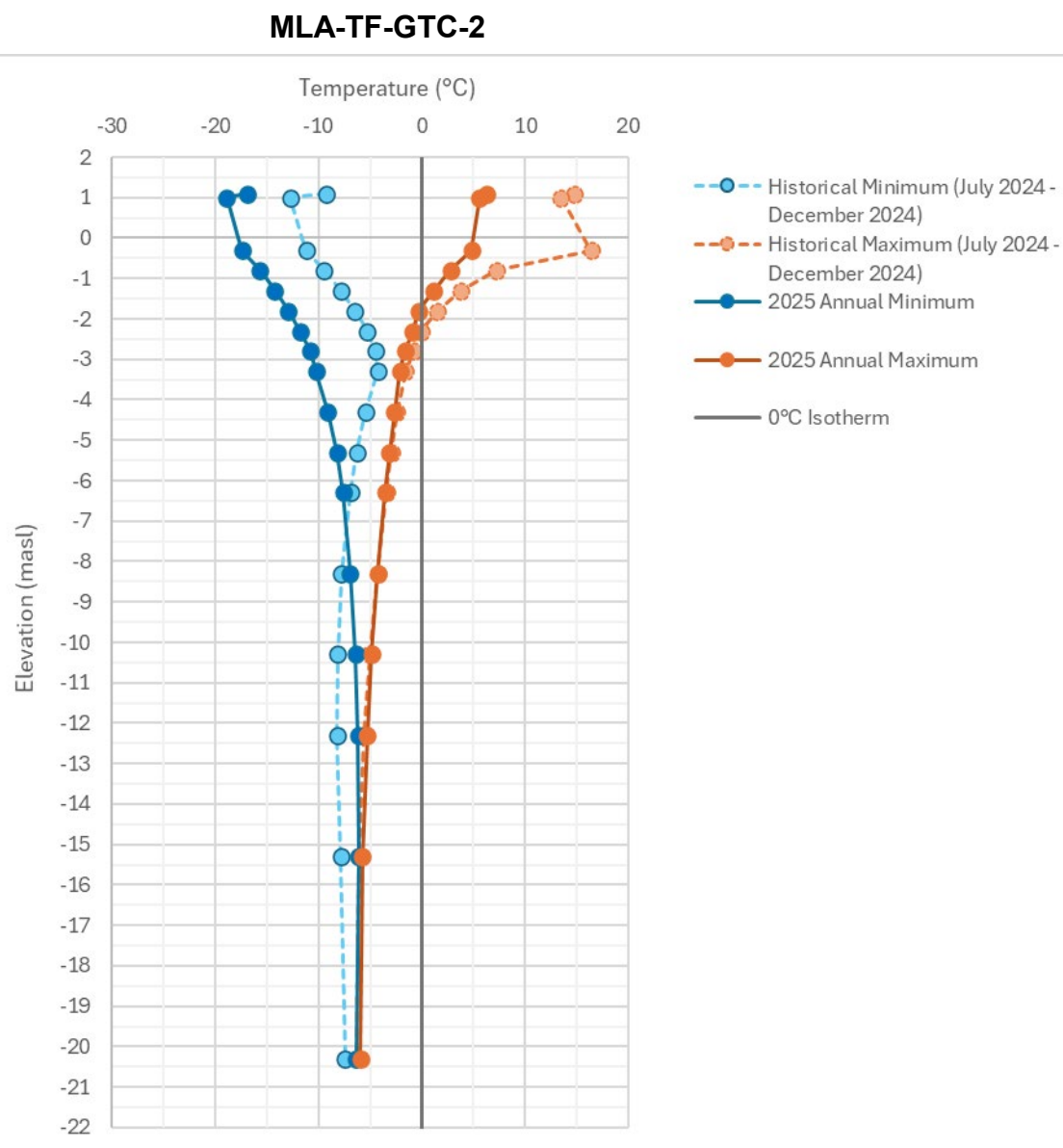
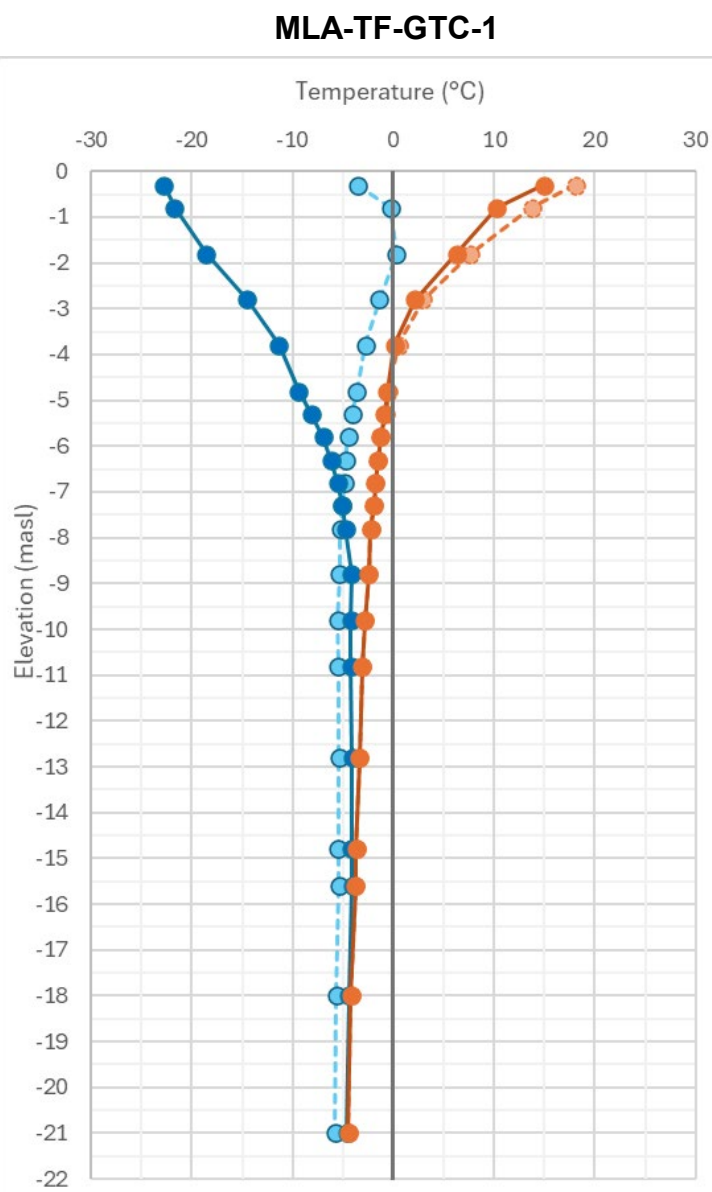


Back River Project

2025 Ground Thermal Monitoring Report

Goose Camp Pad –
Infrastructure Ground Temperature

Date: 2026-03-19
Approved: JBK
Figure: 11



- Notes:
1. Ground temperature measured in the foundation at the Marine Laydown Area fuel tank pad
 2. Minimum and maximum annual ground temperature reported for 2025 and compared with historical measurements.
 3. 2025 annual minimum and maximum are presented for period from January 2025 to March 2026



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



Back River Project

2025 Ground Thermal Monitoring Report

**Fuel Tank Pad – Infrastructure
Ground Temperature**

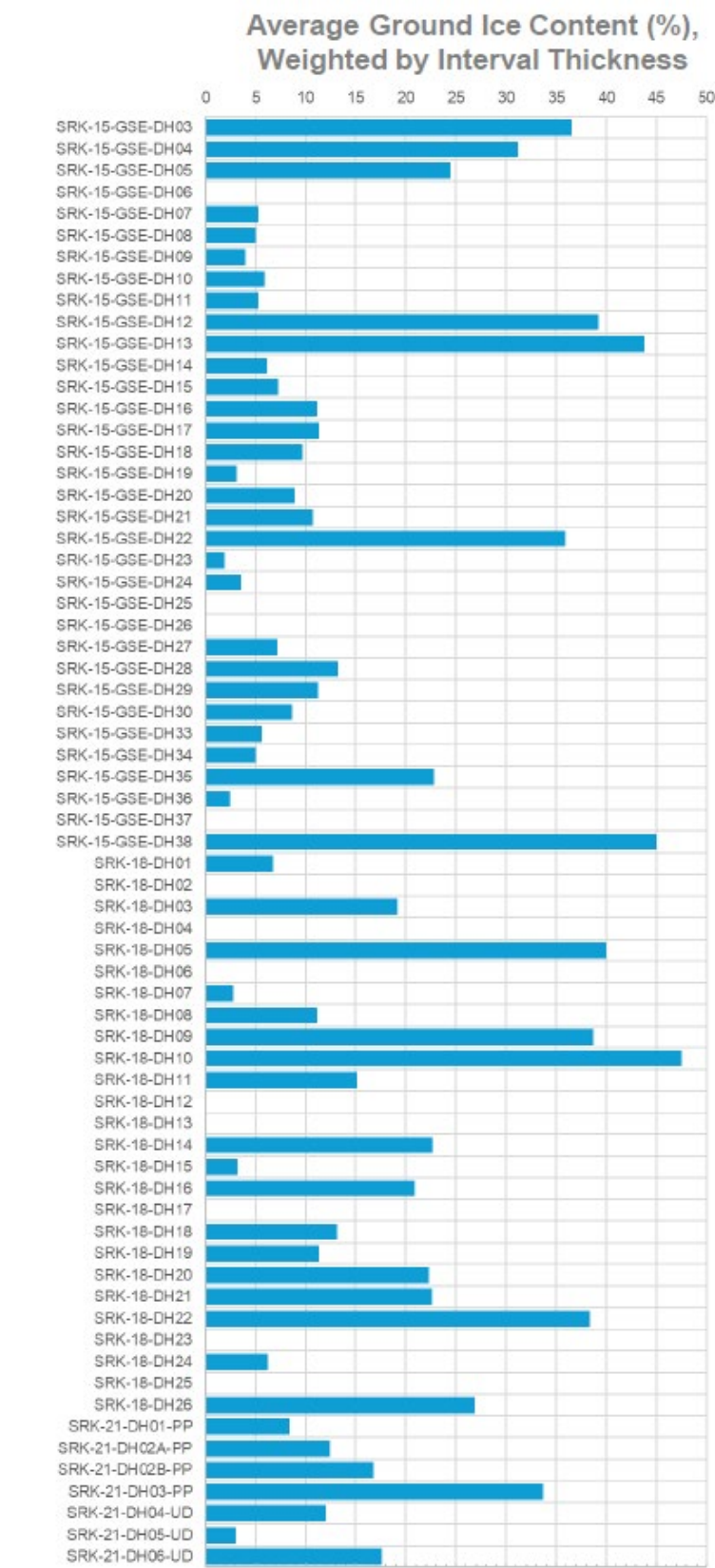
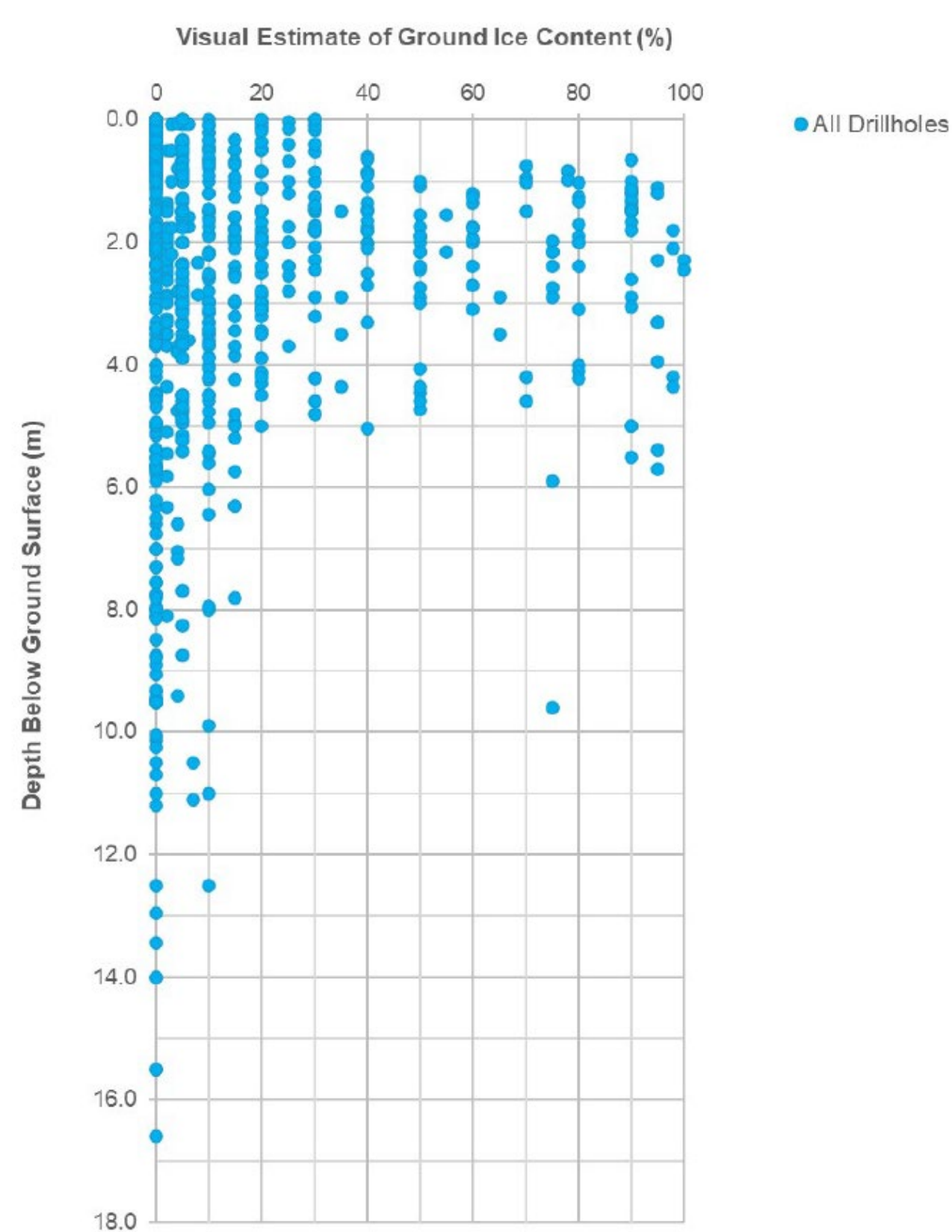
Date: 2026-03-19
Approved: JBK
Figure: **12**



◆ Drillhole Locations with Ground Ice Log (SRK 2015, 2018, 2022)

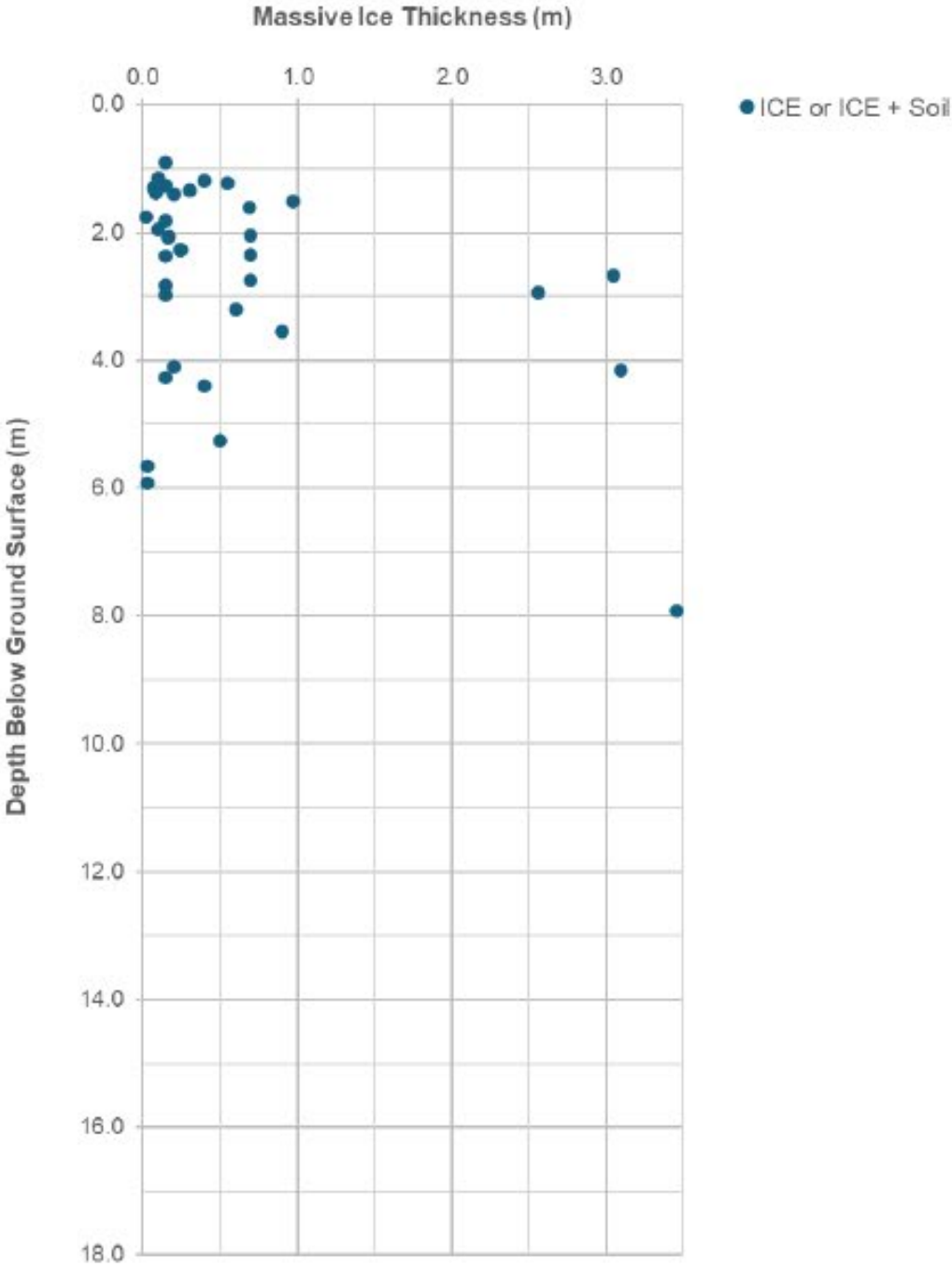
Notes:
1. Aerial image of Goose infrastructure as of September 2024

				2025 Ground Thermal Monitoring Report	
Job No: CAPR004313 Filename: GroundThermalMonitoring_2025_Figures..pdf		Back River Project		Historical Drillhole Locations with Ground Ice Logging	
				Date: 2026-03-19	Approved: JBK
				Figure:	13

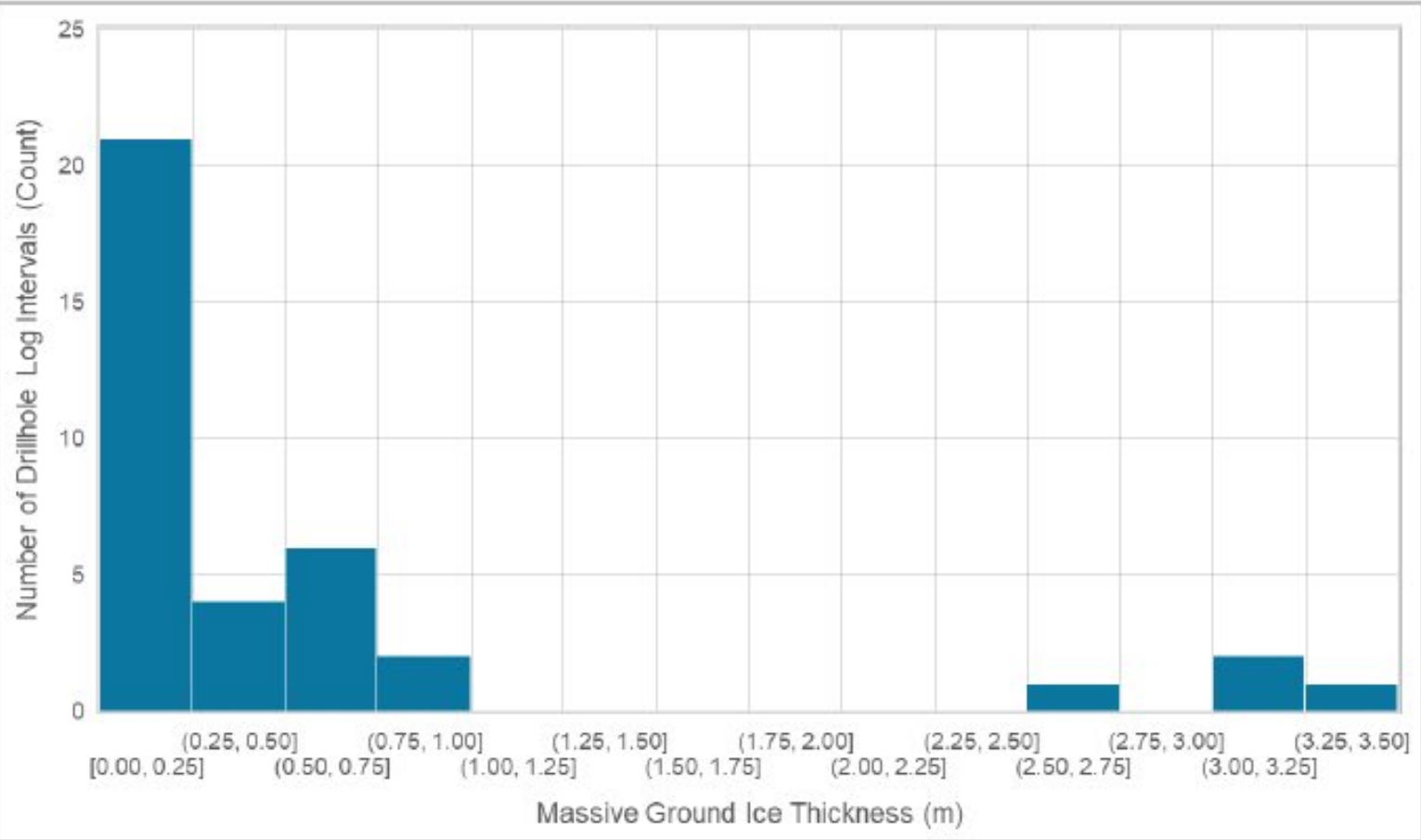


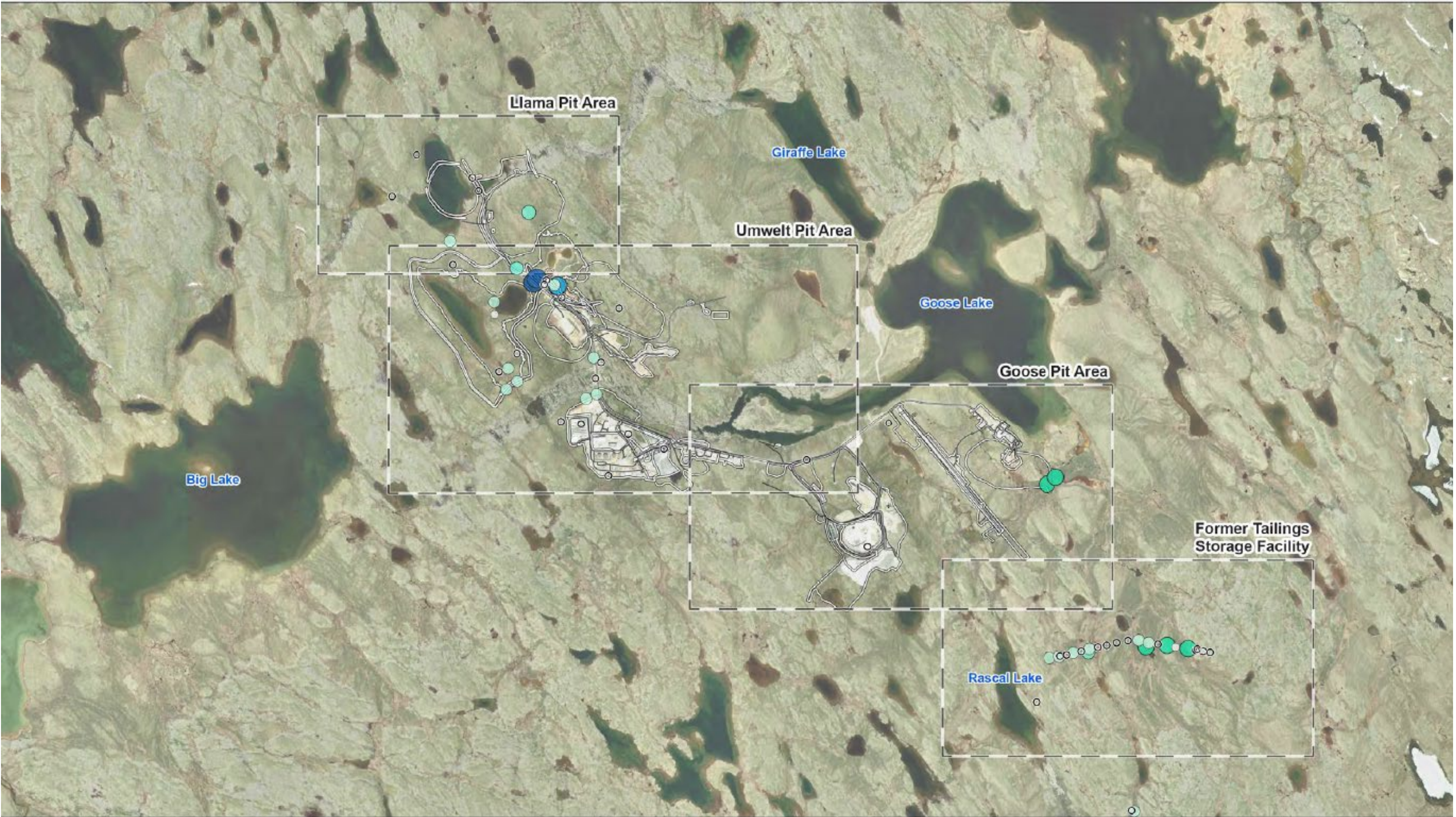
Notes:
1. Ground ice content based on visual estimate from frozen core.
2. Average ground ice content weighted by interval thickness for each site

Massive Ground Ice Thickness



Interval Occurrence of Massive Ground by Ice Thickness





Legend

- Mapbook
- Designed Footprint

Massive Ground Ice Thickness

- > 2.5m
- 1.1 - 2.5m
- 1.0 - 0.50m
- 0.49 - 0.25m
- 0.24 - 0.1m
- < 0.1m
- Drillholes without Massive Ice

Notes:
1. Aerial image of Goose infrastructure as of September 2024



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

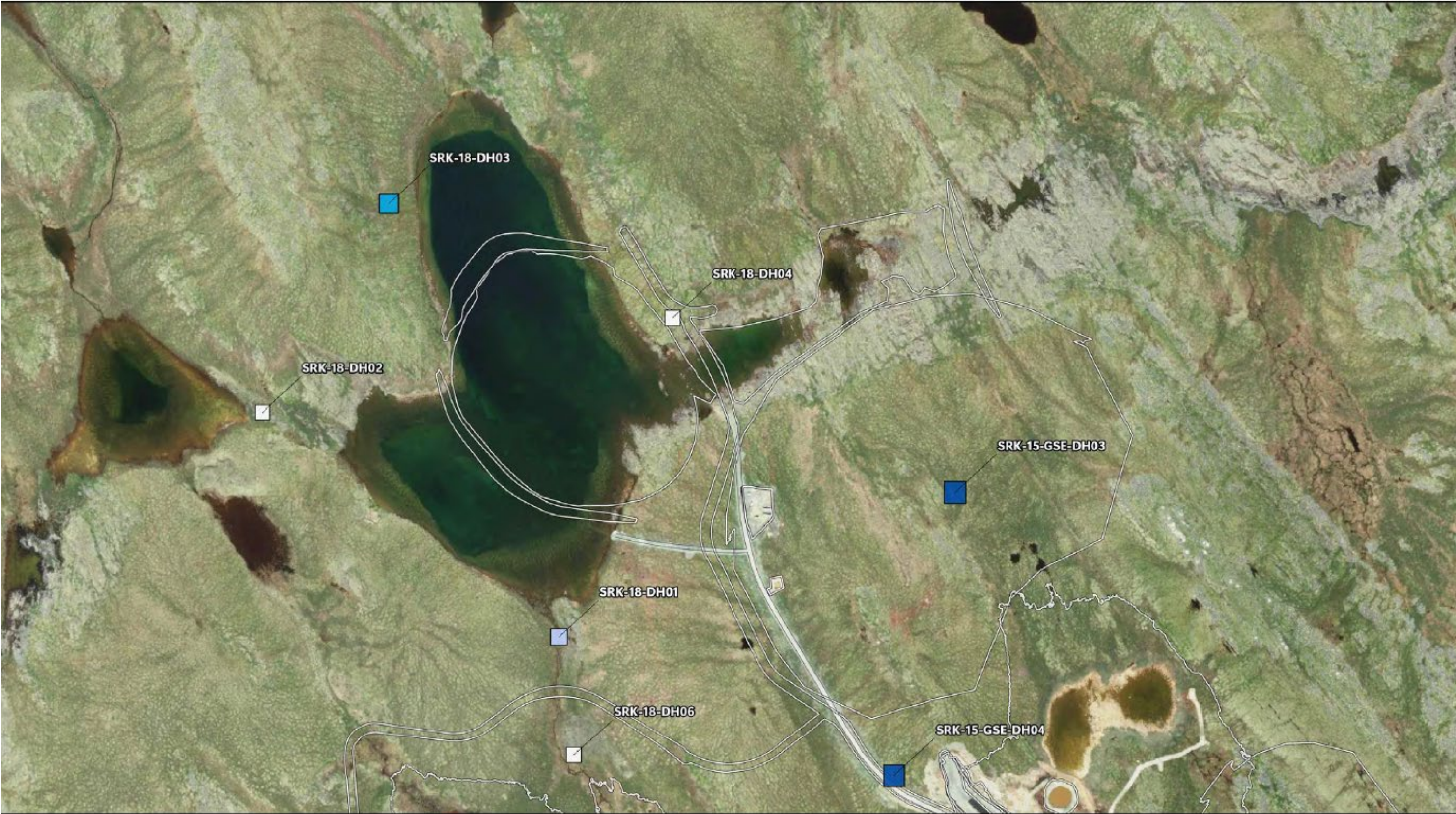


Back River Project

2025 Ground Thermal Monitoring Report

Historic Drillhole Locations with Massive Ground Ice

Date: 2026-03-19
Approved: JBK
Figure: 16



Legend

Weighted Average Ground Ice Content %

0-5%
> 5-10%

> 10-15%
> 15-20%

> 20-30%
> 30-40%

> 40-50%

Notes:
1. Aerial image of Goose infrastructure as of September 2024

 **srk consulting**

Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



Back River Project

2025 Ground Thermal Monitoring Report

**Ground Ice Content –
Llama Pit Area**

Date: 2026-03-19	Approved: JBK	Figure: 17
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Legend

Weighted Average Ground Ice Content %



Notes:
1. Aerial image of Goose infrastructure as of September 2024



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



Back River Project

2025 Ground Thermal Monitoring Report

Ground Ice Content –
Umwelt Pit Area

Date: 2026-03-19
Approved: JBK
Figure: 18



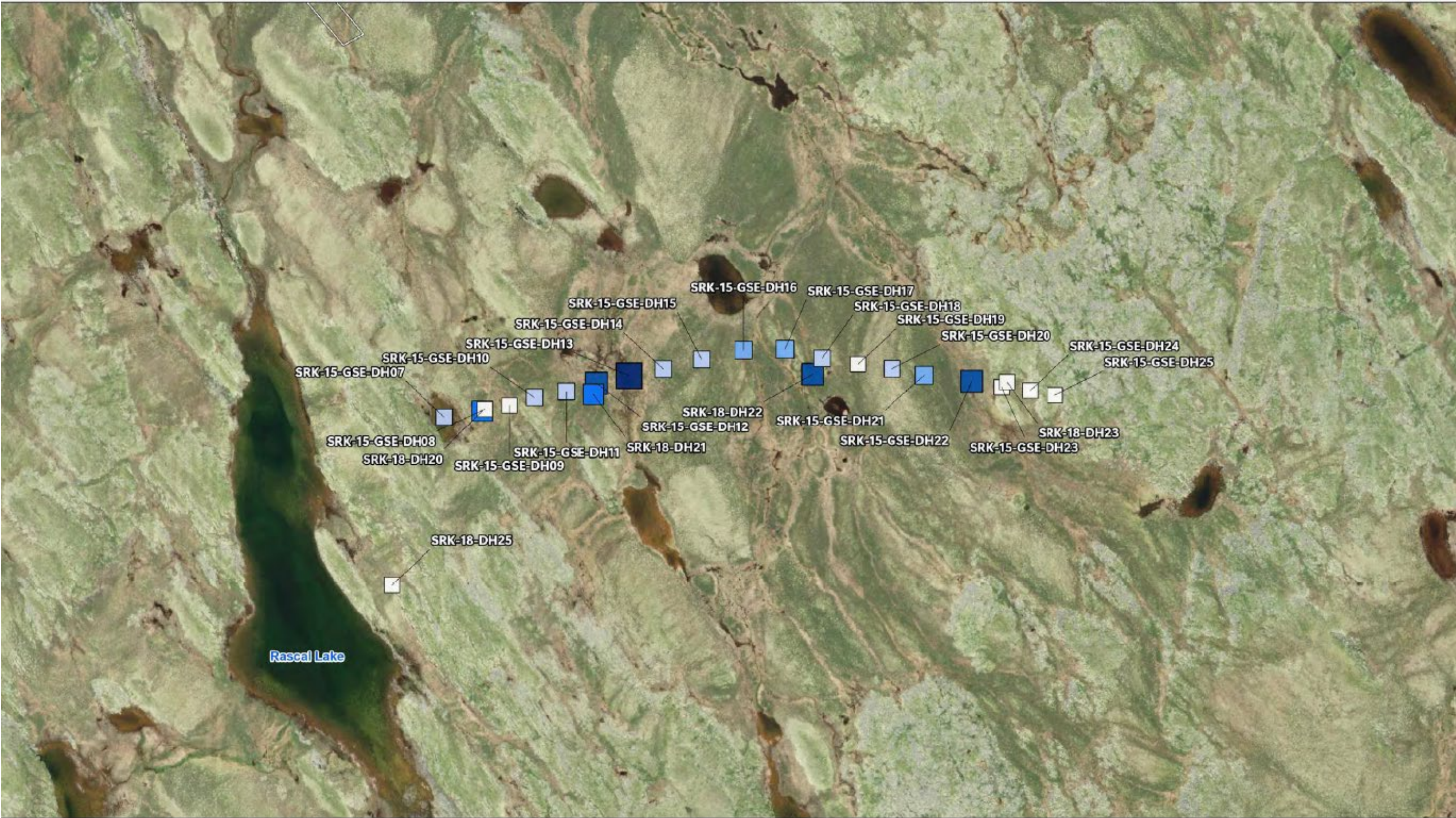
Legend

Weighted Average Ground Ice Content %



Notes:
1. Aerial image of Goose infrastructure as of September 2024

		2025 Ground Thermal Monitoring Report		
		Ground Ice Content – Goose Pit Area		
		Date: 2026-03-19	Approved: JBK	Figure: 19
Job No: CAPR004313	Back River Project			
Filename: GroundThermalMonitoring_2025_Figures..pdf				



Legend

Weighted Average Ground Ice Content %



Notes:
1. Aerial image of Goose infrastructure as of September 2024



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf

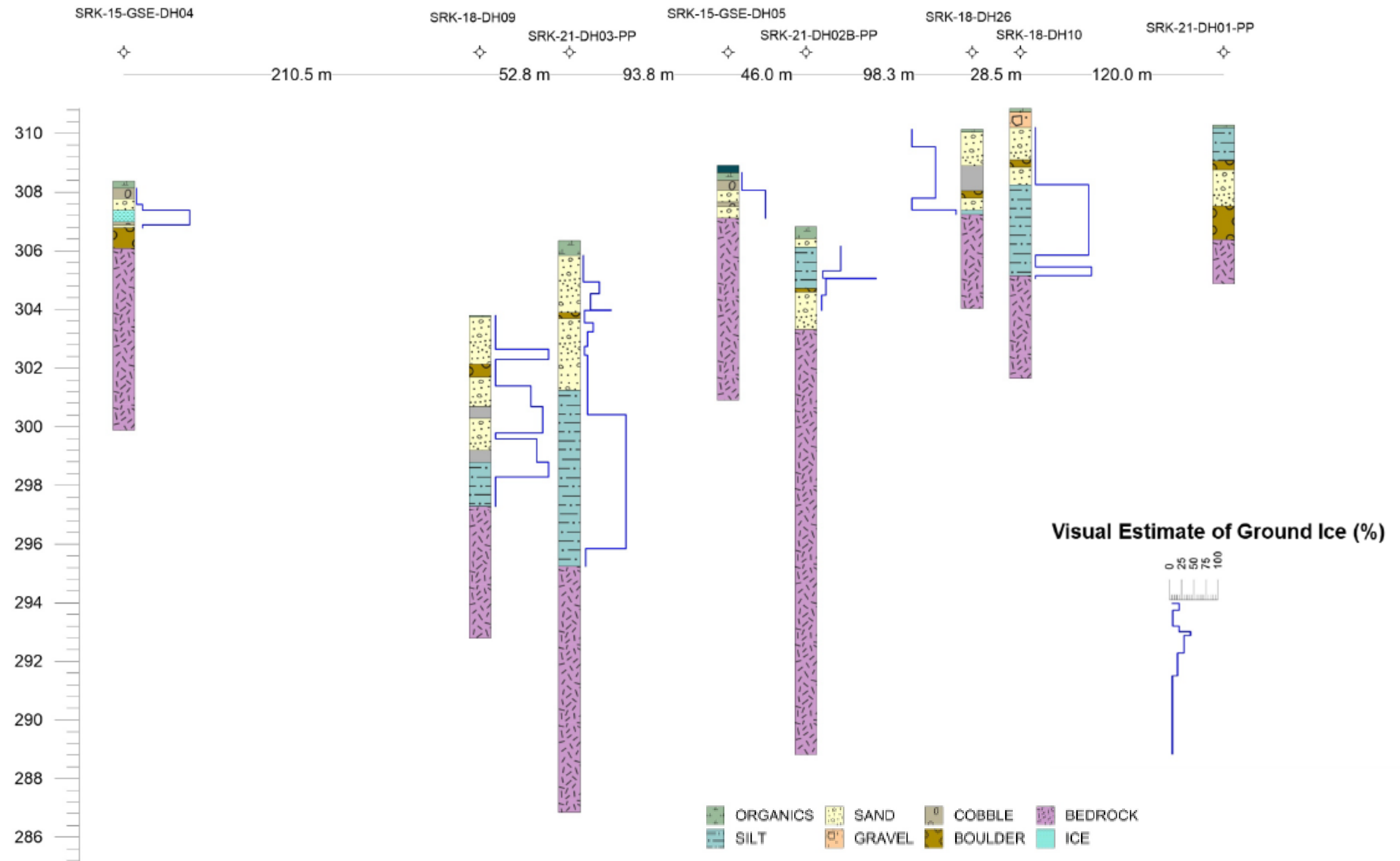


Back River Project

2025 Ground Thermal Monitoring Report

Ground Ice Content –
Former Tailings Storage Facility

Date: 2026-03-19
Approved: JBK
Figure: 20



Notes:

1. Drillholes completed at Primary Pond Dam prior to construction.
2. Vertical scale indicates elevation above sea level.
3. Solid blue line represents ground ice content based on visual estimate.



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



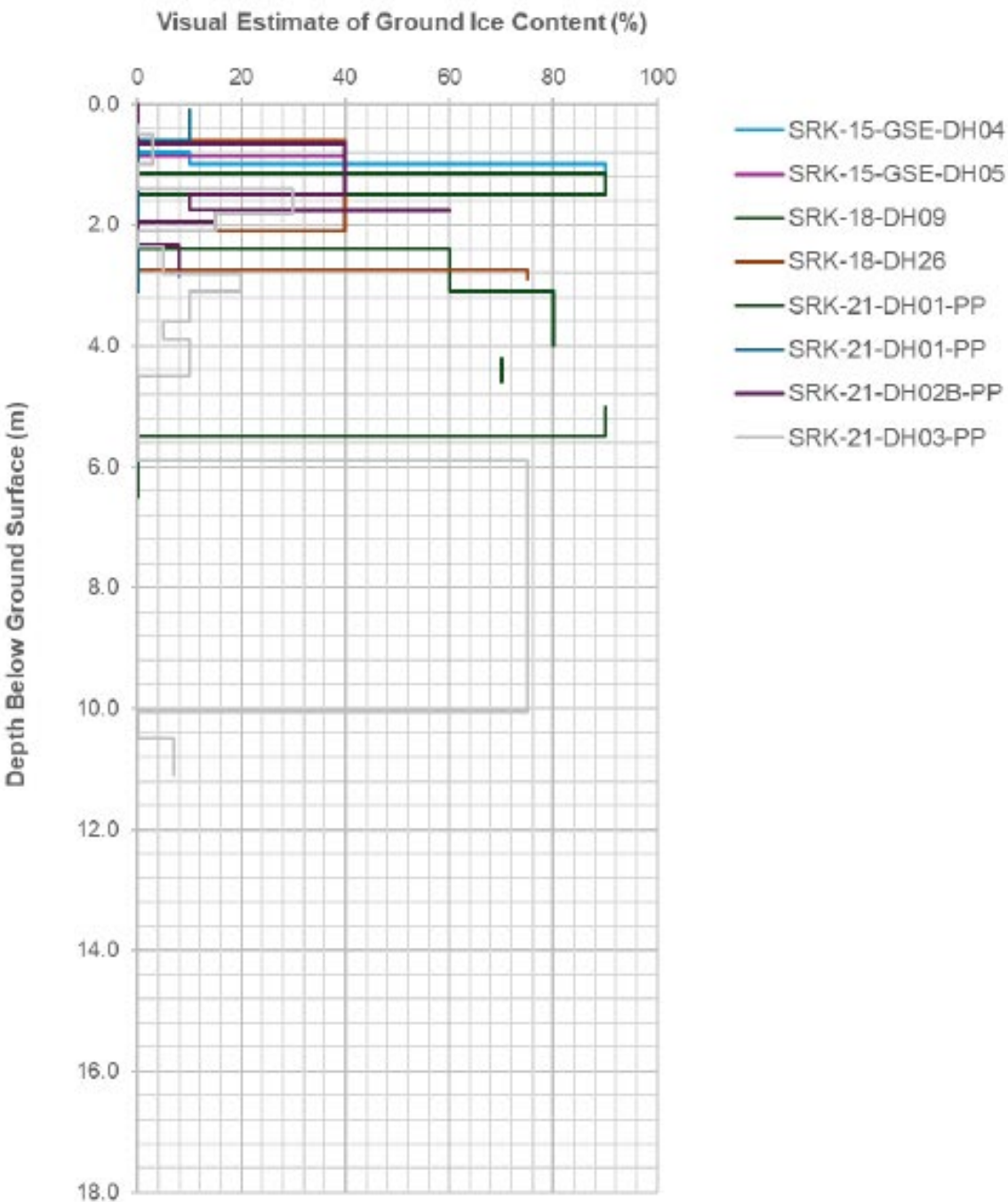
Back River Project

2025 Ground Thermal Monitoring Report

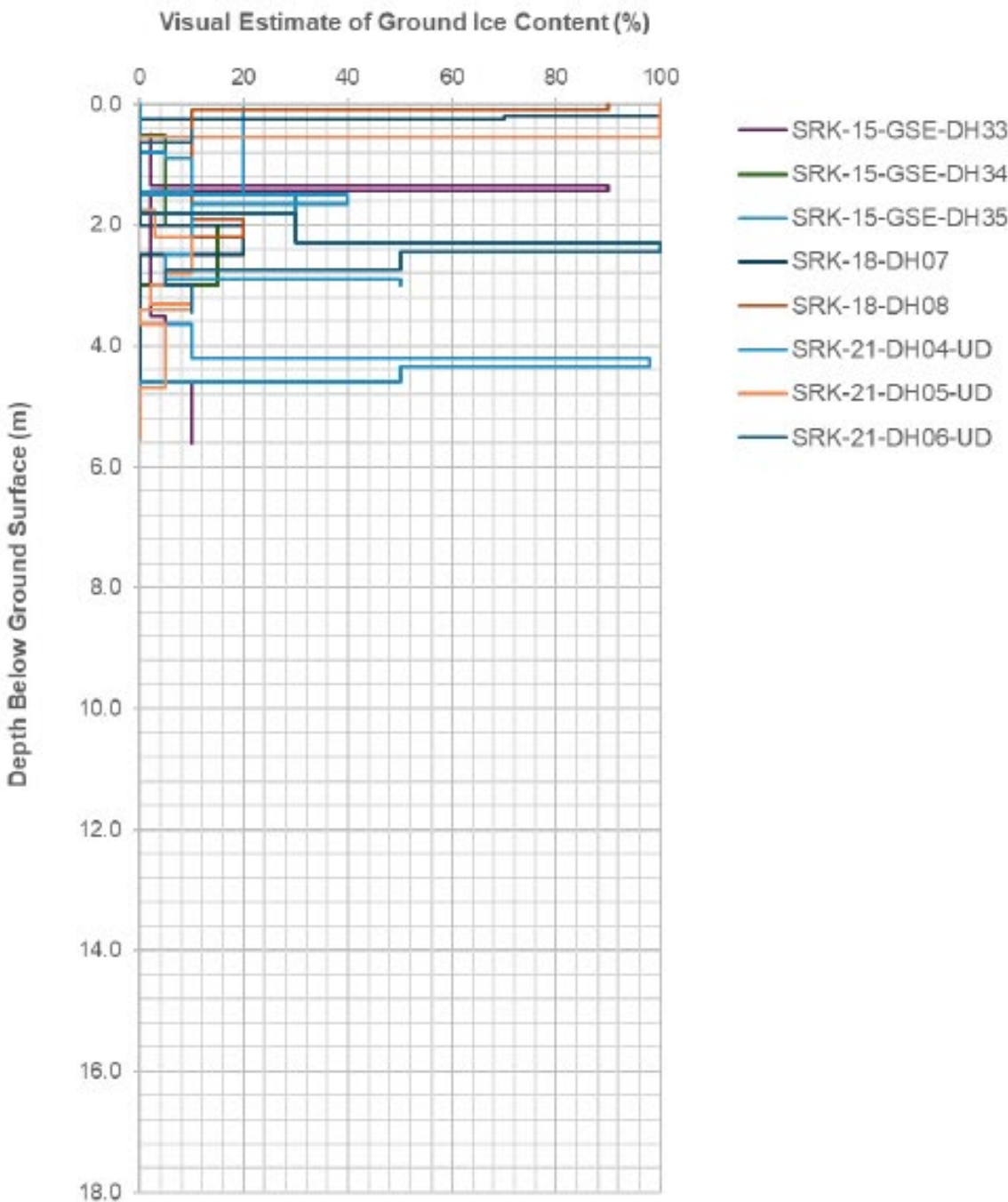
**Primary Pond Area –
Cross Section**

Date: 2026-03-19	Approved: JBK	Figure: 21
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Primary Pond Area



Saline Pond Area



Notes:
1. Ground ice content based on visual estimates.



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



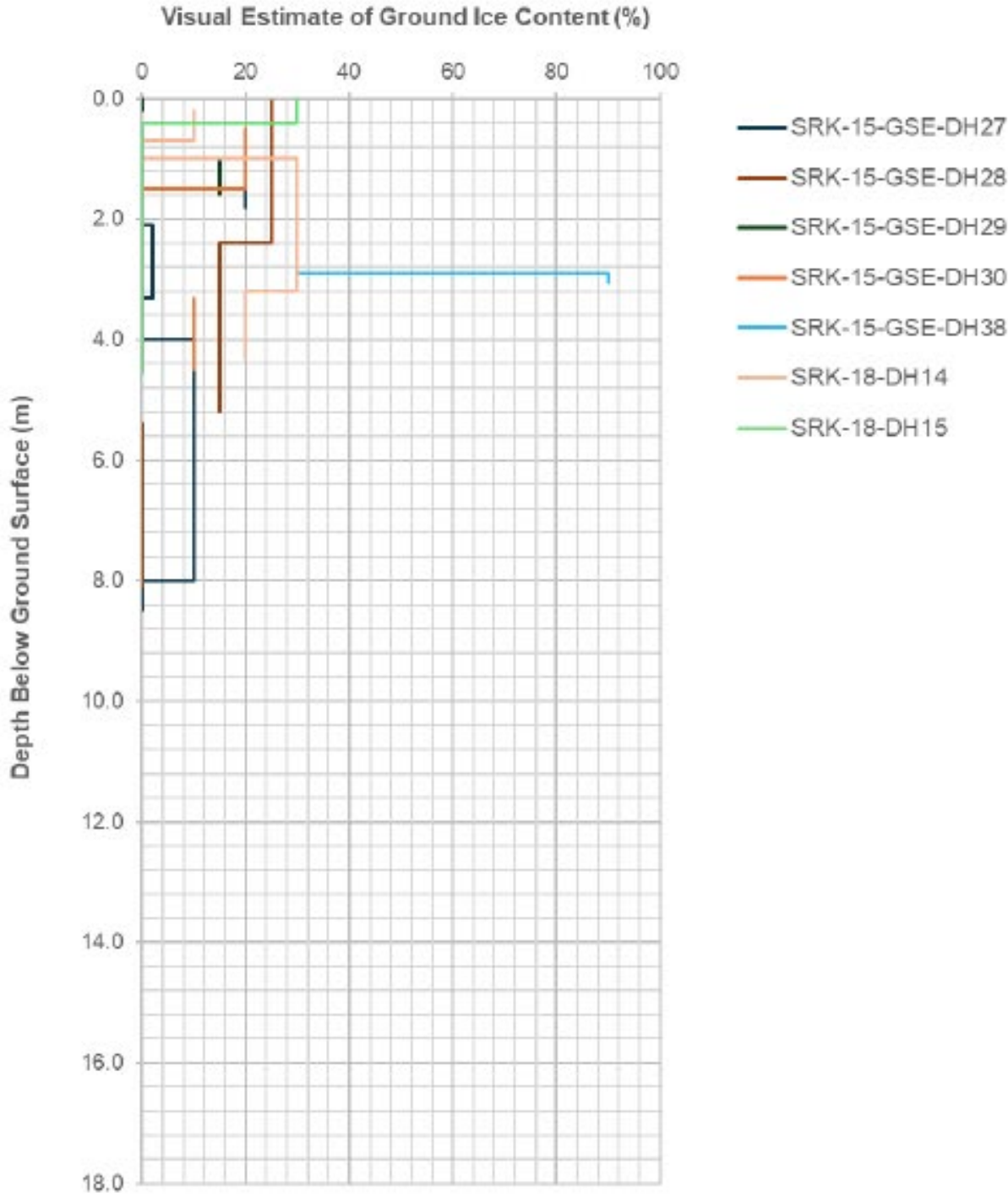
Back River Project

2025 Ground Thermal Monitoring Report

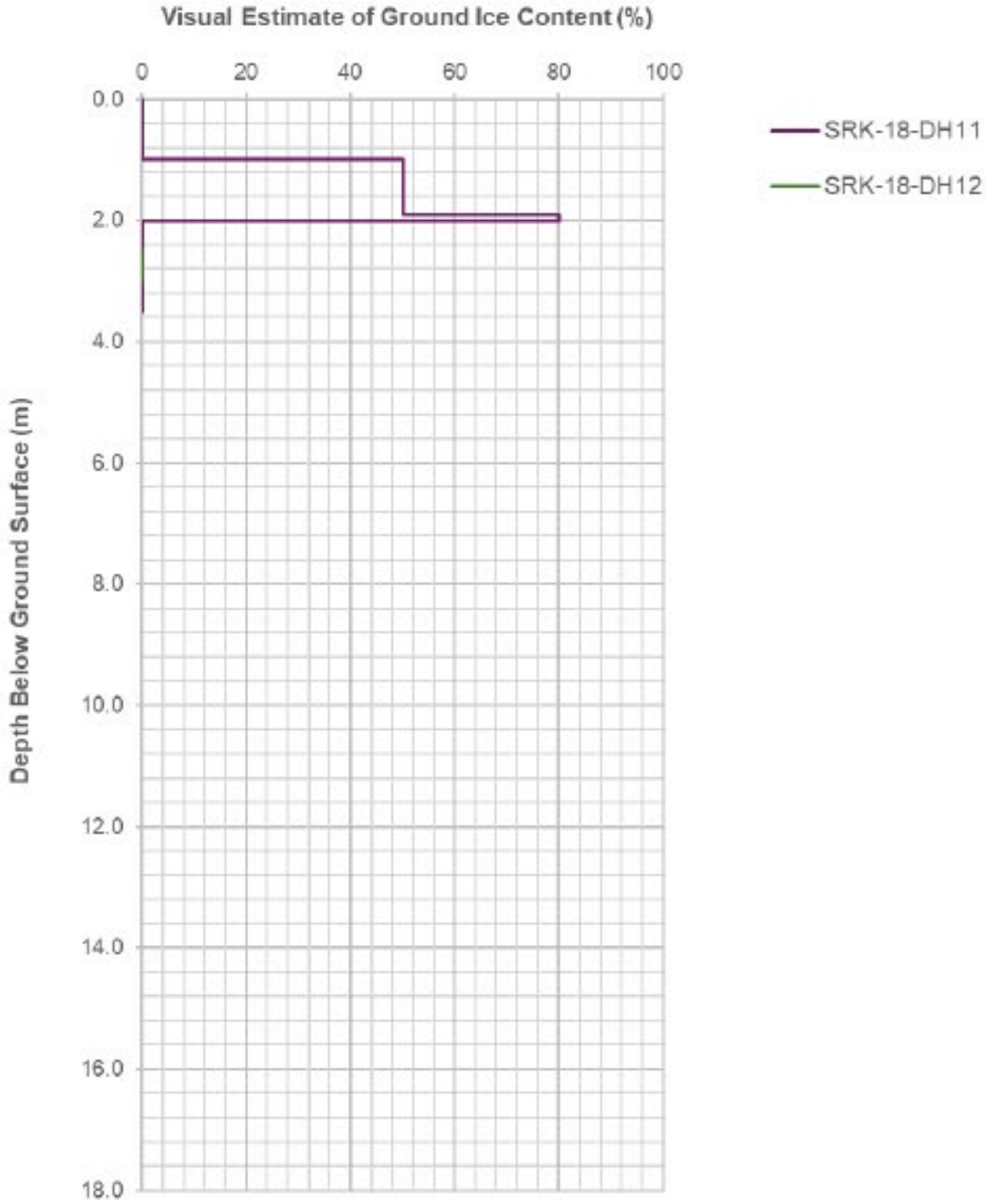
Ground Ice Logs – Primary
Pond Area & Saline Pond Area

Date: 2026-03-19
Approved: JBK
Figure: 22

Camp Pad Area

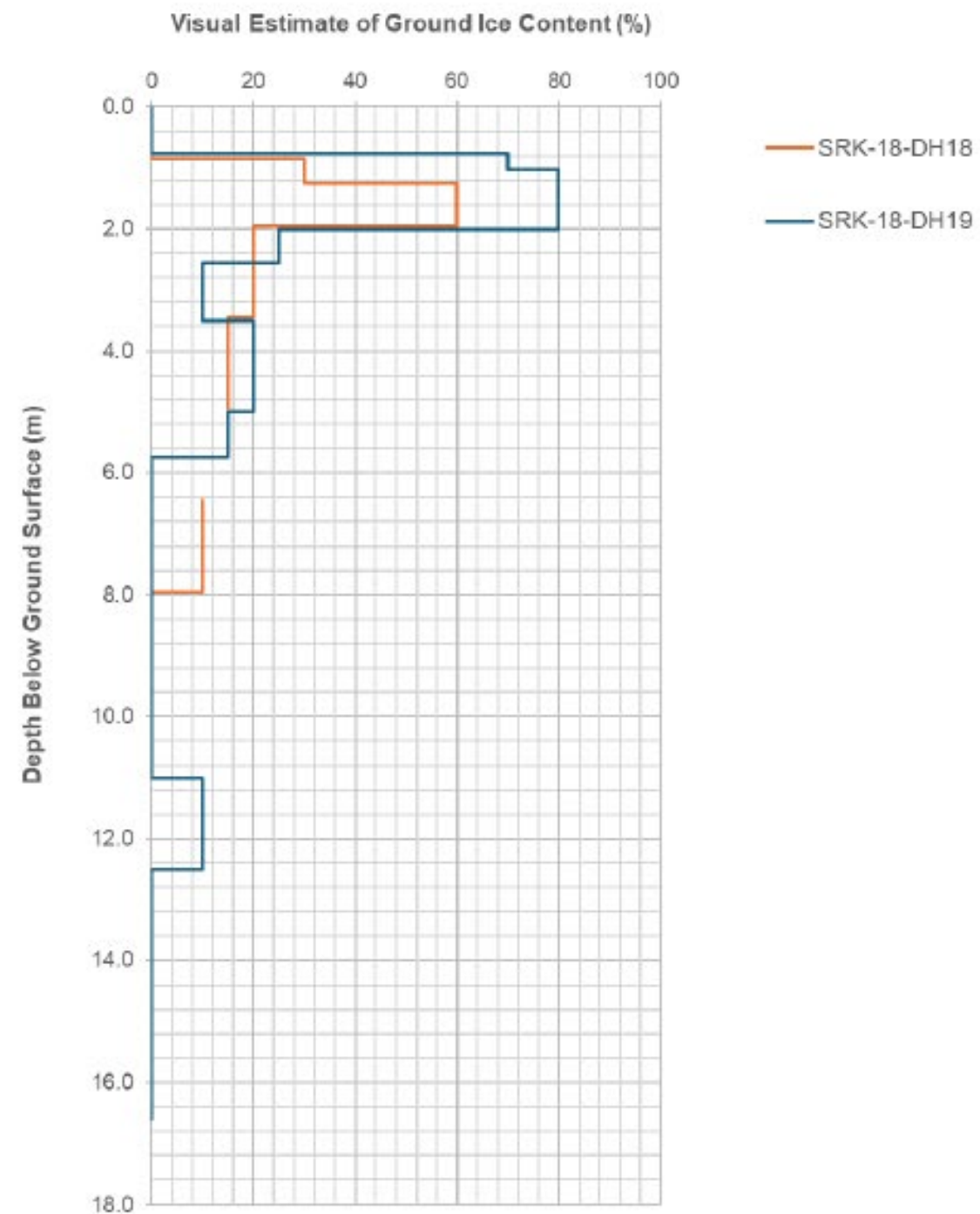


Umwelt Pit Area

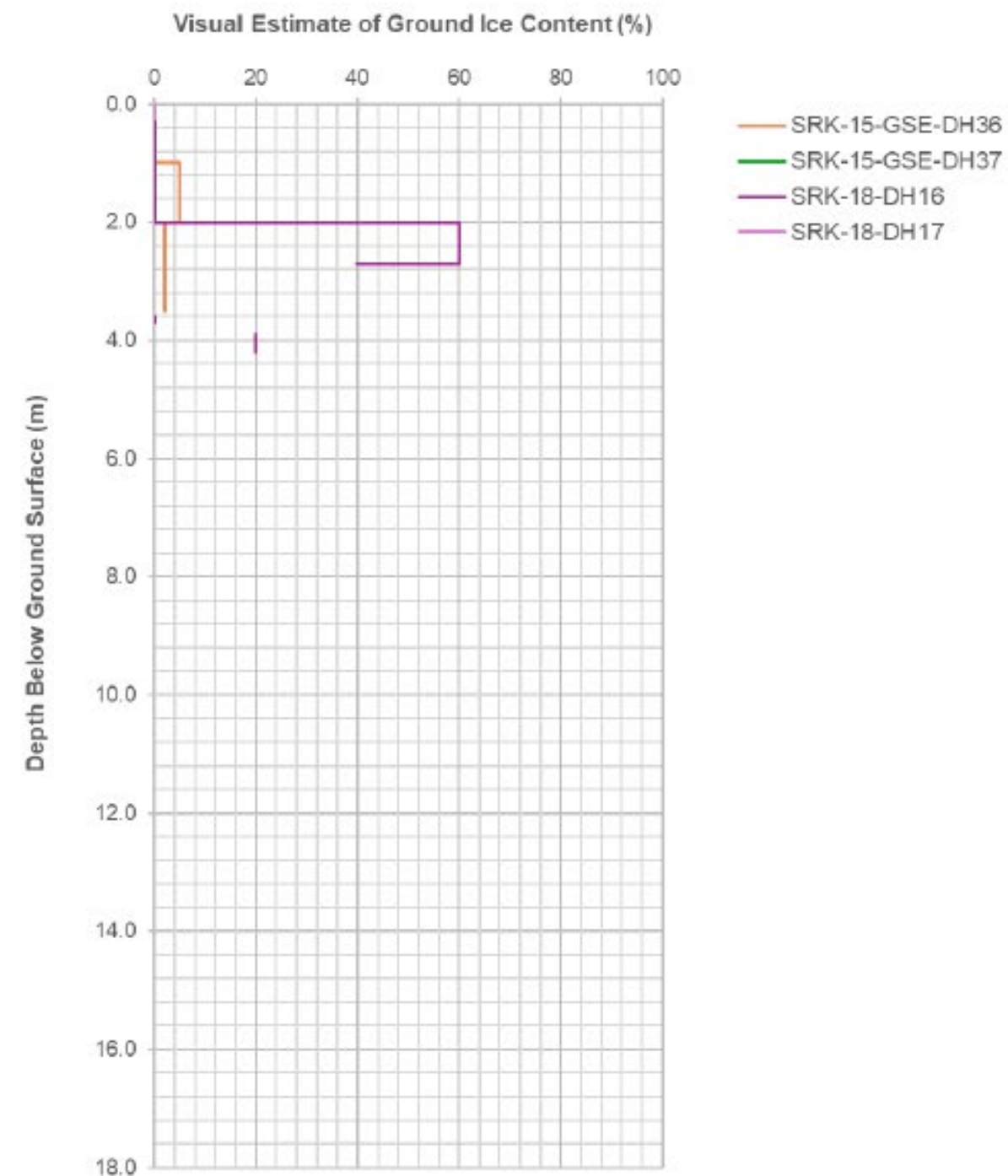


Notes:
1. Ground ice content based on visual estimates.

Goose Pit Area



Echo Pit Area



Notes:
1. Ground ice content based on visual estimates.



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



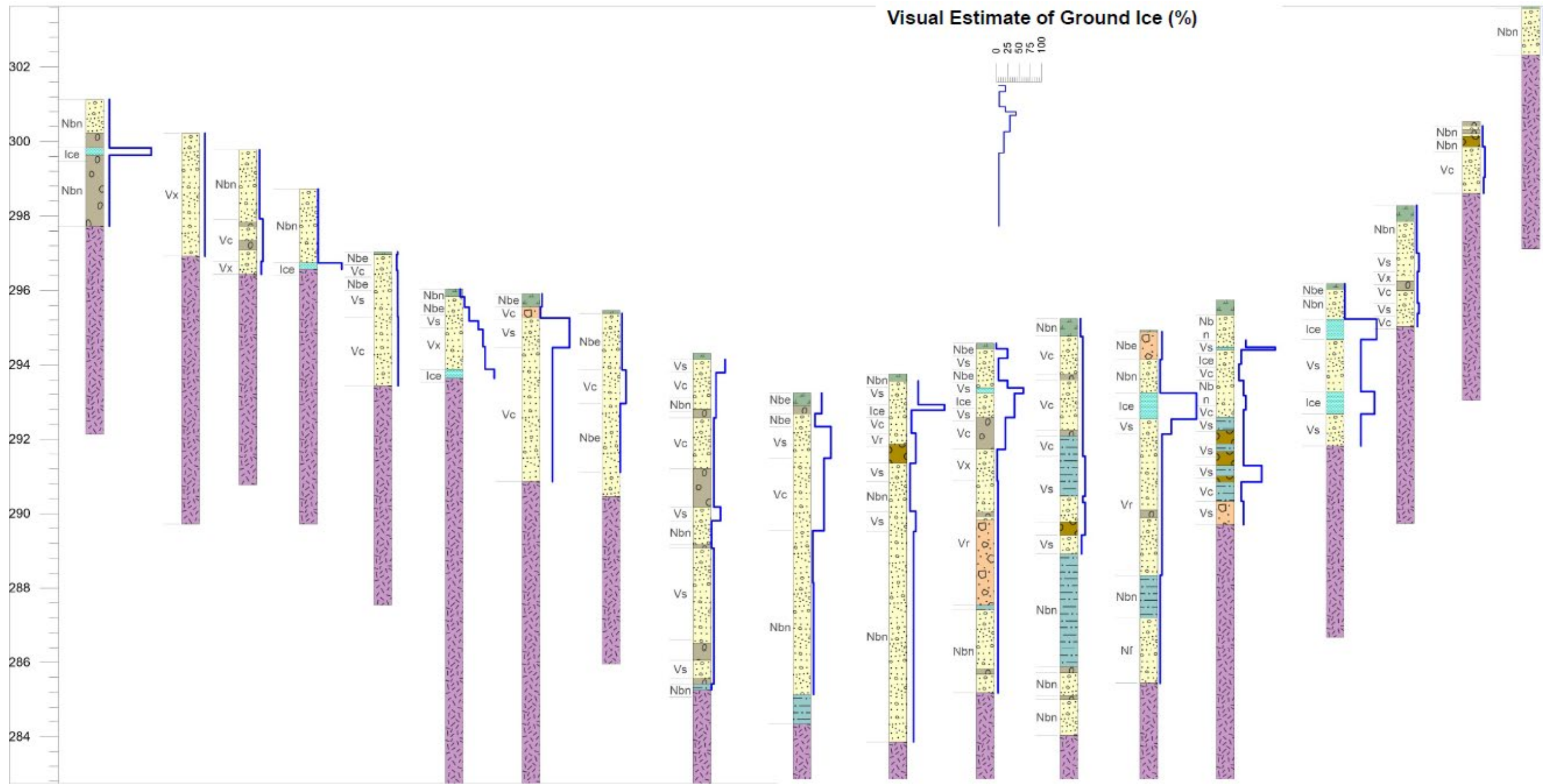
Back River Project

2025 Ground Thermal Monitoring Report

Ground Ice Logs – Goose Pit Area and Echo Pit Area

Date: 2026-03-19
Approved: JBK
Figure: 24

Visual Estimate of Ground Ice (%)

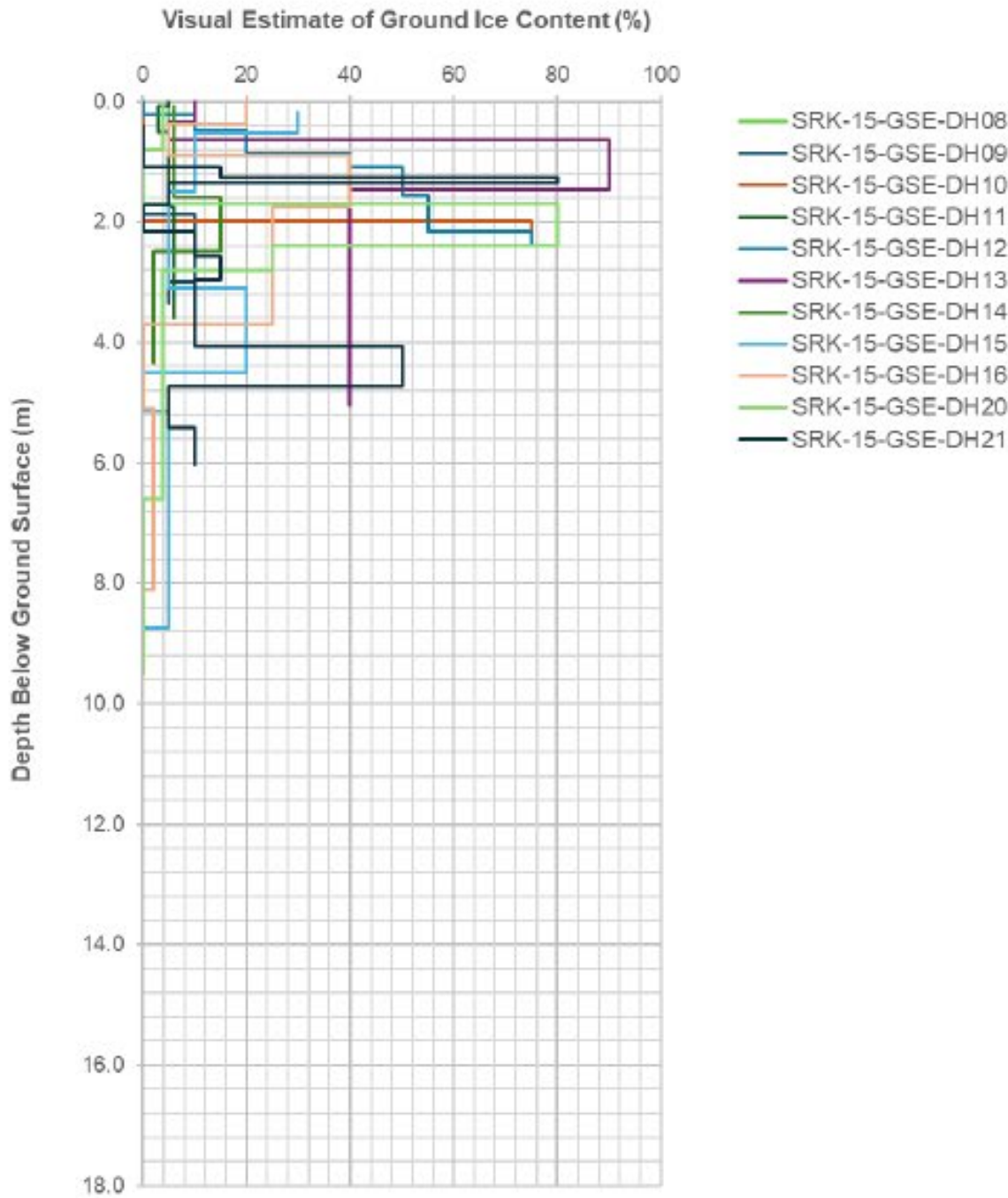


- Notes:
- 1. Drillholes completed in 2018 at former location of tailings storage facility (TSF).
 - 2. Vertical scale indicates elevation above sea level.
 - 3. Solid blue line represents ground ice content based on visual estimate.

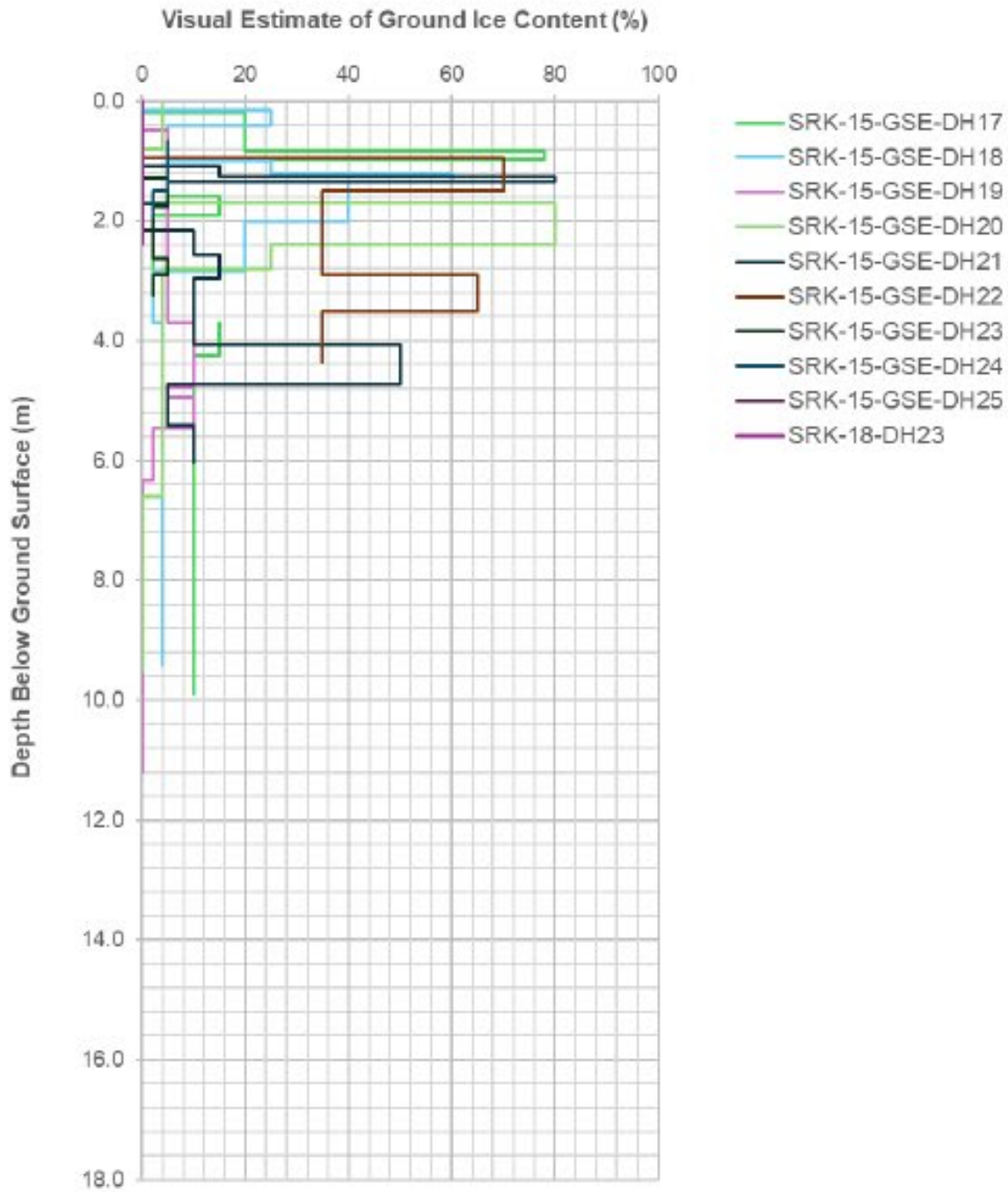
ORGANICS SAND COBBLE BEDROCK
SILT GRAVEL BOULDER ICE

		2025 Ground Thermal Monitoring Report		
		Former Location of TSF Area – Cross Section		
		Date: 2026-03-19	Approved: JBK	Figure: 25
Job No: CAPR004313 Filename: GroundThermalMonitoring_2025_Figures..pdf	Back River Project			

Former TSF Dam Alignment
(West Side)



Former TSF Dam Alignment
(East Side)



Notes:
1. Ground ice content based on visual estimates.



Job No: CAPR004313
Filename: GroundThermalMonitoring_2025_Figures..pdf



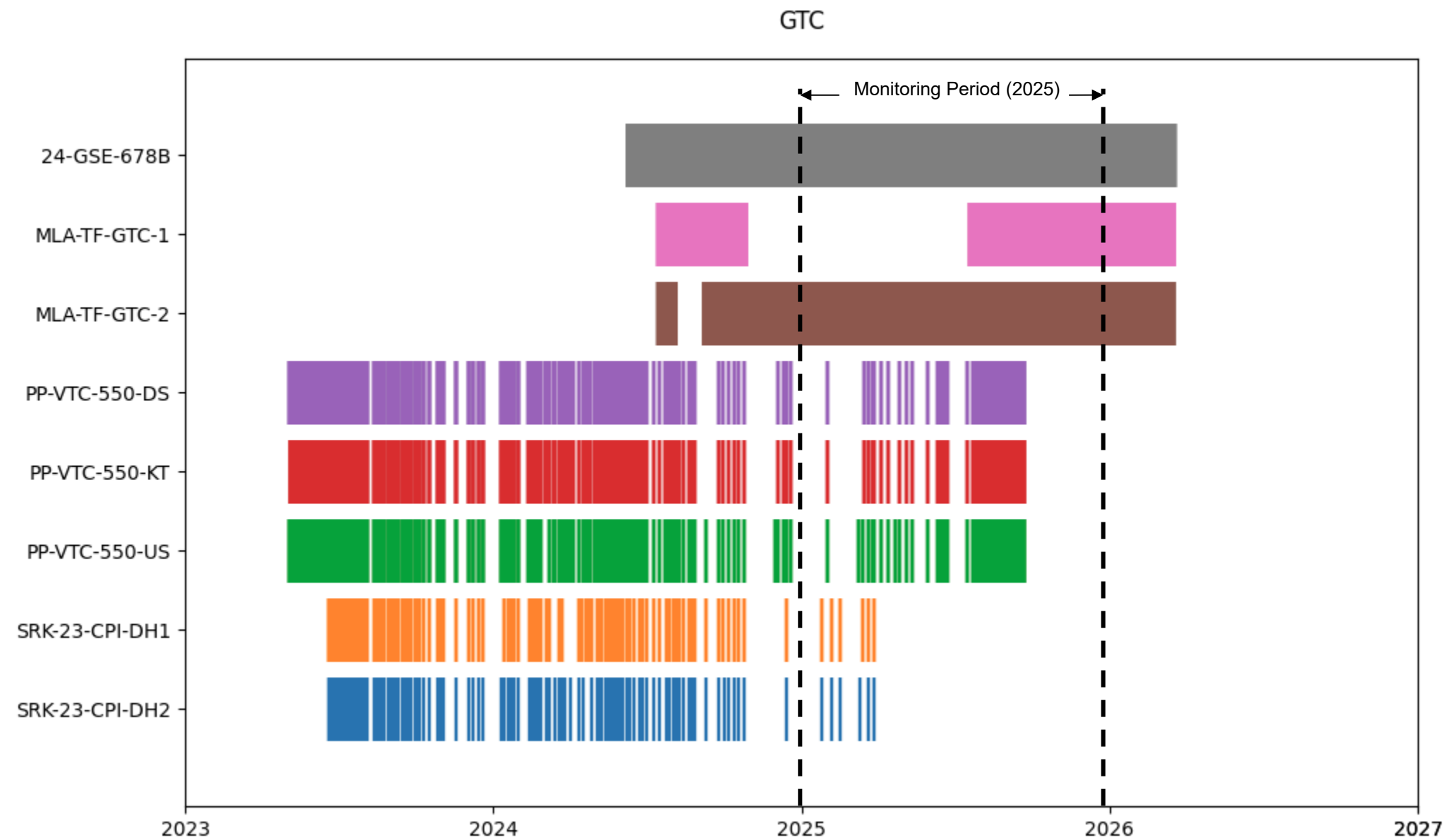
Back River Project

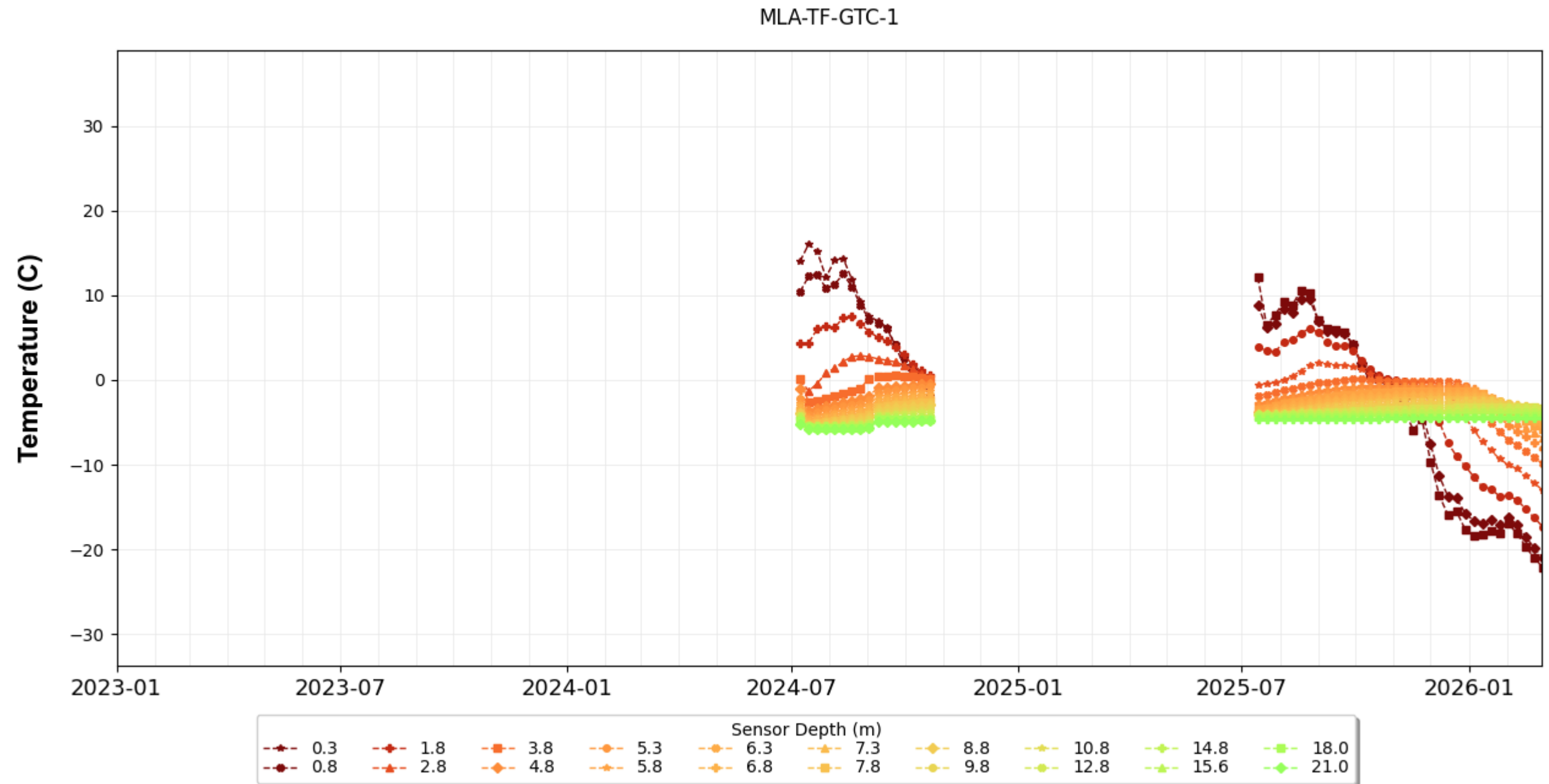
2025 Ground Thermal Monitoring Report

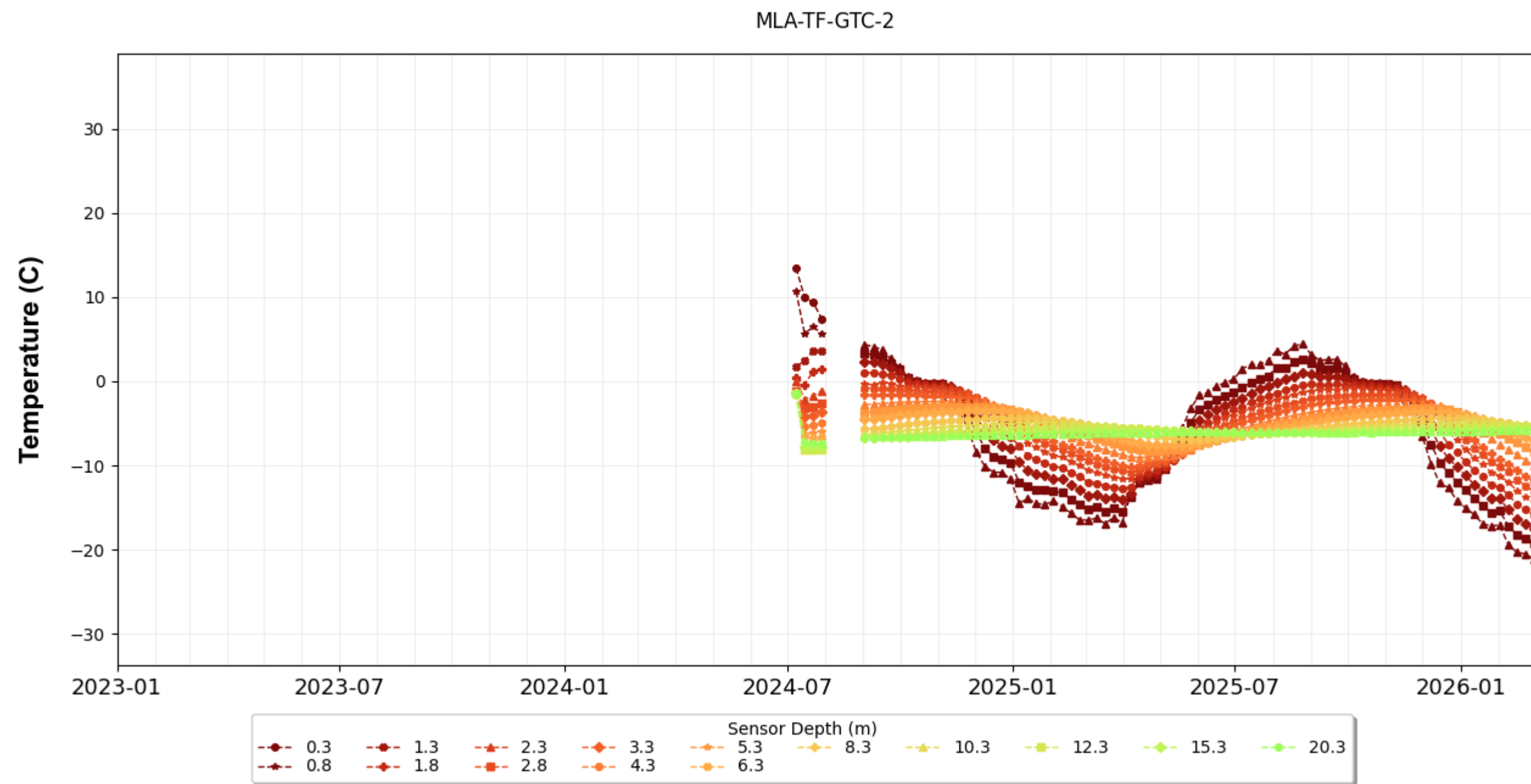
Ground Ice Logs – Former TSF
Dam Alignment

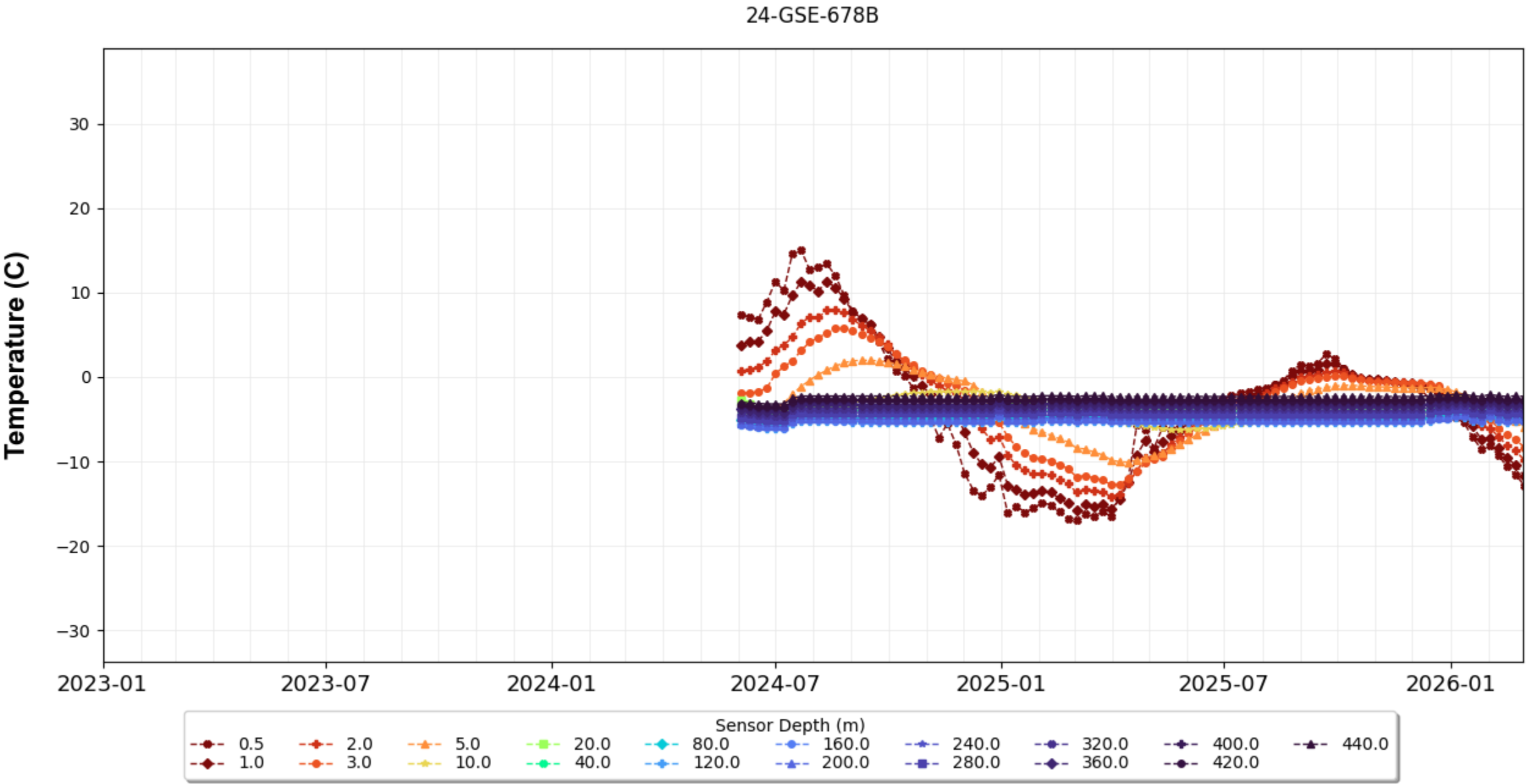
Date: 2026-03-19
Approved: JBK
Figure: 26

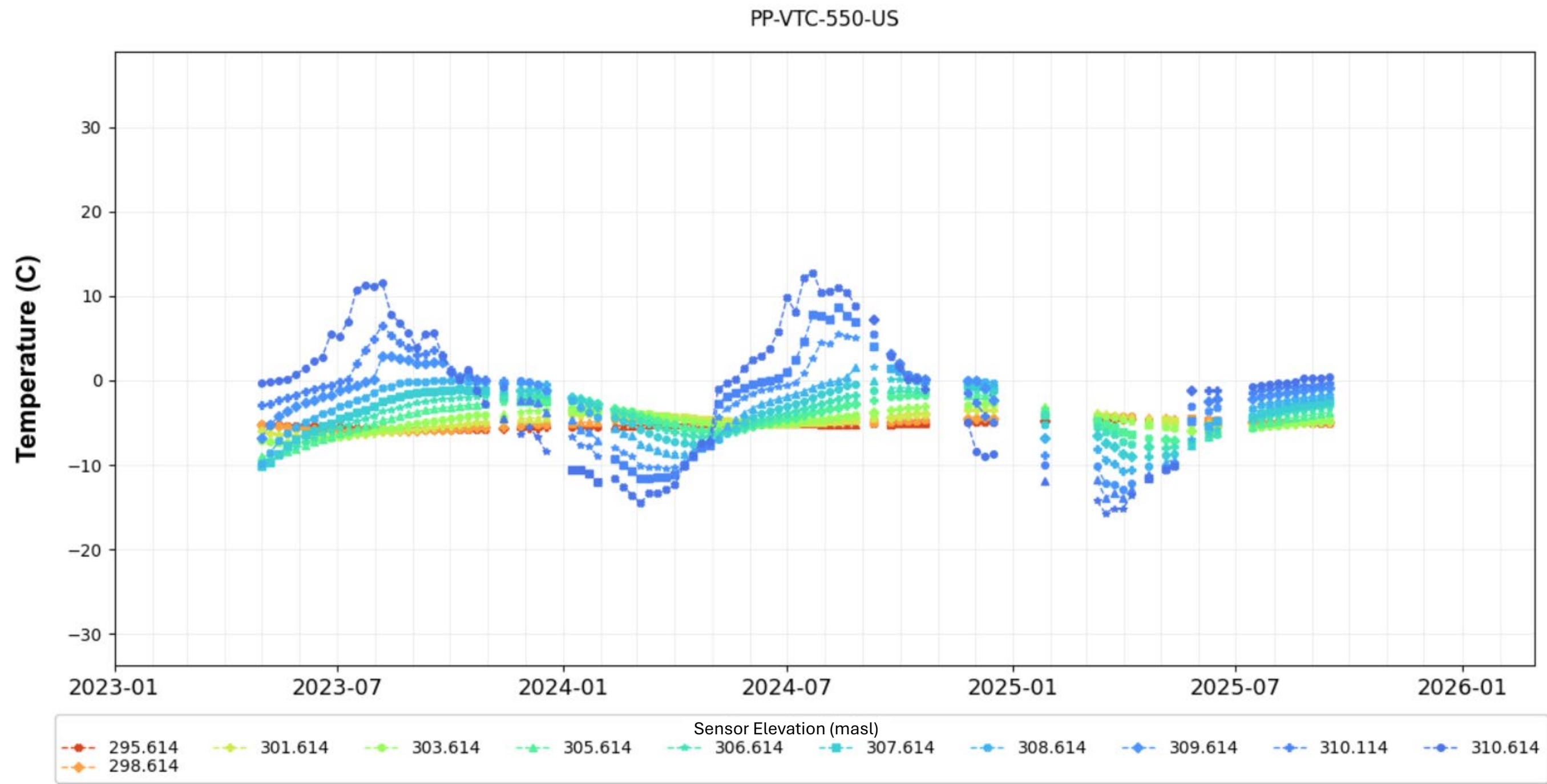
Attachment 2 Ground Temperature Data











PP-VTC-550-KT



