



SNC • LAVALIN

2022 Annual Report: Elk Valley Regional and Site-Specific Groundwater Monitoring Programs

Regional Groundwater Monitoring Program

Fording River Operations

Greenhills Operations

Line Creek Operations

Elkview Operations

Coal Mountain mine

Teck Coal Limited

VOLUME V OF VI

March 24, 2023

SNC-Lavalin Project: 635544

Appendix X

Analyte List



Appendix X: Analyte List

2018 SSGMP Approved Analyte List

	Units
Field Parameters	
TEMPERATURE	°C
<u>PH</u>	pH unit
<i>Dissolved Oxygen</i>	mg/L
SPECIFIC CONDUCTANCE	µS/cm
OXIDATION-REDUCTION POTENTIAL (ORP)	mV
Physical Parameters (laboratory)	
<u>pH</u>	pH unit
HARDNESS (as CaCO₃)	mg/L
<i>Specific Conductance</i>	µS/cm
<i>Total Suspended Solids</i>	mg/L
<i>Total Dissolved Solids</i>	mg/L
<i>Turbidity</i>	NTU
<i>Alkalinity, total (as CaCO₃)</i>	mg/L
<i>Bicarbonate</i>	mg/L
<i>Carbonate</i>	mg/L
<i>Hydroxide</i>	mg/L
<i>Ammonia (as N)</i>	mg/L
<i>Bromide</i>	mg/L
CHLORIDE	mg/L
<i>Fluoride</i>	mg/L
NITRATE (as N)*	mg/L
NITRITE (as N)	mg/L
<i>Total Kjeldhal Nitrogen</i>	mg/L
<i>Ortho-Phosphate</i>	mg/L
<i>Total Phosphorus</i>	mg/L
SULPHATE (SO₄)*	mg/L
Dissolved Metals	
<i>Aluminum</i>	µg/L
<i>Antimony</i>	µg/L
<i>Arsenic</i>	µg/L
<i>Barium</i>	µg/L
<i>Beryllium</i>	µg/L
<i>Bismuth</i>	µg/L
<i>Boron</i>	µg/L
CADMIUM*	µg/L
CALCIUM	µg/L
<i>Chromium</i>	µg/L
<i>Cobalt</i>	µg/L
<i>Copper</i>	µg/L
<i>Iron</i>	µg/L
<i>Lead</i>	µg/L
<i>Lithium</i>	µg/L
MAGNESIUM	µg/L
<i>Manganese</i>	µg/L
<i>Mercury</i>	µg/L
<i>Molybdenum</i>	µg/L
<i>Nickel</i>	µg/L
POTASSIUM	µg/L
SELENIUM*	µg/L
<i>Silver</i>	µg/L
SODIUM	µg/L
<i>Strontium</i>	µg/L
<i>Thallium</i>	µg/L
<i>Tin</i>	µg/L
<i>Titanium</i>	µg/L
<i>Uranium</i>	µg/L
<i>Vanadium</i>	µg/L
<i>Zinc</i>	µg/L
Organics	
Total Organic Carbon	-
Dissolved Organic Carbon	-

2020 RGMP Approved Analyte List

	Units
Field Parameters	
<i>Temperature</i>	°C
<u>pH</u>	pH unit
<i>Dissolved Oxygen</i>	mg/L
<i>Specific Conductance</i>	µS/cm
<i>Oxidation-Reduction Potential (ORP)</i>	mV
Physical Parameters (laboratory)	
<u>pH</u>	pH unit
<i>Hardness (as CaCO₃)</i>	mg/L
<i>Specific Conductance</i>	µS/cm
<i>Total Suspended Solids</i>	mg/L
<i>Total Dissolved Solids</i>	mg/L
<i>Turbidity</i>	NTU
<i>Alkalinity, total (as CaCO₃)</i>	mg/L
<i>Bicarbonate</i>	mg/L
<i>Carbonate</i>	mg/L
<i>Hydroxide</i>	mg/L
<i>Ammonia (as N)</i>	mg/L
<i>Chloride</i>	mg/L
<i>Fluoride</i>	mg/L
<i>Nitrate (as N)*</i>	mg/L
<i>Nitrite (as N)</i>	mg/L
<i>Total Kjeldhal Nitrogen</i>	mg/L
<i>Ortho-Phosphate</i>	mg/L
<i>Total Phosphorus</i>	mg/L
<i>Sulphate (SO₄)*</i>	mg/L
Dissolved Metals (laboratory)	
<i>Aluminum</i>	µg/L
<i>Antimony</i>	µg/L
<i>Arsenic</i>	µg/L
<i>Barium</i>	µg/L
<i>Boron</i>	µg/L
<i>Cadmium*</i>	µg/L
<i>Calcium</i>	µg/L
<i>Chromium</i>	µg/L
<i>Cobalt</i>	µg/L
<i>Copper</i>	µg/L
<i>Iron</i>	µg/L
<i>Lithium</i>	µg/L
<i>Magnesium</i>	µg/L
<i>Manganese</i>	µg/L
<i>Molybdenum</i>	µg/L
<i>Nickel</i>	µg/L
<i>Potassium</i>	µg/L
<i>Selenium*</i>	µg/L
<i>Sodium</i>	µg/L
<i>Uranium</i>	µg/L
<i>Zinc</i>	µg/L

BOLD CAPITAL = Included in the Elk Valley Drinking Water Sampling Plan

Underlined = Standards are available in the CSR for AW, IW, or LW; BC WQG AW; or Guidelines for Canadian Drinking Water Quality DW

Italics = Constituents included in the TGE "Core List of General Water Quality Analytes and Field Measurements"

* = Constituents of Interest (CI)

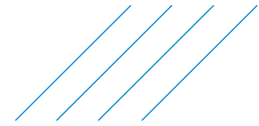
TGE = Technical Guidance 6 Water and Air Baseline Monitoring Document for Mine Proponents and Operators (BC MoE, 2012).

Appendix XI

Field Methodology and Teck Best Management Practices

- Attachments
 - › XI-1: Teck Coal Standard Practices & Procedures





1 Field Methodology

Water level measurement, sample collection and handling were completed by Teck or others in accordance with the British Columbia Field Sampling Manual (BCFSM) Parts A and E. (BC MOE, 2013a, b) as required in Permit 107517. A consistent general methodology was followed for each location by adhering to Teck's updated Standard Practices and Procedures (SP&Ps) for water level measurements, well purging and groundwater sampling (TC_GW-01, TC_GW-02; Attachment 1). Appropriate well-specific methods were required to account for specific safety concerns, well construction, well type, and variable recharge. During monitoring and sampling events, field observations were recorded, such as weather conditions and any unusual occurrences (i.e., changes in site use or site physical conditions, the condition of the monitoring well and whether repairs are needed, and ponded water in the vicinity of the monitoring well).

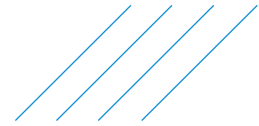
1.1 Sampling Frequency

Permit 107517 prescribes a minimum quarterly sampling frequency after well installation, to assess seasonal variability of groundwater conditions, which is consistent with the BC Ministry of Environment & Climate Change Strategy (ENV) Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016). Monitoring frequency is further reviewed on an annual basis to assess adequacy to address the seasonal variability and to address whether the frequency should be reduced if little to no variability is observed. Overall, unless otherwise recommended, the quarterly monitoring schedule and rationale was as follows:

- Winter (First Quarter): Winter sampling to capture when groundwater levels are nearing their lowest and recharge to groundwater is minimized due to frozen ground.
- Spring (Second Quarter): Sampling during the freshet months to capture when groundwater levels and the extent of groundwater recharge and discharge are maximized.
- Summer (Third Quarter): Sampling during the post freshet months to capture when the groundwater levels are decreasing.
- Fall (Fourth Quarter): Sampling to capture groundwater conditions between the summer and winter sampling events.

1.2 Analyte List

Groundwater was analyzed for select constituents from the core list of general water quality analytes provided in Table 2 of the BC ENV's Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016). Minimum detection limits for each parameter are suitable for comparison to the screening criteria. The list of recommended constituents, detection limits, and rationale is presented in the 2018 Site-specific Groundwater Monitoring Program (SSGMP) Update reports (SNC-Lavalin, 2019a, b, c; Golder, 2019; SRK, 2018). An updated analyte list was provided as part of the 2020 RGMP Update (SNC-Lavalin, 2020). Both are appended to the main report in Appendix X.



Analyses for dissolved metals is specified to prevent misrepresentation of the mobile concentrations of constituents due to increased turbidity, which may occur as the result of sampling techniques, well construction, and/or geological formation (i.e., clay or silt bearing formations). For metals, the dissolved (i.e., filtered samples) component provides the best representation of groundwater transport. Approval for removal of total metals from all of Teck's groundwater sampling programs was received via email to Teck from ENV on November 3, 2016.

The 2018 SSGMP Update recommends analyzing for bicarbonate, carbonate, and hydroxide in place of bicarbonate-, carbonate-, and hydroxide-alkalinity to assist with water-type data interpretation. These parameters are used to characterize water type and direct analysis of these parameters would eliminate the need to convert alkalinity results.

1.3 Sample Handling and Shipment

Samples were handled and shipped in a manner that is consistent with the practices and procedures prescribed in the BCFSM Parts A and E and Teck's SP&Ps TC_GW-01 and TC_GW-02. Samples were submitted to a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory for analysis in accordance with the British Columbia Environmental Laboratory Manual (Austin, 2020).

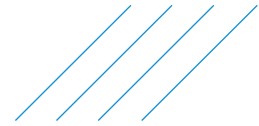
The following was completed as per Teck SP&P's:

- Preservatives and certified clean sample bottles were provided by an accredited laboratory.
- Samples collected for dissolved metals were field-filtered using a syringe and in-line filter.
- Samples that required preservation were preserved in the field.
- Samples were shipped in ice-chilled coolers under chain-of-custody documentation and procedures.

1.4 Groundwater Monitoring and Sampling

As per Teck's SP&P and the BCFSM, groundwater monitoring was generally completed as follows:

- Prior to sample collection, manual water level measurements (i.e., with an electronic water level tape) were measured from each location. In addition to manual water level measurements, the water levels in some wells were continuously monitored with pressure transducers (hereinafter referred to as dataloggers).
- Continuous measurements were collected hourly by the datalogger, which is appropriate for capturing any rapid fluctuation of water levels yet manage the memory and battery limitations of the hardware. The majority of the dataloggers are Solinst® Leveloggers; however other manufacturers (e.g., Divers from van Essen) are also used. Dataloggers were deployed below the anticipated frost penetration depth to prevent the instrument from freezing. Some have been attached to the bottom of frost plugs.
- Data collected by the dataloggers were downloaded each quarter, when possible. After samples were collected, the data logger was re-deployed at the same depth. Any changes in the length of cable/string used were noted.
- Water level data was corrected for atmospheric influences using a barometric pressure datalogger (eg. Solinst® Barologger), which measures changes in atmospheric pressure. These are typically deployed in a protected and secured location, such as inside a steel well casing/monument, at a suitable location and elevation.



As per Teck's SP&P and the BCFSM, groundwater purging, and sampling was generally completed as follows:

- Water quality monitoring equipment was prepared and calibrated. Sensors were calibrated on a routine basis and the calibration process was documented. If a field measurement was identified out of the expected historical ranges from previous sampling events at the monitoring well, calibration of field probes was re-confirmed.
- Dedicated tubing was installed in each well and a pump was used to draw water to the surface for sample collection. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics. Wells with depth to water less than 7 mbgs were generally purged and sampled following low-flow (0.5 L/min) sampling techniques to minimize sediment entrainment. In cases where depth to water was approximately 7 mbgs or greater, wells were sampled using tubing fitted with a Waterra foot valve or a bladder pump. Wells were purged three well volumes or until field parameters [electrical conductivity (EC), dissolved oxygen (DO), pH, oxidation-reduction potential (ORP), turbidity and temperature] stabilized after three consecutive readings using a YSI flow through cell. Field parameters were recorded once stable, prior to sampling.
- Following purging, a sample was collected at a flow rate of approximately 0.1 L/min using the lowest possible setting for the particular pump. The low-flow rate is intended to minimize the disturbance of entrained sediments mixing within the well and is intended to draw water directly from the formation around the well.
- Groundwater monitoring, purging, and sampling details specific to each Operation are presented in the sections below.

1.5 Fording River Operations

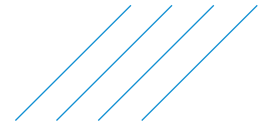
In addition to manual monitoring in 2022, 31 monitoring wells were continuously monitored with data loggers. Continuously monitored wells are listed in Table FR-02 (Appendix V).

The specific pump type selected for each monitoring well location is provided in Table FR-02 (Appendix V).

Select wells at FRO require different methods for sampling. Supply wells, (i.e., FR_GH_WELL4 and FR_POTWELLS), have limited access to the wellhead; therefore, samples were collected from a distribution point (i.e., faucet) within the water system or at the sample port at the well head. Samples from FR_POTWELLS are representative of one or more of a number of wells in the water supply system, while FR_GH_WELL4 is representative of a single well. FR_GH_WELL4 (not continuously running) was purged, and parameters were monitored to ensure stabilization prior to sampling, while parameters were only measured a single time from FR_POTWELLS (continuously running) prior to sampling.

1.6 Greenhills Operations

Prior to sample collection, manual water level measurements (i.e., with a water level tape) were measured from each location, except for supply wells GH_POTW09, GH_POTW10, GH_POTW15, GH_POTW17, and RG_DW-01-03 due to having limited access to the wellhead.



In addition to manual monitoring, all wells except for GH_MW-TD, GH_MW-PC4A, GH_MW-PC4B, GH_MW_RLP-2 and the supply wells were continuously monitored with data loggers. Supply wells were not continuously monitored due to having limited access to the wellhead.

The specific pump type selected for each monitoring well location is provided in Table GH-02 (Appendix VI).

Select wells at GHO require different methods for sampling (GH_MW-TD and supply wells). Flowing artesian conditions were encountered at GH_MW-TD during installation. Groundwater at this well is collected directly from the discharge spigot using filters and a syringe. Supply wells GH_POTW09, GH_POTW10, GH_POTW15, GH_POTW17, and RG_DW-01-03 were sampled from the sample port (i.e., faucet) at the wellhead. Prior to collection of samples, the supply wells were purged, and parameters were recorded.

1.7 Line Creek Operations

In addition to manual monitoring in 2022, 25 wells were continuously monitored with data loggers. These wells are listed in Table LC-02 (Appendix VII).

The specific pump type selected for each monitoring well location is provided in Table LC-02 (Appendix VII).

Prior to sampling, all wells were purged prior except LC_PIZP1001, LC_PIZP1002, and LC_PIZP1003, where only water level was recorded, and LC_PIZ1206C, LC_PIZ1210B, and LC_PIZ1210C, where sampling was completed by hydrasleeve. Purging of monitoring wells was completed using either a bailer, peristaltic pump or bladder pump following low-flow sampling techniques

1.8 Elkview Operations

In addition to manual monitoring, in 2022 36 wells were continuously monitored with data loggers (Table EV-02, Appendix VIII).

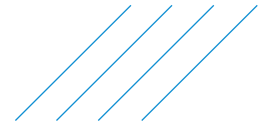
The specific pump type selected for each monitoring well location is provided in Table EV-02 (Appendix VIII). Purging of monitoring wells was completed using either a peristaltic pump or bladder pump following low-flow sampling techniques.

Prior to sampling, monitoring wells were purged with the exception of EV_WF_SW, which was sampled using a HydraSleeve™ (no purge method) due to the deep water level at this well (>130 mbgs). Supply wells were sampled from a distribution point. Prior to collection of samples, the tap or valve at the supply wells was opened for a minimum of five minutes to purge water through the distribution system. The objective of purging was to obtain samples representative of the water source and not a sample influenced by the distribution system.

1.9 Coal Mountain Operations

In addition to manual monitoring, all wells were continuously monitored with data loggers (Table CM-02, Appendix IX).

Monitoring wells were sampled using three methods: low-flow purging/sampling, artesian flow grab sampling, and no-purge sampling. The specific pump type selected for each monitoring well location is provided in Table CM-02 (Appendix IX).



Low-flow sampling was conducted using dedicated bladder pumps for the majority of wells (Table CM-02, Appendix IX). Low-flow sampling was conducted using a peristaltic pump at CM_MW_AG1A and CM_MW_AG1B. Flow rates were sustained below 0.5 L/min while purging, and samples were collected following stabilization of field parameters.

Grab samples were collected from artesian flow at monitoring wells CM_MW4-SH and CM_MW4-DP. Water discharging from the top of the standpipe was directed into sample bottles.

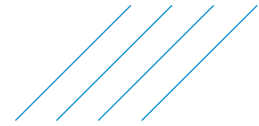
No-purge sampling was conducted at four monitoring wells (CM_MW1-DP, CM_MW7-SH, CM_MW7-DP, and CM_MW8) using the HydraSleeve™ system. Recovering the sleeve captured a core of water from the standpipe along the well screen interval. The HydraSleeve™ was then returned to the bottom of the standpipe following sampling.

1.10 Regional Drinking Water Program

There is limited access to the wellhead at municipal and private domestic wells sampled as part of the RGMP (RG_DW-01-03, RG_DW-02-20, RG_DW-03-04, RG_DW-03-10). Therefore, samples were collected from a distribution point (i.e., faucet) within the water system or at the sample port at the well head. Domestic wells were sampled, where possible, via the sample port used in the initial drinking water evaluation or previous sampling event.

Prior to collection of samples, the tap or valve at the sample location was opened for a minimum of five minutes to purge water through the distribution system. The objective of purging was to obtain samples representative of the water source and not a sample influenced by the distribution system.

Water quality parameters (pH, EC, temperature, ORP, DO, and turbidity) were monitored until stable readings were obtained. Once the stabilized water quality parameters were recorded, the flow was reduced to minimize splashing and samples were collected in laboratory supplied bottles.

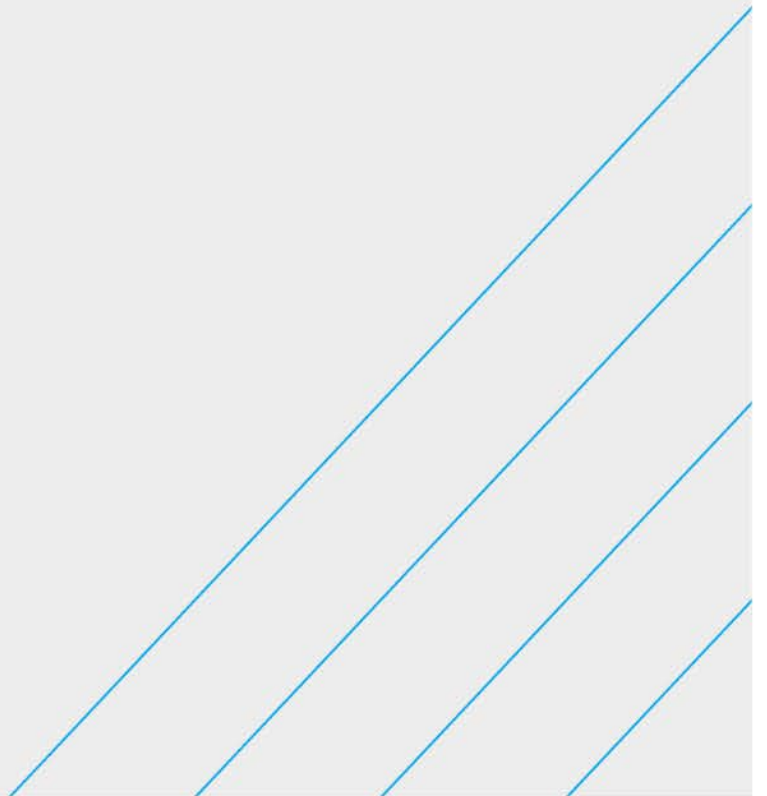


2 References

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- British Columbia Ministry of Environment (BC MOE). 2016. *Technical Guidance 6: Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators*. Technical Guidance for Environmental Management Act Applications, Version 2.0, June 2016.
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Attachment XI-1

Teck Coal Standard Practices & Procedures



MEASUREMENT OF WATER TABLE ELEVATION IN WELLS



Teck Coal Ltd. utilizes a system in which Standard Practices and Procedures are developed, implemented and maintained. This helps ensure that safety and environmental risks associated with various work tasks are identified, mitigated and managed.

1.0 PURPOSE AND SCOPE

This document outlines the procedure which will be used by personnel for measuring water depth in wells, observation wells, and piezometers.

2.0 RESPONSIBILITIES

Depending on the operation, field monitoring activities and documentation may be carried out by an Environmental Officer, Environmental Technician (not all operations have this position), or a designate, such as an Environmental Co-op Student.

The Environmental Officer, Technician, or designate is responsible for:

- Measuring the depth to groundwater in a structure (well, observation well, piezometer).

3.0 BACKGROUND

Depth to groundwater surface is measured using an electric water level meter (such as Solinst Model No. 101 or equivalent). A light on the water level meter illuminates and/or an audible alarm sounds when the weighted probe tip contacts the water surface in the well and completes an electronic circuit. The measured depth to water is determined to within 0.01 meter by noting the point on the probe cable that corresponds to the measuring point (MP) at the top of the well/piezometer casing at the initial point of contact.

4.0 PROCEDURES

The following steps are necessary to collect water level measurements:

1. Check the operation of the meter by turning on the indicator switch and pressing the test button.

MEASUREMENT OF WATER TABLE ELEVATION IN WELLS



2. Holding the water level indicator above the well casing, lower the cable gradually into the well or piezometer until the indicator contacts the water surface. The contact with water surface is indicated by the buzzer sounding and/or illumination of the indicator light. At this point, stop lowering the cable.
3. Note the point on the graduated cable that corresponds to the MP at the top of the casing when the electronic circuit is first completed. The MP should be the inner casing and not the outer casing that is protecting the well. If the inner casing cannot be reached and the outer casing is used as the MP, then this must be recorded in the datasheet. If necessary, grasp tape with thumb and index finger exactly at the measuring point marked at the top of the well casing. Pull tape out of well slowly and read measurement.
4. Record the depth to the water surface to the nearest 0.01 m.
5. Draw the cable about 0.25 above the surface of the water, then lower it and repeat Steps 2 through 4. If these two readings differ by more than 0.02 m, repeat until the measured readings stabilize. Measurements should always be taken as the indicator is lowered into the well, not as it is raised.

5.0 DEVIATION FROM PROCEDURE

Adherence to this procedure will help to ensure that depth to water is measured properly, can be consistently repeated, and provides accurate data for measurement of water table elevation. Deviation from this procedure may result in improper measurement of water depth and inaccurate data being recorded.

6.0 KEY DOCUMENTS/TOOLS/REFERENCES

- Teck. 2012. Environment, Health, Safety and Community Management Standards. July:
 - Standard 4 – Water, Ecosystems and Biodiversity.
 - Standard 13 – Monitoring – Measurement, Inspection and Audit.
 - Standard 20 – Documents and Records.

MONITORING WELL PURGING AND GROUNDWATER SAMPLING

Teck Coal Ltd. utilizes a system in which Standard Practices and Procedures are developed, implemented, and maintained. This helps ensure that safety and environmental risks associated with various work tasks are identified, mitigated, and managed.

1.0 PURPOSE AND SCOPE

This document outlines the procedure which will be used by Teck Coal for purging, monitoring, and sampling groundwater from monitoring wells. This is applicable to more routine monitoring programs such as compliance monitoring, and not necessarily to research and development programs, which may require far more detailed water chemistry.

2.0 RESPONSIBILITIES

Depending on the operation, field monitoring activities and documentation may be carried out by an Environmental Officer, Environmental Technician (not all operations have this position), or a designate, such as an Environmental Co-op Student.

The Environmental Officer, Technician, or designate is responsible for:

- Purging the well as possible prior to performing any monitoring or sampling activities.
- Collecting the water sample(s).

3.0 BACKGROUND

It is recommended that a low-flow pump is used to sample groundwater where possible. This is not always a feasible or practical methodology. Having to use a pump, power source, and associated equipment can be a major hindrance, especially for sampling locations which may be remote and/or off of roadways or good pathways.

Manual methods to purge and collect groundwater include use of bailers or plastic tubing with foot valves to allow water to be pumped one-way by hand. Dedicated plastic tubing with foot valves is inexpensive, effective, easy to use and can be set up so that each monitoring well has its own dedicated tubing. This would eliminate potential for cross-contamination between wells. Bailers can also be used for purging and sampling and are inexpensive and very portable. If bailers are used, care must be taken to prevent contamination from one well to the next. Either

MONITORING WELL PURGING AND GROUNDWATER SAMPLING

bailers need to be disposable (single use), or carefully cleaned and decontaminated between sampling locations.

4.0 PROCEDURES**Actively producing well**

If a dewatering well has been installed and is actively being used to lower or control the water table, then samples can likely be collected at the surface. Either sample at the discharge point of the pump (hard or soft line) or from a tap installed at the well head.

Monitoring Well or Piezometer

A monitoring well or piezometer is a passive structure (no permanent pump installed) and so water must be brought to the surface manually or by use of a low flow pump.

Water can be brought to the surface for measurement and sample collection using a low flow pump, plastic tubing and one-way foot valve, or bailer.

Preparation

Preparation includes inspecting the condition of the well, monitoring health and safety conditions, and calibrating and decontaminating equipment. General procedures are presented below:

1. Make sure area around well head is clean and free of debris. If necessary, place a plastic drop cloth around the well head to prevent sampling equipment from coming into contact with the ground surface.
2. Inspect condition of well (e.g., well locked, loose-fitting cap, measuring point well marked, surface casing disturbed, well casing straight, condition of concrete pad). Indicate condition of well on the datasheet.
3. All equipment should be decontaminated before and after introduction to each well. Protective latex or nitrile gloves should be worn during possible water-contact or

MONITORING WELL PURGING AND GROUNDWATER SAMPLING

- equipment-contact activities. At a minimum, gloves should be changed between each well or when introduction of potential contaminants to the well is possible.
4. Measure water level using an electronic water level meter as described in SP&P TC-GW-01. Sounding the bottom of the well using a weighted tape (i.e., for well casing volume calculations) before sampling is not recommended to avoid resuspension of settled solids. If possible, determine the elevation of the well bottom from drilling records.
 5. Calculate the well casing volume as follows:

$$\text{well casing volume (L)} = \pi (r^2)(h)(1000 \text{ L/m}^3)$$

- where h = height of water in the well casing (i.e., depth to bottom of the well minus depth to water (in m), and r = radius of well casing (in m).
6. Calibrate water quality meters for measuring field parameters as appropriate. At a minimum, temperature, pH, specific conductance, and turbidity measurements should be collected during purging and before sampling. Record equipment calibration and maintenance in the equipment log sheets. Decontaminate meters between wells by rinsing with distilled water.

Well Purging

Where reasonably practicable, it is recommended that 3-4 purge volumes of water are removed from the well. Monitoring wells are purged before groundwater samples are collected for analyses. The purpose of well purging is to remove stagnant groundwater from the well (which has interacted with air in the well casing).

The well must then be allowed to recharge prior to sampling. In some cases, such as encountering a very low production and/or essentially dry well, it is not feasible to purge 3-4 volumes of water. If this situation is encountered, be sure to keep good records of the field conditions experienced, the volume of water purged, and notes detailing why 3-4 purge volumes are not possible. Also record any visual observations of the water purged, such as color, turbidity, odor, presence of invertebrates (e.g., mayfly larva) etc., which may provide useful information about the state of the well.

Field parameters (i.e., at a minimum pH, temperature, and specific conductance) are measured during the purging process (See SOP TC-GW-03). Purging is assumed to be complete when the readings of these parameters have stabilized.

MONITORING WELL PURGING AND GROUNDWATER SAMPLING



It is recommended that purging takes place the day before sampling. The well needs to have the stagnant water removed and then recharge. However, recharge water should not sit for too long prior to sampling, as it can react again with air in the casing and become unrepresentative of the groundwater in the area.

1. Lower the pump intake or intake tubing (as applicable) into the water column. The pump intake should be placed at the middle or slightly above the middle of the screened interval in confined aquifers. Placement of the pump intake near the top of the water column is recommended for unconfined aquifers screened across the water table.
2. Conduct purging at a rate that is lower than used to develop the well and that will minimize drawdown in the well. Recommended purge rates for low-flow sampling are generally less than 0.5 L/min, or a rate that results in minimal (i.e., less than 0.3 m) drawdown in the well. Actual purge rates will vary on the basis of aquifer material, well construction, and purging equipment.
3. Continue purging the well until field parameters have stabilized. Field parameters are stable when three successive readings are within ± 0.1 for pH, ± 3 percent for conductivity, ± 0.2 °C for temperature, ± 10 mV for redox potential and ± 10 percent for turbidity and dissolved oxygen.
4. After the field parameters have stabilized, reduce the pump rate to approximately 0.1 L/min or the lowest possible flow setting for the particular pump. Pump should be operated at a rate less than 0.1 L/min when collecting samples for VOC analysis.
5. In the event that even very low purge rates result in emptying of the well, groundwater samples for laboratory analyses should be collected as soon as sufficient groundwater accumulates in the well, regardless of field parameters or total volume purged.

Groundwater Sampling

- Groundwater sampling is conducted after proper purging of the well.
- Where possible, groundwater samples for analyses should be collected directly from the pump discharge at the lowest rate possible to minimize cross contamination, suspension of solids, and aeration of the sample.

MONITORING WELL PURGING AND GROUNDWATER SAMPLING

- Both bladder pumps and submersible pumps are suitable for purging and sampling of all groundwater parameters. A bailer may be used to collect groundwater samples for laboratory analyses of volatile organic compounds; however, the peristaltic pump is suitable for collection of semivolatile organic compounds (SVOCs), metals, and general chemistry parameters.
 - Bailers are not recommended for purging or sampling of groundwater monitoring wells because they may agitate solids in and next to the well.
1. Groundwater samples should be introduced directly from the pump discharge into the proper sample container and filled to capacity.
 2. In general, groundwater samples collected for multiple compounds should be collected in the following order:
 - Volatile organic compounds (VOCs).
 - Dissolved gasses and total organic carbon (TOC).
 - SVOCs (such as polycyclic aromatic hydrocarbons).
 - Metals and cyanide.
 - Major water quality cations and anions.
 - Radionuclides.
 3. In some cases, field filtration may be required (e.g., metals). Filtered water should be introduced directly into the appropriate sample container. If samples cannot be filtered in the field, do not preserve them. The receiving lab can filter then preserve.
 4. If applicable, remove the pump or tubing from the well. Close and lock the well. Decontaminate the sampling equipment.

5.0 DEVIATION FROM PROCEDURE

Adherence to this procedure will ensure that wells are purged and sampled correctly. Deviation from this procedure may result in improper collection of samples which yield poor or incorrect data, or to unnecessary health and safety risk to the person(s) collecting the sample(s).

MONITORING WELL PURGING AND GROUNDWATER SAMPLING**6.0 KEY DOCUMENTS/TOOLS/REFERENCES**

- British Columbia. 2003. British Columbia field sampling manual for continuous monitoring and the collection of air, air-emission, water, wastewater, soil, sediment, and biological samples. Province of British Columbia, Ministry of Water, Land and Air Protection. January.
- Teck. 2012. Environment, Health, Safety and Community Management Standards. July:
 - Standard 4 – Water, Ecosystems and Biodiversity.
 - Standard 13 – Monitoring – Measurement, Inspection and Audit.
 - Standard 20 – Documents and Records.
- U.S. EPA. 1993. Ground water sampling—a workshop summary. EPA/600/R-94/205. U.S. Environmental Protection Agency, Robert S. Kerr Environmental Research Laboratory, Ada, OK.

Appendix XII

High Water Mark Survey for Groundwater
Monitoring Wells in the Elk Valley (KWL, 2023)



Technical Memorandum

DATE: February 28, 2023

TO: Evan Warner
Teck Coal Limited

FROM: Jason Miller, P.Eng.

RE: TECK COAL LIMITED
Highwater Mark Survey for Groundwater Monitoring Wells in the Elk Valley
Our File 2628.110 - 300

1. Introduction

Kerr Wood Leidal Associates Ltd. (KWL) was retained by Teck Coal Limited (Teck) to complete a geodetic survey of highwater marks and groundwater monitoring wells in proximity to water bodies (i.e., normal highwater mark) in the Elk Valley to support Teck's groundwater quality team in determining the appropriate water quality guideline to apply to the wells. This technical memorandum and accompanying figures provide the details of the work completed.

2. Field Survey

The survey was completed between October 19 and 24, 2022, by Align Survey Ltd. (Align) with onsite oversight by Jason Miller, a senior water resources engineer with KWL. The survey was completed using Global Navigation Satellite System (GNSS) Real Time Kinematics (RTK) survey equipment. The RTK survey consisted of Trimble R12 receivers for both the system base and rover units. RTK Base data was recorded and submitted to the Natural Resources Canada Precise Point Positioning Service (PPP) system to generate an accurate base location for each setup. Horizontal coordinates are in UTM Zone 11N, NAD83 (CSRS) Epoch 2002. The vertical datum is CGVD28 (HTv2.0) and has an accuracy of approximately +/- 2 cm.

A total of 31 groundwater monitoring wells were identified by Teck as requiring a survey due to their proximity to creeks, rivers, and ponds (refer to Figure 1). It is understood that wells less than 10 m (horizontally) from the highwater mark of a waterbody are evaluated using the British Columbia Water Quality Guidelines; wells farther than 10 m are evaluated using the Contaminated Sites Regulations.

The normal highwater mark was identified at each location as the approximate vegetation line along the bank of an active channel or pond. At some locations, the adjacent flood channel was dry at the time of the survey and vegetation was observed within the flood channel; in these cases the top of bank was surveyed as it appears the flood channel would be activated annually or every few years. This is consistent with definitions provided in the Riparian Areas Protection Regulation (V.1.1, November 2019).

The survey for each well included:

- the ground elevation next to the groundwater monitoring well;
- the nearest highwater mark; and
- the water level of the active water body (where possible).



Following the survey, the data was processed and figures were developed for each site. The figures include an orthophoto (2022), groundwater monitoring well locations, and the distance to the normal highwater mark (or top of bank). The survey results are provided in Table 1 and Figures 2 to 8.

Table 1: Summary of Survey Results.

Site and Groundwater Monitoring Well Name	Distance of Well to Highwater Mark (m)	Comments
<i>Porter Creek (Figure 8)</i> RG_MW_FR6A RG_MW_FR6B	15.5 13.9	Distance to active creek Distance to active creek
<i>Round Prairie (Figures 5, 6, 7)</i> RG_MW_ER5A RG_MW_ER5B RG_MW_ER6A RG_MW_ER6B RG_MW_ER10A RG_MW_ER10B RG_MW_ER11A RG_MW_ER11B RG_MW_ER1A RG_MW_ER1B RG_MW_ER2A RG_MW_ER2B	22.4 22.8 20.4 21.0 19.4 20.5 16.7 17.4 24.6 24.7 15.3 16.3	Distance to active river Distance to active river Distance to flood channel (top of bank) Distance to flood channel (top of bank) Distance to active river Distance to active river Distance to flood channel Distance to flood channel Distance to flood channel (top of bank) Distance to flood channel (top of bank) Distance to flood channel (top of bank) Distance to flood channel (top of bank)
<i>Dry Creek - LCO (Figure 8)</i> RG_MW_DC1A RG_MW_DC1B	18.1 19.2	Distance to active creek Distance to active creek
<i>Elk River (Figure 2)</i> LC_MW_ER4A LC_MW_ER4B	36.9 37.5	Distance to active river Distance to active river
<i>Harmer Dam (Figure 4)</i> EV_MW_HC3 EV_MW_HC2	8.2 6.6	Distance to pond Distance to pond
<i>Dry Creek Pond - EVO (Figure 3)</i> EV_MW_DC6 EV_MW_DC5 EV_PW_DC1 EV_MW_DC2 EV_MW_DC1 EV_MW_DC7	4.4 8.1 6.9 8.9 8.8 8.4	Distance to active creek Distance to active creek Distance to pond Distance to pond Distance to pond Distance to pond
<i>Alexander Creek (Figure 2)</i> RG_MW_AC1A RG_MW_AC1B	12.7 12.2	Distance to active creek Distance to active creek



3. Closure

We trust the survey information provided is adequate documentation of the key information required to determine the water quality parameters to use for each well. Please contact the undersigned with any questions at 250-503-0841.

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:

Reviewed by:

*Original signed and sealed
 on February 28, 2023 by*

*Original signed
 on February 28, 2023 by*

Jason Miller, P.Eng.
 Project Manager

Mark Chiarandini, B.Sc.
 Hydrometric Group Lead

JM/tdl

Encl.: Figures 1 to 8

Statement of Limitations

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This document represents KWL's best professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

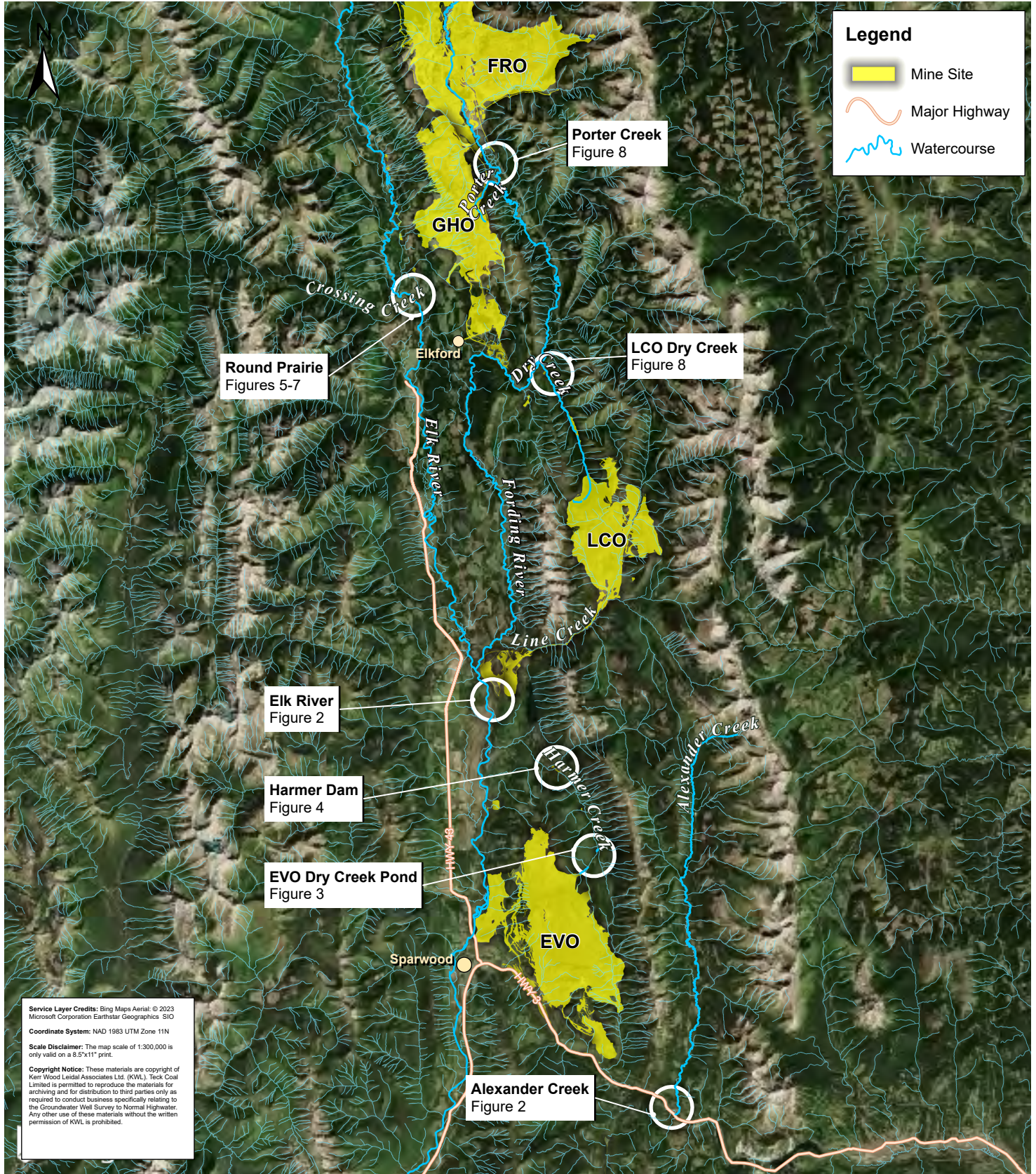
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Revision History

Revision #	Date	Status	Revision Description	Author
0	February 28, 2023	Final		JM

Teck Coal Limited
Groundwater Well Survey to Normal Highwater



Project No. 2628.110

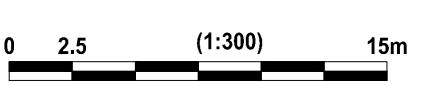
Date February 2023

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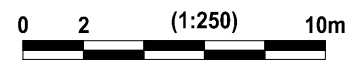
0 2.5 5 10 km

Survey Location Map

Figure 1

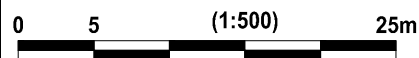


ELK RIVER
 Scale 1:300



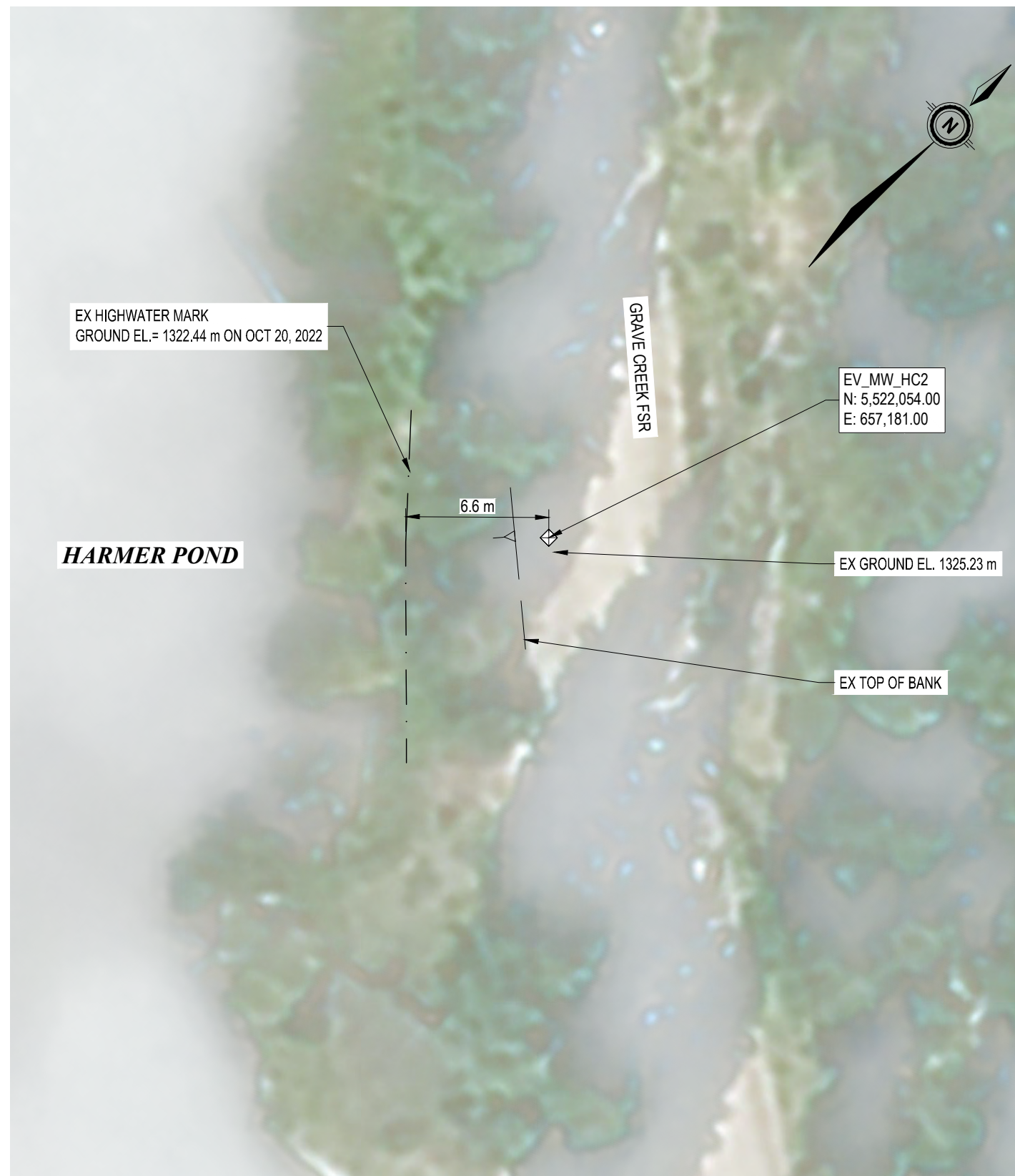
ALEXANDER CREEK
 Scale 1:250

NOTES:
 1. HORIZONTAL DATUM IS UTM NAD83 ZONE 11N.
 2. VERTICAL DATUM IS CGVD28.



NOTES:
 1. HORIZONTAL DATUM IS UTM NAD83 ZONE 11N.
 2. VERTICAL DATUM IS CGVD28.

FIGURE 3 - EVO DRY CREEK POND



NOTES:
 1. HORIZONTAL DATUM IS UTM NAD83 ZONE 11N.
 2. VERTICAL DATUM IS CGVD28.

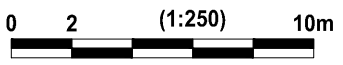
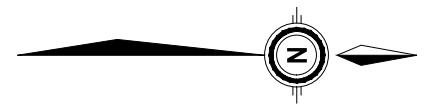
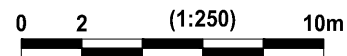
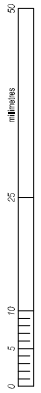


FIGURE 4 - HARMER DAM



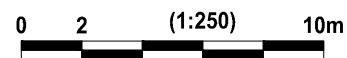
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 2. VERTICAL DATUM IS CGVD28.





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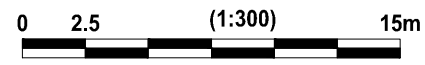
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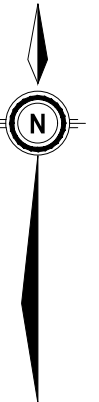
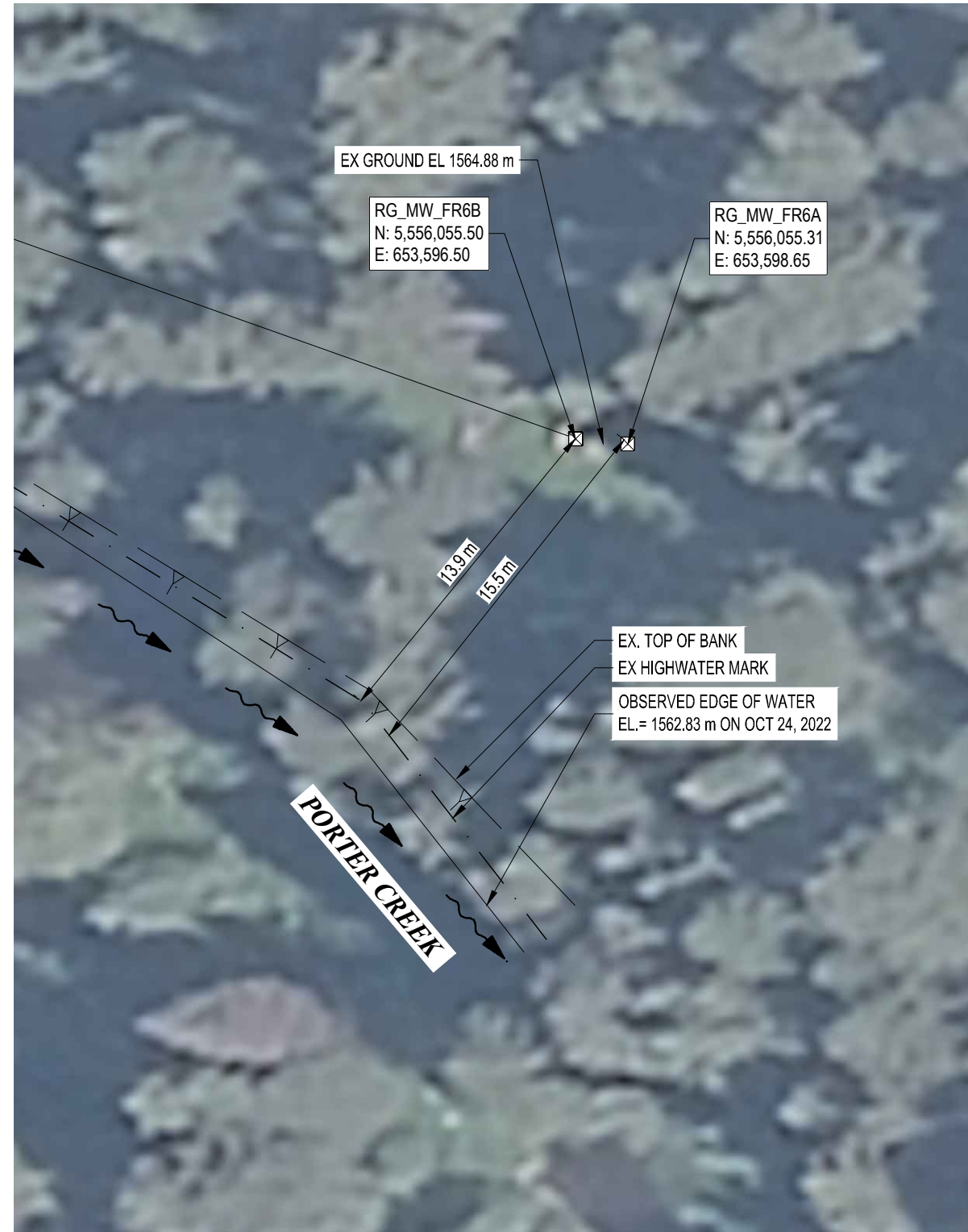


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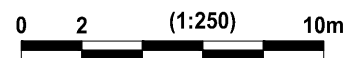




PORTER CREEK FRO
 Scale NTS

LCO DRY CREEK
 Scale NTS

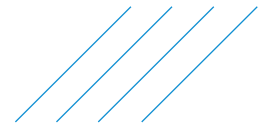
- NOTES:
1. HORIZONTAL DATUM IS UTM NAD83 ZONE 11N.
 2. VERTICAL DATUM IS CGVD28.



Appendix XIII

Data Quality Assurance / Quality Control (QA/QC)





1 Data Quality Assurance / Quality Control (QA/QC)

Teck Coal Limited (Teck) provided field and laboratory data relevant to the Site-Specific Groundwater Monitoring Programs (SSGMPs) and Regional Groundwater Monitoring Program (RGMP) to SNC-Lavalin Inc. (SNC-Lavalin). In addition, several wells were sampled by SNC-Lavalin personnel in 2022. In May 2022, a detailed Quality Assurance / Quality Control (QA/QC) review program was initiated by SNC-Lavalin on behalf of Teck to improve data quality in a continuous feedback cycle. The QA/QC review program evaluated all 2022 groundwater samples associated with the SSGMP and RGMP within 60 days of the end of each quarter (except for Q1 2022). This program included evaluating field and laboratory data, tracking and record keeping, and quarterly reporting.

The quarterly memorandums were discussed with operations within 60 days of the quarters' end and provided detailed summaries of any QA/QC issues flagged by SNC-Lavalin. Issues in 2022 included, limited mislabelled samples, malfunctioning field equipment, paper to digital transcription errors, missing analysis, anomalous concentrations, paper and digital record keeping, and limited identified Teck EQUIS data errors. The memorandum also included recommendations for corrective actions, such as refresher training for field personnel (including Teck consultants) for sample collection, record keeping, and Chain of Custody (COC) best practices. Additional corrective action recommendations included: following up promptly with the laboratory; outlining best practices when choosing duplicate locations; and improving records and data transferral between Teck and consulting field personal.

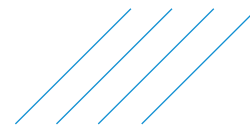
Starting in Q2 2022, groundwater data was submitted to the British Columbia (BC) Environment and Climate Change Strategy (ENV) Environmental Monitoring System (EMS), which is the ministry's primary data repository for environmental monitoring data.

For wells sampled by Teck personnel, SNC-Lavalin has relied on data and information provided by Teck and therefore, has assumed the information is both complete and accurate. Interpretations and conclusions within this report assumed data collection was completed in accordance with Permit 107517, the British Columbia Field Sampling Manual (BCFSM; BC MOE, 2013a, b), and Teck's Standard Practice and Procedures (SP&P) or SNC-Lavalin's Preferred Operating Procedures.

The QA/QC assessment completed for the SSGMPs and RGMPs reviewed shipping and handling issues, summarized results of relative percent differences (RPD) from duplicate samples, summarized detections of analytes in field blanks, and reviewed laboratory quality control reports. QA/QC results for RGMP wells within mine boundaries were presented within the discussion of their respective operations, while background wells outside of mine boundaries were presented in their own section. In addition, relevant Regional Drinking Water Monitoring Program wells are presented with the nearest operation. A summary of QA/QC methods and results for each Operation/Program are presented below.

All reported metals are the dissolved form.

All measured field parameters and water levels were reviewed for accurate transcription from the paper record to the digital medium. The stabilization of groundwater parameters was evaluated, and any variations noted.



1.1 Shipping and Handling Methods

Shipping and handling QA/QC includes assessing sample integrity upon arrival at the laboratory and when analysis hold times have been exceeded. Sample integrity observations are documented by the laboratory upon sample receipt. Deficiencies noted by the laboratory may include sample analysis after specified hold times, elevated sample temperature, bottle damage and labeling errors, which may result in deviations from the specifications of the British Columbia Laboratory Analysis Manual (BCLAM; Austin, 2020) or in requested analyses not being conducted. Hold time exceedances may result from samples received at the lab or analyzed past their specified hold time. Hold time exceedances are identified on the Certificates of Analyses (COAs) in Appendix XVI.

1.2 Duplicate Samples Methods

Duplicate samples, as described in the BCFSM Part E (BC MOE, 2013a), were collected at a frequency of at least one per ten samples (10%) during each sampling event to assess the overall precision (i.e., sample repeatability) which may be affected by both field sampling methodology (i.e., whether field collection procedures may result in variances in the chemistry of collected samples) and the precision of the laboratory analysis. Duplicate samples were evaluated by calculating the RPD of the concentration between the sample and duplicate, as follows:

$$RPD = \frac{|sample\ 1 - sample\ 2|}{\frac{1}{2}(sample\ 1 + sample\ 2)} \times 100\%$$

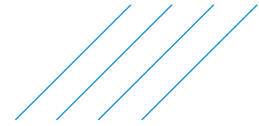
RPDs are calculated for parameters where at least one of the samples was greater than five times the laboratory detection limit; an RPD of less than 20% for metals and inorganics is considered an acceptable level of precision per the BCFSM Part A (BC MOE, 2013b). Teck has a QA/QC program based on this manual; where the result is less than five times the detection limit, the acceptable RPD will be modified as follows:

- RPD < 20%: Acceptable;
- RPD > 20% with results > 5 times the Detection Limit (DL): Possible problem; and
- RPD > 50% with results > 5 times the DL: Definite problem, most likely sample contamination or lack of sample representativeness.

1.3 Blanks Methods

Field and trip blanks were processed and submitted for analysis as part of each sampling event under each SSGMP and the RGMP. Teck's standard practice for collecting field blank samples is to open a designated field blank sample bottle pre-filled with ultra-pure de-ionized (DI) water and preservative (where applicable) at the sampling site during regular sample collection. For dissolved parameters (i.e., dissolved metals and dissolved organic carbon), blanks are collected by passing laboratory supplied DI water through a filter and collecting the sample. The sample is subsequently preserved in the same manner as the original samples and therefore, the sampling protocol is replicated. Blanks from the dissolved parameters provide information on contamination results from potential residue remaining on the filter, which may result in sample bias. Overall, field blanks provide information on potential contamination resulting from field handling techniques and atmospheric contamination.

Standard practice for trip blanks includes delivery of a sample set from the laboratory pre-filled with ultra-pure DI water and preservative (where applicable), which are kept in a cooler (with the other samples) and are unopened throughout the sampling trip. Trip blanks are meant to detect widespread contamination from the container and preservative during transport and storage. Field and trip blanks were shipped to the laboratory with routine samples and screened for analyte detections.



1.4 Ion Balance Methods

The balance of major and minor ions in a water sample can be used as a measure of the data quality and as a validation tool.

There are two methods of calculating ion balance and both involve calculating a ratio using the sum of cations and anions and both methods report values in percentages. However, one method reports the ion balance as a variation percent from the perfect balance (e.g., - 5.6%; APHA Method 1030; ALS, 2022) and the other method reports the ion balance as a percentage of variability from 100% (e.g. 92%). All ion balances within this report were reported as a variability from 100%.

Ion balance calculations outside the expected/ideal range ($\pm 10\%$) may be the result of unmeasured ions, soluble/total analysis, field sampling differences, delayed filtration and/or samples with low ionic strength. In addition, high concentrations of total organic carbon (TOC), dissolved organic carbon (DOC), total suspended solids (TSS), or total dissolved solids (TDS) can also affect the results. There are many legitimate reasons for the ion balance to be outside the ideal range and does not imply the sample is unreliable (ALS, 2022).

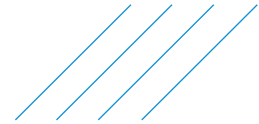
The ion balance for both applicable groundwater and surface water samples were evaluated for inclusion on the piper plots, with samples excluded if greater than, or less than 10%. This established a baseline for all samples and removed any outliers. Piper plots were made for GHO, LCO, EVO, and CMM report appendices.

1.5 Laboratory QA/QC

ALS Canada Ltd (ALS) conducted routine internal QA/QC in accordance with BCLAM and reported these results as analyte qualifiers alongside the sample analysis results. SNC-Lavalin reviewed the qualifiers and considered them in the context of the other QA/QC analyses in evaluating their potential effects on the groundwater quality data.

1.6 Field QA/QC

SNC-Lavalin reviewed field parameters, manual water level measurements, and field notes recorded by Teck during sampling. Field parameters in the Teck database were compared to those in the field notes and corrections made to the database when notation errors were found. Manual depths to water measurements were compared to historical manual levels and to continuous water levels from pressure transducers (also called loggers). Select manual measurements were flagged where notation errors were suspected.



2 Background Monitoring Locations

The background program consisted of monitoring and sampling 21 wells; however, QA/QC results for nine of the wells (LC_PIZDC1307, LC_PIZDC1308, LC_PIZP1103, LC_PIZP1101, EV_MW_GV4A/B, CM_MW3-SH/DP, CM_MW6-DP) are included in their respective operation sections. As such, the following QA/QC assessment for the background program includes only the remaining 12 wells (FR_MW_FRRD1, FR_MW_CH1-A, FR_MW_CH2, GH_MW_BG1A/B/C, GH_MW-Willow-1D, GH_MW-Willow-2S/D, GH_MW-Wolf-1S/D, GH_MW-Wolf-2D).

2.1 Miscellaneous Program Variances

A summary of miscellaneous variances from the 2022 monitoring program is provided in Table A.

Table A: Summary of Miscellaneous Program Variances

Quarter	Well ID	Comment
1-4	GH_MW-Wolf-1S	Well was dry.
4	GH_MW-Willow-1D, GH_MW-Wolf-1D, GH_MW-Wolf-2D	Negative field DO values due to sensor/calibration errors. Value not reportable.
4	GH_MW-Willow-2S	Well was dry.

2.2 Shipping and Handling

A summary of shipping and handling issues from the 2022 sampling program is provided in Table B.

Table B: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, blanks and duplicates	pH, Oxidation Reduction Potential (ORP)	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.

Except for pH and ORP, hold times were not exceeded for parameters analyzed in 2022. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis.

2.3 Duplicate Samples

A summary of samples with RPD values greater than 20% and parameter concentrations greater than five times the DL are provided in Table C, below.

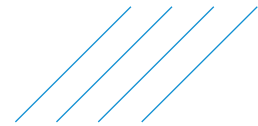


Table C: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Total Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	4	FR_MW_FRRD1	Manganese	22%

Notes:

All other sample analytes had RPD values less than 20%.

Calculated RPDs for all parameters analyzed were less than 50% for the 14 wells assessed in the QA/QC assessment for the background program. These results indicated low variability in constituent concentrations from sampling and handling.

2.4 Field and Trip Blanks

A summary of the field and trip blank results are described in Table D, below.

Table D: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	FR_MW_FRRD1	Molybdenum	<u>3.81 µg/L</u>	0.050 µg/L
2	FR_MW-CH1-A	Ammonia-N	<u>0.0383 mg/L</u>	0.0050 mg/L
3	FR_MW_FRRD1	Aluminum	1.4 µg/	1.0 µg/
		Barium	<u>0.80 µg/L</u>	0.10 µg/L
4	FR_MW_FRRD1	Barium	0.22 µg/L	0.10 µg/L
		Copper	0.21 µg/L	0.20 µg/L
		Magnesium	0.0081 mg/L	0.0050 µg/L
		Sodium	<u>0.254 mg/L</u>	0.050 µg/L
Trip Blanks				
1	March 4 (FRO)	Aluminum	1.4 µg/L	1.0 µg/L
		Molybdenum	<u>4.85 µg/L</u>	0.050 µg/L

Notes:

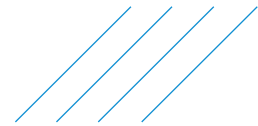
Values greater than five times the Reported Detection Limit (RDL) are underlined.

Concentrations of all constituents in field and trip blanks were less than the primary screening criteria.

Concentrations measured in field blanks greater than five times the DL included: ammonia-N (FR_MW-CH1-A in Q2), molybdenum (FR_MW_FRRD1 in Q1), barium (FR_MW_FRRD1 in Q3), and sodium (FR_MW_FRRD1 in Q4).

Except for dissolved molybdenum in the field blank collected at FR_MW_FRRD1 in Q1, the concentrations of the remaining parameters were orders of magnitude lower than the most stringent primary screening criteria, and therefore did not affect data interpretation. The dissolved molybdenum concentration was 2 times lower than the most stringent primary screening criteria. Also, there was no indication the source of the dissolved molybdenum impacted the groundwater sample included in the shipment (FR_MW-FRRD1). Therefore, the field blank detection did not affect data interpretation.

Overall, detectable concentrations in the trip blanks were within five times the DL at the 14 wells assessed in the QA/QC assessment for the background program, except for dissolved molybdenum in the trip blank from March 4, 2022.



Dissolved molybdenum in the March 4, 2022 trip blank groundwater sample was five times the RDL, but two times less than the lowest applicable standard (CSR drinking water (DW), 10 µg/L). There is no indication that the source of the dissolved molybdenum impacted the two groundwater samples included in the shipment (FR_MW-FRRD1 and its field duplicate) because the sample concentrations (0.497 µg/L, 0.493 µg/L) were similar to the three-year (2020-2022) average concentration (0.454 µg/L). Because the concentration in the trip blank did not exceed the applicable primary screening criteria, the blank detection did not affect data interpretation. The source of the molybdenum was unlikely to be related to shipping and handling.

Previously, the laboratory investigated the source(s) of parameters above DLs in blanks; however, potential sources of sample cross-contamination were not identified (SNC-Lavalin, 2019). There is a possibility the elevated parameters concentrations were caused by contamination in the field, during transport, or from sample bottles or preservatives.

Dissolved molybdenum in the March 3, 2022 trip blank groundwater sample was five times the RDL, but two times less than the lowest applicable standard (CSR DW, 10 µg/L). The results were verified by repeat laboratory analysis. There is no indication the source of the dissolved molybdenum impacted the other groundwater samples included in the shipment (CM_MW3-SH, CM_MW3-DP, CM_MW10, CM_NNP2). Because the concentration in the blank did not exceed the applicable primary screening criteria, the blank detection did not affect data interpretation.

2.5 Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XVI. The quality control reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL raised due to dilution required for high concentration of test analytes; and
- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity).

The raised DLs were consistently less than the screening standards, and as such, these DL qualifiers did not affect data quality.

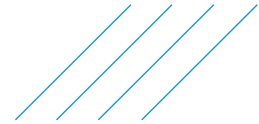
Laboratory QA/QC sample results occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers did not affect data interpretation and included:

- Dissolved concentration exceeds total, and results were confirmed by re-analysis;
- Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level;
- Reported result verified by repeat analysis; and
- Method Blank exceeds ALS DQO. Associated sample results which are below limit of reporting or greater than 5 times blank level are considered reliable.

The results of the laboratory QA/QC were acceptable for this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

2.6 Field QA/QC

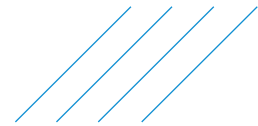
Manual water level measurements were collected from all wells during each quarter. Field parameter measurements were collected from all wells during each quarter, except for dissolved oxygen at GH_MW-Willow-1D, GH_MW-Wolf-1D, and GH_MW-Wolf-2D in Q4, due to a sensor error. In addition, continuous water levels were recorded for all monitoring wells; however, dataloggers were only installed at GH_MW_BG1A, GH_MW_BG1B, and GH_MW_BG1C in Q2 2022 and therefore, there is less than a full year of continuous data.



2.7 QA/QC Summary

Calculated RPDs for all parameters in the duplicate samples were less than 50%. Hold times were met by the laboratory for all parameters. Detectable concentrations in trip and field blanks which were greater than five times the DL were well less than the applicable primary screening criteria and did not affect data interpretation. The laboratory quality control reports were reviewed, and the data are considered reliable.

Field parameters were collected in 2022 for all wells, except for dissolved oxygen at several wells in Q4, due to a sensor error. Manual and/or continuous water levels were collected in 2022 in all quarters for all wells, except for GH_MW_BG1A, GH_MW_BG1B, and GH_MW_BG1C, which had loggers installed in Q2. The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report.



3 Fording River Operations (FRO)

3.1 Miscellaneous Program Variances

A summary of miscellaneous program variances from the 2022 monitoring program is provided in Table E. Any variations that were not resolved are noted as Not Resolved (NR).

Table E: Summary of Program Adjustments

Quarter	Well ID	Comment
1-4	FR_MW-SK1B	No data due to logger hardware malfunction.
1-4	FR_HMW2	A sample was not collected due to equipment lodged in the well. Repairs attempted on August 29, 2022 but were not successful. In Q1 2023, FR_HMW2 was decommissioned and a replacement well (FR_MW23_HMW2_V2) installed.
1-4	FR_MW-SK1A and FR_MW-SK1B	Samples were labeled incorrectly due to well identification issues. Data and COAs were corrected in Q1 2023 with no impact to 2022 results and reporting.
1	RG_MW_FR10A	Field measurements were taken early during purging and therefore, were not representative of groundwater conditions. Field measurements cannot be relied upon.
1	FR_MW-SK1A (original ID FR_MW-SK1B)	The sample and continuous water level data were not collected due to pump and logger malfunction.
1	FR_HMW1D	Q1 Logger data missing due to hardware malfunction. New logger installed on March 15, 2022.
1	FR_09-02-B	No Q1 data. Logger installed on April 28, 2022.
1	FR_09-04-B	No Q1 data. Logger installed on April 28, 2022.
4	RG_MW_FR1A/B/C	Logger data lost due to computer malfunction.

3.2 Shipping and Handling

A summary of shipping and handling issues from the 2022 sampling program is provided in Table F.

Table F: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells blanks and duplicates	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
1	Hold Time Exceedance	FR_HMW1S (and its duplicate) FR_HMW1D FR_09-02-A FR_09-02-B	Orthophosphate Nitrate-N Nitrite-N Turbidity	Samples exceeded ALS recommended hold time of three days prior to analysis. Samples were received by the lab within hold time.
	Hold Time Exceedance	FR_09-02-A FR_09-02-B	Acidity, Alkalinity, TDS, TSS	Hold time of seven days for TDS and TSS; and fourteen days for Alkalinity and Acidity exceeded by the lab. Samples were received by the lab within hold time.

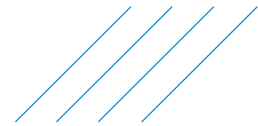


Table F (Cont'd): Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1 (Cont'd)	Hold Time Exceedance	FR_09-04-B	Orthophosphate	Hold time of three days exceeded for re-analysis or dilution, initial testing was conducted within hold time.
		FR_KB-1A (FR_FLD2_WG_2022-02_NP- Field Blank)	Nitrate (N)	
		Trip Blank (February 17, 2022) FR_MW18-02	Nitrate, Nitrite (N)	
2	Hold Time Exceedance	FR_HMW1D FR_HMW1S	Orthophosphate, Nitrate-N Nitrite-N Turbidity	Samples exceeded ALS recommended hold time of three days prior to sample receipt by one day.
	Hold Time Exceedance	FR_KB-1 FR_KB-3A FR_KB-3B	Orthophosphate, Nitrate-N Nitrite-N Turbidity	Samples exceeded ALS recommended hold time of three days prior to analysis. Samples were received by the lab within hold time.
	Hold Time Exceedance	FR_HMW3 Trip Blank (April 25, 2022)	Nitrate-N	Sample exceeded ALS recommended hold time of three days prior to analysis. Sample was received by the lab within hold time.
	Hold Time Exceedance	FR_POTWELLS RG_MW_FR10C Trip Blank (May 06, 2022) Duplicate of RG_MW-FR10B	Orthophosphate	Hold time of three days exceeded for re-analysis or dilution, initial testing was conducted within hold time.
3	Hold Time Exceedance	FR_HMW5 FR_MW_NTPSE (and its duplicate) Trip Blank (September 15, 2022)	Orthophosphate, Nitrate-N Nitrite-N Turbidity	Samples exceeded ALS recommended hold time of three days prior to analysis. Samples were received by the lab within hold time.
	Hold Time Exceedance	FR_MW-1B	Orthophosphate, Nitrate-N Nitrite-N Turbidity, TSS, TDS	Sample exceeded recommended hold time of three days for Orthophosphate, Nitrate-N, Nitrite-N, Turbidity and seven days for TDS and TSS. Sample received by the lab on day four from sampling due to delay in shipment; therefore, the hold time of three days was missed. However, the hold time of seven days was overlooked by the lab.
	Hold Time Exceedance	FR_KB-1 FR_HMW5	Orthophosphate Nitrate-N Nitrite-N Turbidity	Hold time of three days exceeded by one day. Laboratory received samples within hold time.
	Hold Time Exceedance	FR_KB-3A FR_KB-3B	Orthophosphate Nitrate-N Nitrite-N Turbidity	Samples exceeded ALS recommended hold time of three days prior to analysis. Samples were received less than 24 hours prior to expiry.

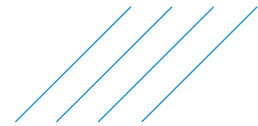


Table F (Cont'd): Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
4	Hold Time Exceedance	FR_KB-2	Colour	Hold time of three days exceeded by one day. Laboratory received sample within hold time.
	Hold Time Exceedance	FR_KB-3A FR_KB-3B	Colour	Samples exceeded ALS recommended hold time of three days prior to analysis. Samples were received less than 24 hours prior to expiry.

The recommended hold times for pH and ORP were exceeded for all samples, duplicates, and blanks in 2022. These parameters have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis. The hold time of three days for dissolved orthophosphate, nitrate-N, nitrite-N, and turbidity was not met in Q1 to Q4, and for colour in Q4. The hold time of seven days for TDS and TSS was not met in Q1 and Q3, and for alkalinity and acidity in Q1. In most cases, samples were received within recommended hold time by the lab, but were not analyzed in time, except for:

- trip blank in Q1 (May 06, 2022) for orthophosphate (re-analysis past recommended hold time, initial testing was done within hold time); and,
- samples collected from wells FR_MW-1B, FR_KB-3A, and FR_KB-3B in Q3, where samples were received by the lab either less than 24 hours prior to expiry or past recommended hold time due to delay in shipment.

Despite the analysis delays, the results were not considered unreliable and therefore, the analysis delays did not affect data interpretation within this report.

3.3 Duplicate Samples

A total of 184 samples (including 12 Trip Blank, 13 Field Blanks and 23 field duplicates) collected in 2022 were included in the FRO QA/QC assessment. A summary of samples with RPD values greater than 20% and concentrations of parameters greater than five times the DL are provided in Table G.

Table G: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	7	FR_HMW3	Turbidity	<u>93%</u>
			Chloride	<u>105%</u>
			Ammonia-N	42%
			Nitrite-N	24%
		FR_HMW1S	Barium	22%
			Copper	<u>79%</u>
		FR_09-04-B	Chloride	50%
Nitrate-N	36%			
FR_KB-1	Chloride	<u>54%</u>		

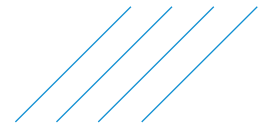


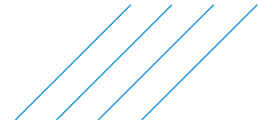
Table G (Cont'd): Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
2	5	FR_09-02-B	Chloride	41%
			Lithium	22%
		RG_MW_FR1A	TSS	33%
			Turbidity	22%
			Cadmium	21%
3	6	FR_MW_NTPSE	Nitrate-N	<u>80%</u>
			Phosphorus, Total	<u>150%</u>
			TOC	22%
			Calcium	23%
			Lithium	22%
			Molybdenum	22%
			Strontium	22%
			Uranium	21%
		FR_09-02-A	Turbidity	<u>159%</u>
			TSS	<u>71%</u>
			Phosphorus, Total	<u>161%</u>
		RG_MW_FR1C	TKN	<u>69%</u>
		FR_GCMW-2	Aluminum	26%
4	5	FR_HMW3	Turbidity	<u>58%</u>
		FR_GCMW-2	Total Alkalinity	<u>65%</u>
			Bicarbonate	47%
			Nitrite-N	36%
			Cadmium	23%
		FR_09-02-A	TSS	<u>129%</u>
			Turbidity	<u>155%</u>
			Phosphorus, Total	<u>196%</u>
			Cadmium	48%
		FR_GH_WELL4	DOC	47%
			Copper	27%
			Iron	29%

RPD values greater than 50% are underlined.
 All other sample analytes had RPD values less than 20%.

Review of the duplicate sample results indicated calculated RPDs for chloride (FR_HMW3 and FR_KB-1 in Q1), copper (FR_HMW1S in Q1), nitrate-N (FR_MW_NTPSE in Q3), TKN (RG_MW_FR1C in Q3), total alkalinity (FR_GCMW-2 in Q4), total phosphorus (FR_MW_NTPSE in Q3 and FR_09-02-A Q3, Q4), TSS (FR_09-02-A Q3 and Q4), and turbidity (FR_HMW3 Q1, Q4 and FR_09-02-A Q3, Q4) were greater than acceptable levels (50%).

The highest chloride concentrations among the sample/duplicate pair at FR_HMW3 in Q1 (4.53 mg/L) and the sample/duplicate pair FR_KB-1 in Q1 (3.18 mg/L) were at least two orders of magnitude lower than the most stringent screening criteria (100 mg/L). Concentrations of nitrate-N among the



samples/duplicates at FR_MW_NTPSE in Q3 (0.120 mg/L) were at least one order of magnitude lower than the primary screening criteria (10 mg/L). Copper concentrations from sample/duplicate pair at FR_HMW1S in Q1 (3.51µ/L) was at least 5 times lower than the most stringent screening criteria (20 µg/L).

Based on the above parameters' concentrations, any RPD values greater than 50% are not inferred to affect interpretation. Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

3.4 Field and Trip Blanks

Detections were reported in six of the 13 field blanks and in four of 12 trip blanks submitted for laboratory analysis in 2022. Reported concentrations of detectable parameters and laboratory detection limits are provided in Table H, below.

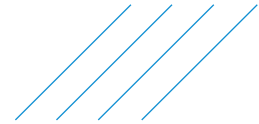
Table H: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	FR_HMW3	TKN	0.054 mg/L	0.050 mg/L
		Barium	0.21 µg/L	0.10 µg/L
		Magnesium	0.0056 mg/L	0.0050 mg/L
	RG_MW_FR1C	Copper	0.22 µg/L	0.20 µg/L
	FR_KB-1	Aluminum	1.2 µg/L	1.0 µg/L
2	FR_09-01-B	Phosphorus, Total	0.0029 mg/L	0.0020 mg/L
		Aluminum	1.6 µg/L	1.0 µg/L
		Barium	0.25 µg/L	0.10 µg/L
		Zinc	1.9 µg/L	1.0 µg/L
	RG_MW_FR10B	Orthophosphate	0.0012 mg/L	0.0010 mg/L
4	RG_MW_FR10C	Barium	0.20 µg/L	0.10 µg/L
Trip Blanks				
1	February 09	Molybdenum	<u>3.98 µg/L</u>	0.050 µg/L
	February 17	Conductivity	6.6 µS/cm	2.0 µS/cm
		Chloride	<u>0.63 mg/L</u>	0.10 mg/L
		Ammonia-N	<u>0.0336 mg/L</u>	0.0050 mg/L
		Nitrite-N	0.0104 mg/L	0.0050 mg/L
		Aluminum	2.3 µg/L	1.0 µg/L
		Barium	<u>0.79 µg/L</u>	0.10 µg/L
		Calcium	0.106 mg/L	0.050 mg/L
		Molybdenum	0.053 µg/L	0.050 µg/L
2	April 21	Ammonia-N	0.0100 mg/L	0.0050 mg/L
		TKN	0.080 mg/L	0.050 mg/L
	May 06	TOC	1.80 mg/L	0.50 mg/L
		DOC	1.16 mg/L	0.50 mg/L

Note:

Value greater than five times the DL are underlined.

Concentrations of all constituents in field and trip blanks were less than the primary screening criteria.



Detectable concentrations in field blanks samples include TKN, orthophosphate, total phosphorous and several metals (aluminum, barium, magnesium, copper, and zinc) but none of these concentrations were greater than five times the RDL. Trip blanks had detectable concentrations of nitrite-N, aluminum, calcium, and molybdenum (Q1); ammonia-N and TKN (Q2); TOC and DOC (Q2), and conductivity. However, the concentrations were less than five times the RDL. Concentrations measured in trip blanks greater than five times the DL included: molybdenum (Q1), and chloride, ammonia-N and barium (Q1).

Results for ammonia-N in groundwater samples ranged from the DL (0.005 mg/L) to 3.80 mg/L. As a result, the ammonia-N groundwater results may not represent formation water quality, since the source of ammonia-N in the blanks samples is unknown. The sample results and blank detections were lower than the pH-dependant applicable primary screening criteria (3.7 mg/L – 18 mg/L), and therefore, the ammonia-N detections in the trip and field blank samples have not affected interpretation of the data.

Other parameters with blank sample concentrations greater than five times the DLs included: dissolved nitrate-N in a field blank (RG_MW_FR10B in Q3) and a trip blank collected on October 15; dissolved copper in a trip blank collected on November 5, hardness and numerous of dissolved metals in a field blank (RG_MW_FR10B in Q4). Reportable concentrations in the blanks ranged from 5 (nitrate-N in trip blank collected October 15) to 158 (dissolved calcium in field blank collected in Q4) times the DL.

However, except for dissolved chromium in the field blank collected in Q4 (1.2 µg/L) and dissolved copper in the trip blank collected November 5 (1.26 µg/L), reportable concentrations were orders of magnitude lower than the most stringent primary screening criteria. Dissolved chromium and copper concentrations were 4 and 15 times lower than the most stringent primary screening criteria, respectively. Reportable concentrations in all samples were low and met primary screening criteria. Based on the above, cross-contamination due to field equipment or travel was unlikely, and the detectable concentrations in blanks did not affect data interpretation.

Previously, the laboratory investigated the source(s) of parameters above DLs in blanks; however, sample cross-contamination was not found (SNC-Lavalin, 2019). Elevated concentrations of parameters may have been caused by contamination in the field from sample bottles or preservatives. The parameters greater than the DLs did not affect the data interpretation due to their low concentrations less than primary screening criteria.

3.5 Laboratory QA/QC

The detailed results of the laboratory QA/QC are included in the COAs in Appendix XVI. The quality control reports were reviewed and are summarized below.

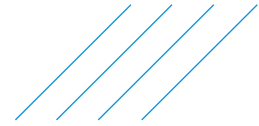
Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL raised due to dilution required for high concentration of test analytes;
- DL raised due to dilution required for high dissolved solids and/or electrical conductivity;
- DL adjusted for required dilution;
- Detection Limit Raised. Analyte detected at comparable level in Method Blank; and
- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity).

The raised DLs were consistently less than the screening standards therefore these detection limit qualifiers did not affect data quality.

Laboratory QA/QC sample results occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers did not affect data interpretation and included:

- Dissolved concentration exceeds total. Results were confirmed by repeat analysis;
- Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species.



- Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable);
- Ion Balance Review: Imbalance is due to interference or non-measured components;
- Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits less than 5x blank level;
- Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5-times blank level are considered reliable;
- Reported result verified by repeat analysis;
- TKN may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN;
- TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN;
- TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN;
- Quality control parameter frequency compliance for Matrix Spikes; and
- Quality control parameter frequency compliance for Laboratory Duplicates.

These notes are not unusual for these analyses considering the samples' chemistry reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). The results of the laboratory QA/QC were acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

3.6 Field QA/QC

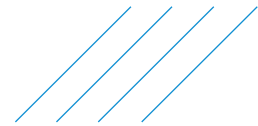
Field parameters and manual water level measurements were collected from all wells during each quarter except for well FR_HMW2 (Q1-Q4) and RG_MW_FR10A (Q1) as detailed in Table E. The manual water level measurement made at FR_HMW5 in Q1 was considered erroneous, based on historical measurements. Continuous water levels were recorded for all monitoring wells, except for the supply wells FR_POTWELLS and FR_GHWELL4. In addition, due to instrumentation errors, continuous water levels were not available at FR_HMW1D (Q1), FR_MW-SK1B (Q1), FR_MW-SK1B (Q1-Q4), and RG_MW_FR1A/B/C (Q4). No logger was installed in Q1 at wells FR_09-02-B and FR_09-04-B.

3.7 QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the 23 duplicate samples were less than 50%, except for dissolved cadmium, ammonia-N, nitrate-N and TKN in three sample/duplicate pairs. Hold time exceedances were only for orthophosphate, nitrate-N, nitrite-N, and turbidity; however, the concentrations were consistent with other historical results from those wells and did not affect data interpretation. The results reflect low variability for handling and sampling for the program.

The laboratory quality control reports were reviewed, and the data are considered reliable. Detectable concentrations of ammonia-N, nitrate-N, several dissolved metals in field and trip blanks were greater than five times the DL and considered in interpreting results. Concentrations of detectable parameters in blanks were well less than the applicable primary screening criteria and therefore, data interpretation was not affected.

Field parameters, manual and/or continuous water levels were collected in 2022 for all wells; however, field measurements and continuous water level data from FR_HMW2 could not be obtained in 2022 due to equipment lodged in the well. In Q1 2023, FR_HMW2 was decommissioned and a replacement well (FR_MW23_HMW2_V2) installed.



4 Greenhills Operations (GHO)

4.1 Miscellaneous Program Variances

A summary of miscellaneous program variations from the 2022 monitoring program is provided in Table I.

Table I: Summary of Miscellaneous Program Variances

Quarter	Well ID	Comment
1-4	GH_MW-PC4B	Well was dry.
1-4	RG_MW-FR11A	Logger malfunctioned and was replaced September 2022. Logger sent to Solinst for data recovery and repair.
3	GH_MW-TD GH_POTW09 GH_POTW10 GH_POTW15 GH_POTW17	Field sheets could not be located for these monitoring events. Therefore, SNC-Lavalin was unable to complete the QA/QC field portion for these samples.
3	GH_MW-MC-1D GH_MW-MC-2D	Negative field DO values due to sensor/calibration errors. Value not reportable.

4.2 Shipping and Handling

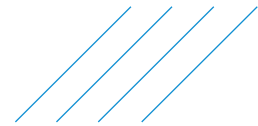
A summary of shipping and handling issues from the 2022 sampling program is provided in Table J.

Table J: Summary of Shipping and Handling

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All locations, duplicate and blanks	pH and ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
2	Hold Time Exceedance	GH_MW-PC GH_MW-PC4A RG_MW_FR11A RG_MW_FR11B	Total Phosphorus	Hold time exceeded by ten days. Samples received within recommended hold time. Possible bias low results.
2	Hold Time Exceedance	RG_MW_LC3B	Orthophosphate	Hold time exceeded for re-analysis, initial testing was conducted within hold time.

The recommended hold times for pH and ORP were exceeded for all samples, duplicates, and blanks in 2022. These parameters have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis. The hold time of three days for dissolved orthophosphate was not met due to re-analysis (initial testing was done within hold time) for sample collected from well RG_MW_LC3B (Q2). The samples collected from GH_MW-PC, GH_MW-PC4A, RG_MW_FR11A and RG_MW_FR11B in Q2 exceeded recommended hold time by 10 days for total phosphorous, possible low bias results. Samples were received within recommended hold time by the lab.

Despite the analysis delays, the results were considered reliable and therefore, the analysis delays did not affect data interpretation within this report.



4.3 Duplicate Samples

A total of 125 samples including 14 field duplicates collected in 2022 were included in the GHO QA/QC assessment. A summary of samples with RPD values greater than 20% and concentrations of parameters greater than five times the DL are provided in Table K.

Table K: Summary of Relative Percent Difference Values for Duplicate Samples

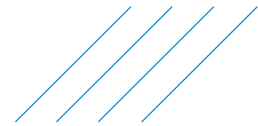
Quarter	Total Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	3	GH_MW-GHC-1A	Turbidity	30%
			Nitrate-N	<u>147%</u>
		RG_MW_LCWC1	TSS	32%
			Turbidity	31%
			TKN	46%
Aluminum	22%			
2	4	GH_MW-RLP-2	Nitrate-N	<u>51%</u>
		GH_MW-ERSC-1	TSS	<u>51%</u>
			Turbidity	<u>86%</u>
GH_MW-MC-2D	Selenium	46%		
3	3	RG_MW_LC3A	TSS	28%
			Turbidity	<u>112%</u>
			TKN	27%
			Total Phosphorus	23%
		GH_MW-ERSC-1	Turbidity	<u>83%</u>
			Zinc	25%
GH_MW-MC-2S	Cadmium	49%		
4	3	RG_MW_LC3A	Turbidity	23%
		GH_GA-MW-3	Nitrite-N	<u>54%</u>
			Molybdenum	40%
RG_MW_LC3B	Manganese	21%		

Note:

RPD values greater than 50% are underlined.
 All other sample analytes had RPD values less than 20%.

Review of the duplicate sample results indicated calculated RPDs for nitrate-N (GH_MW-GHC-1A in Q1, and GH_MW-RLP-2 in Q2), nitrite-N (GH_GA-MW-3 in Q4), TSS (GH_MW-ERSC-1 in Q2), and turbidity (GH_MW-ERSC-1 in Q2 - Q3 and RG_MW_LC3A in Q3), were greater than acceptable levels (50%).

Turbidity and TSS parameters do not have applicable primary screening criteria and therefore, the RPD results greater than 50% were not regarded to be of concern. The highest nitrate-N concentrations among the sample/duplicate pair at GH_MW-GHC-1A in Q1 (0.703 mg/L) and the sample/duplicate pair at GH_MW-RLP-2 in Q2 (1.08 mg/L) were one order of magnitude lower than the most stringent screening criteria (10 mg/L), and therefore, the elevated RPDs have not affected data interpretation. The highest Nitrite-N concentrations among the sample/duplicate pair at GH_GA-MW-3 in Q3 (0.0878 - 0.152 mg/L) were lower than the most stringent screening criteria range of 0.2 to 2 mg/L. Poor reproducibility of nitrite-N parameter is likely due to sample inhomogeneity or possible sediment present in the sample. Both results were less than the screening criteria and therefore, not considered as an issue for reporting.



Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed were otherwise less than 20%. These results indicated low variability in constituent concentrations from sampling and handling.

4.4 Field and Trip Blanks

Detections were reported in nine of the 17 blanks submitted for laboratory analysis in 2022. Concentrations of detectable parameters and laboratory detection limits are provided in Table L, below.

Table L: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
2	GH_MW-ERSC-1 (April 29, 2022)	Ammonia-N	0.0191 mg/L	0.0050 mg/L
		Copper	0.24 µg/L	0.20 µg/L
	RG_MW_FR11B (June 01, 2022)	Barium	0.40 µg/L	0.10 µg/L
		Copper	0.27 µg/L	0.20 µg/L
3	GH_MW-ERSC-1 (September 08, 2022)	Barium	0.36 µg/L	0.10 µg/L
		Copper	<u>1.45 µg/L</u>	0.20 µg/L
		Sodium	0.241 mg/L	0.050 mg/L
4	RG_MW_LC3A (November 21, 2022)	Barium	<u>4.41 µg/L</u>	0.10 µg/L
		Copper	<u>2.32 µg/L</u>	0.20 µg/L
		Magnesium	0.0074 mg/L	0.0050 mg/L
		Manganese	0.13 µg/L	0.10 µg/L
		Sodium	<u>0.424 mg/L</u>	0.050 mg/L
		Strontium	0.42 µg/L	0.20 µg/L
		Zinc	1.8 µg/L	1.0 µg/L
	RG_MW_LC3B (November 21, 2022)	Ammonia-N	0.0059 mg/L	0.0050 mg/L
		Barium	<u>5.01 µg/L</u>	0.10 µg/L
		Copper	<u>2.33 µg/L</u>	0.20 µg/L
		Magnesium	0.0059 mg/L	0.0050 mg/L
		Manganese	0.17 µg/L	0.10 µg/L
		Sodium	0.410 mg/L	0.050 mg/L
		Strontium	0.35 µg/L	0.20 µg/L
	RG_MW_LCWC1 (November 25, 2022)	Ammonia-N	0.0133 mg/L	0.0050 mg/L
Barium		0.41 µg/L	0.10 µg/L	

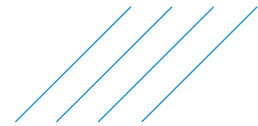


Table L (Cont'd): Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Trip Blanks				
1	February 09, 2022	Ammonia-N	0.0214 mg/L	0.0050 mg/L
	March 17, 2022	Ammonia-N	0.0056 mg/L	0.0050 mg/L
		Zinc	2.2 µg/L	1.0 µg/L
2	April 29, 2022	Ammonia-N	<u>0.0755 mg/L</u>	0.0050 mg/L
	May 20, 2022	Ammonia-N	<u>0.0361 mg/L</u>	0.0050 mg/L
		Molybdenum	<u>1.36 µg/L</u>	0.050 µg/L
	June 01, 2022	Ammonia-N	<u>0.101 mg/L</u>	0.0050 mg/L
4	November 04, 2022	Ammonia-N	0.0148 mg/L	0.0050 mg/L

Note:

Value greater than five times the DL are underlined.

Concentrations of all constituents in field and trip blanks were less than the primary screening criteria.

Concentrations measured in field blanks greater than five times the DL included: barium (RG_MW_LC3A/B in Q4), copper (GH_MW-ESRC-1 in Q3 and RG_MW_LC3A/B in Q4), and sodium (RG_MW_LC3A in Q4).

Metals detections in blanks were lower than the primary screening criteria. Results for ammonia-N in groundwater samples collected at GHO ranged from the DL (0.050 mg/L) to 0.629 mg/L. The ammonia-N results should be regarded as uncertain due to DL concentrations in blanks ranging from 0.05 to 0.101 mg/L. Both the results and blank detections were lower than the pH-dependent applicable primary screening criteria (1.31 mg/L – 18.5 mg/L) but did not affect data interpretation. The source of the dissolved molybdenum and zinc concentrations in the trip blanks samples is unknown, but the concentrations did not exceed applicable primary screening criteria, and therefore, the trip blank detections did not affect data interpretation.

Previously, the laboratory investigated the source(s) of parameters greater than DLs in blanks; however, they did not identify any cross-contamination (SNC-Lavalin, 2019). Elevated concentrations may have been caused by contamination in the field or from sample bottles or preservatives. The parameters greater than the DLs did not affect data interpretation due to their low concentrations (less than primary screening criteria).

4.5 Ion Balance

GHO groundwater and surface water samples that were excluded from the piper diagram due to an ion balance outside the acceptable range of ±10% range are listed in Table M.

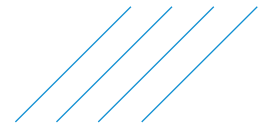


Table M: Summary of Samples Excluded due to Ion Balance Range

ID	Date	Ion Balance %
GH_ER1A	2022-07-06	88.3
	2022-07-12	78.3
	2022-08-03	84.5
	2022-09-14	89.5
GH_ER2	2022-02-15	89.6
	2022-03-15	85.5
	2022-04-04	89.8
	2022-05-31	89.2
	2022-06-20	80.2
	2022-07-04	82.7
	2022-08-30	88.2
GH_ERSC4	2022-05-31	85.3
	2022-07-05	89.4
	2022-07-12	76
	2022-08-03	84
	2022-09-07	89.8
GH_LC2	2022-03-22	89.8
	2022-10-31	86.6
GH_LC3	2022-03-22	87.5
	2022-05-09	88.8
GH_MC1	2022-07-12	83.6
GH_WC1	2022-04-26	89.6
	2022-07-12	88.9
GH_WC2	2022-03-30	89.4
	2022-04-26	89.8
	2022-05-03	89.5
	2022-06-22	112
	2022-07-12	88.2
	2022-08-03	88.9
GH_WC4	2022-01-31	89.5
	2022-03-22	87.3
	2022-05-09	89.7
GH_ER1	2022-03-07	87.4
	2022-06-08	88.4
	2022-07-06	89.7
	2022-07-13	86.8
	2022-08-04	89.4
	2022-11-09	86.7

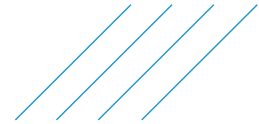
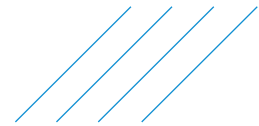


Table M (Cont'd): Summary of Samples Excluded due to Ion Balance Range

ID	Date	Ion Balance %
GH_ERC	2022-02-01	88.2
	2022-02-22	89.4
	2022-03-15	83.2
	2022-04-06	89.6
	2022-04-11	81.8
	2022-04-27	88.5
	2022-05-04	89.6
	2022-05-31	89.6
	2022-06-14	81.1
	2022-06-28	89
	2022-07-13	87.7
2022-11-15	82.9	
GH_ERSC2	2022-06-29	88.4
	2022-07-13	89.1
GH_TC1	2022-02-08	89.8
	2022-03-07	88.5
	2022-07-13	87
	2022-08-03	88.8
	2022-11-09	86.2
GH_TC2	2022-06-08	87.3
	2022-08-03	81.5
	2022-09-24	87.4
GH_TC3	2022-03-23	88.4
	2022-07-12	88.9
	2022-10-04	89.8
GH_GA-MW-3	2022-02-09	89
	2022-04-22	87.8
	2022-09-02	89.4
GH_MW_EF1A	2022-02-24	88.9
GH_GA-MW-2	2022-01-19	89.6
	2022-04-04	87.9
GH_GA-MW-4	2022-02-09	85.4
GH_MW-MC-1D	2022-06-13	89
GH_MW-MC-2D	2022-06-15	113
GH_MW-MC-2S	2022-06-15	89.7
RG_DW-01-03	2022-07-18	87.1
RG_MW_LC3A	2022-02-11	85
	2022-05-10	89.6
RG_MW_LC3B	2022-02-11	81.9
	2022-05-10	86.4
RG_MW_LCWC1	2022-02-11	87.2



4.6 Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XVI. The quality control reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity);
- DL raised due to dilution required for high concentration of test analytes; and
- DL raised due to dilution required for high dissolved solids and/or electrical conductivity.

The raised DLs were consistently less than the screening standards, and therefore, these detection limit qualifiers did not affect data quality and interpretation.

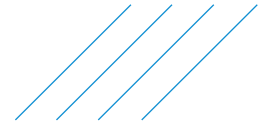
Laboratory QA/QC sample results occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers did not affect data interpretation and included:

- Dissolved concentration exceeds total. Results were confirmed by repeat analysis;
- Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration;
- Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species.
- Dissolved Sulfur concentration exceeds total. Negative bias on Total Sulfur suspected due to presence of volatile sulfur species lost during digestion;
- Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable);
- Ion Balance Review: Imbalance is due to interference or non-measured components;
- Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable;
- Reported result verified by repeat analysis;
- TKN may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN;
- TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN;
- TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN;
- Quality control parameter frequency compliance for Matrix Spikes; and
- Quality control parameter frequency compliance for Laboratory Duplicates.

These notes are not unusual for these analyses considering the sample chemistry reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate concentrations). The laboratory QA/QC results were considered acceptable for this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

4.7 Field QA/QC

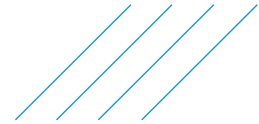
Water levels could not be measured at GH_POTW09, GH_POTW10, GH_POTW15, GH_POTW17, due to the wellhead configuration. Continuous groundwater level data was unavailable at wells GH_MW-PC (Q3), GH_MW-GHC-1B (Q3, Q4), and GH_MW-ERSC-1 (Q2) due to instrumentation errors. In 2022, there was no pressure transducer in GH_MW-TD, GH_MW-RLP-2. GH_POTW09, GH_POTW10, GH_POTW15, GH_POTW17, and RG_DW-01-03 cannot be instrumented with a pressure transducer due to wellhead configuration. A pressure transducer was installed at well GH_MW_PC4B in Q3. The logger installed in RG_MW_FR11A/11B malfunctioned and was replaced September 2022. Field parameters were collected for all sites and all quarters in 2022.



4.8 QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the 14 duplicate samples were less than 50% except for TSS, turbidity, dissolved bromide, nitrate-N, total and TKN. Hold times were met by the laboratory, except for alkalinity, bicarbonate, carbonate, hydroxide and nitrate-N in two batches. Detectable concentrations of ammonia-N and TKN in trip and field blanks were greater than five times the DL. Concentrations of ammonia-N and TKN in samples and blanks were far less than the applicable primary screening criteria and therefore, data interpretation was not affected.

The laboratory quality control reports identified several field-filtered samples with concentrations of dissolved parameters greater than total, but less than the primary screening criteria. No other issues were identified in the laboratory quality control reports. Field measurements and manual and/or continuous water levels were collected from select GHO wells in 2022 and data are considered reliable.



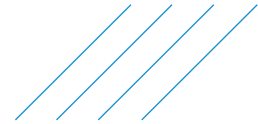
5 Line Creek Operations (LCO)

5.1 Miscellaneous Program Variances

A summary of program variances from the 2022 monitoring programs is provided in Table N. Variances that were not resolved are noted as NR.

Table N: Summary of Miscellaneous Program Variances

Quarter	Well ID	Comment
Field-Related Variations		
1 - 3	LC_PIZ1210B	Water levels only, not sampled due to water level below screen. Insufficient volume for sampling.
1	LC_PIZP1001	Manual water levels not collected (but transducer data was collected).
	LC_PIZP1002	
	LC_PIZP1003	
3	RG_MW_DC1B	Field turbidity value of -0.04 NTU; comment includes bubbles in YSI. A negative turbidity value likely indicates a sensor issue. A negative value is not a valid measurement.
	LC_MW20_03	The data suggests the DOC and TOC bottles were mislabelled and incorrectly filtered for the requested analyses.
	LC_MW_ER4B	
	LC_PIZ1206C	Field turbidity 212 NTU. Field notes state Hydrasleeve "full of black sediment" (ref: field notes).
LC_PIZP1104	Manual water level was not collected.	
3	LC_PIZ1207A	Dry, no sample.
Sample/Analysis Variations		
1	Trip Blank (March 01)	Dissolved metals are not submitted/analyzed. Routine analysis (including sulphate and turbidity) not performed by laboratory. Routine bottle was reported open and empty upon arrival to the laboratory.
1	LC_PIZP1101	Due to extremely high turbidity (100,000 NTU), the sample was deemed by a SNC-Lavalin Qualified Professional to be unrepresentative of groundwater. The sample and its duplicate were not reported upon.
3	RG_MW_DC1A	Lab turbidity 351 NTU vs field turbidity 8.5. Unknown as to why there is such difference.
3	LC_MW_CP1A	Missed analyses for Ammonia and Total Phosphorus due to laboratory login error.
	LC_MW_CP1B	



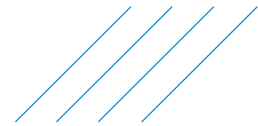
5.2 Shipping and Handling

A summary of shipping and handling issues from the 2021 sampling program is provided in Table O.

Table O: LCO – Summary of Shipping and Handling

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, duplicates, and blanks	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurements analyzed.
1	Hold Time Exceedance	RG_MW_DC1B	Orthophosphate, Nitrate-N, Nitrite-N, Turbidity	Sample exceeded recommended hold time of three days prior to analysis. Sample was received within hold time by the lab.
1	Hold Time Exceedance	WL_MW-15-04-B	Nitrate-N, Nitrite-N	Sample exceeded recommended hold time of three days due to re-analysis, initial testing was conducted within recommended hold time.
2	Hold Time Exceedance	RG_MW_DC1A RG_MW_DC1B	Turbidity	Sample exceeded recommended hold time of three days prior to analysis. Sample was received by the lab less than 24 hours prior to expiry.
2	Hold Time Exceedance	LC_PIZ1210C	Nitrate-N, Nitrite-N	Samples exceeded recommended hold time of three days due to re-analysis, initial testing was conducted within recommended hold time.
		WL_MW-15-04-B		
2	Hold Time Exceedance	LC_PIZP1101 Trip Blank (May 20)	TSS, TDS, Turbidity, Orthophosphate, Nitrate-N, Nitrite-N	Samples exceeded recommended hold time of seven days prior to analysis for TDS, TSS and Turbidity and three days for Orthophosphate, Nitrate and Nitrite. Samples were received within hold time by the lab (the next day from sampling).

The recommended hold times for pH and ORP were exceeded for all samples, duplicates, and blanks in 2022. These parameters have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis. The hold time of three days for Nitrate-N and Nitrite-N was exceeded in Q1 and Q2 in samples collected from wells RG_MW_DC1B and WL_MW-15-04-B in Q1 and LC_PIZ1210C, WL_MW-15-04-B, LC_PIZP1101 and Trip Blank (May 20, 2022) in Q2. The holding time exceedances were due to laboratory's inability to analyze within the specified hold time or due to re-analysis. Delays in sample processing could result in potentially biased low concentrations. The concentrations of Nitrate-N and Nitrite-N in samples listed above were less than the most stringent screening criteria. Despite the analysis delays, the results were considered reliable and therefore, the analysis delays did not affect data interpretation within this report.



Turbidity, Orthophosphate, TSS, TDS and BOD parameters do not have applicable primary screening criteria and therefore, exceeding holding times is not a concern for these parameters.

5.3 Duplicate Samples

A total of 118 samples including 9 field duplicates collected in 2022 were included in the LCO QA/QC assessment. A summary of samples with RPD values greater than 20% and concentrations of parameters greater than five times the DL are provided in Table P.

Table P: LCO – Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Total Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	2	LC_MW20_01	Dissolved Cadmium	23%
		LC_PIZP1105	Turbidity	40%
			TSS	<u>53%</u>
			Nitrate-N	<u>105%</u>
			Total Phosphorus	<u>66%</u>
		Dissolved Manganese	48%	
2	1	LC_PIZ1206C	TKN	50%
			Dissolved Molybdenum	<u>89%</u>
4	5	LC_PIZDC0901	Turbidity	23%
		RG_MW_DC1A	TSS	31%

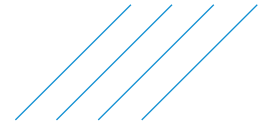
Note:

RPD values greater than 50% are underlined.
All other sample analytes had RPD values less than 20%.

Review of the duplicate sample results indicated calculated RPDs for dissolved cadmium (LC_MW20-01 in Q1), turbidity (LC_PIZP1105 in Q1, and LC_PIZDC0901 in Q4), TSS (LC_PIZP1102 in Q1, and RG_MW_DC1A in Q4), nitrate-N (LC_PIZP1105 in Q1), total phosphorus (LC_PIZP1105 in Q1), dissolved manganese (LC_PIZP1105 in Q1), TKN (LC_PIZ1206C in Q2) and dissolved molybdenum (LC_PIZ1206C in Q2) were greater than acceptable levels (50%). Of the parameters listed in table above, none exceeded the primary screening criteria.

TSS and total phosphorous parameters do not have applicable primary screening criteria and therefore, the RPD results greater 50% were not of concern. The highest nitrate-N concentrations among the sample/duplicate pair at LC_PIZP1105 Q1 (313 µg/L) was at least three orders of magnitude lower than the most stringent screening criteria (10,000 µg/L). The highest concentration for dissolved molybdenum in sample/duplicate pair at LC_PIZ1206C Q2 (8.46 µg/L) was less than the most stringent screening criteria (10 µg/L).

The RPD of the numerous organic, inorganic, and physical parameters analyze were less than 10% indicating good reproducibility between the sample and its duplicate results. These results indicated low variability in concentrations from sampling and handling.



5.4 Field and Trip Blanks

Detections were reported in four of the six field blanks submitted for laboratory analysis in 2022. There were no detections in the four trip blanks. Concentrations of detectable parameters and laboratory detections limits are provided in Table Q, below.

Table Q: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	LC_PIZP1101 (March 11, 2022)	Ammonia-N	<u>40.8 µg/L</u>	5.0 µg/L
4	LC_PIZP1105 (October 17, 2022)	Ammonia-N	20.6 µg/L	5.0 µg/L
	LC_PIZDC0901 (October 25, 2022)	Ammonia-N	23.4 µg/L	5.0 µg/L
		Dissolved Molybdenum	0.198 µg/L	0.050 µg/L
	LC_PIZDC1307 (October 26, 2022)	Ammonia-N	<u>40.7 µg/L</u>	5.0 µg/L
Dissolved Zinc		1.2 µg/L	1.0 µg/L	

Note:

Value greater than five times the DL are underlined.

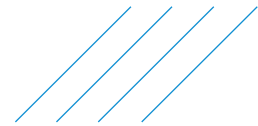
Concentrations of all constituents in field and trip blanks were less than the primary screening criteria.

Four of the 14 total detectable concentrations in the field and trip blanks were greater than five times the DL. Ammonia-N was the most common parameter to be greater than five times the DL, with four instances. Dissolved molybdenum and dissolved zinc each had a single instance.

The concentrations of dissolved molybdenum in the field blank collected on October 25 (0.198 µg/L) and dissolved zinc collected in the field blank on October 26 (1.2 µg/L) were orders of magnitude lower than the most stringent primary screening criteria. Based on the above, cross-contamination due to field equipment or travel was unlikely, and the detectable concentrations in blanks did not affect data interpretation.

Ammonia-N was the most common parameter measured in the blank samples with concentrations greater than five times the DL in two samples. Results for ammonia-N in groundwater samples collected at LCO ranged from the DL (0.005 mg/L) to 2.73 mg/L. The concentrations in blanks ranged from the DL (0.005 mg/L) to 8 times the DL (0.0408 mg/L). Both the results and blank detections were lower than the pH-dependant applicable primary screening criteria (1.31 – 18.5 mg/L) and therefore, did not affect data interpretation.

Dissolved metals samples were missing for one field blank and three trip blanks, because the dissolved metals bottles were not submitted to the laboratory.



5.5 Ion Balance

LCO groundwater and surface water samples that were excluded from the piper diagram due to an ion balance outside the acceptable range of $\pm 10\%$ range are listed in Table R.

Table R: Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
EV_ER4	2022-01-10	89
	2022-03-28	89.2
	2022-05-10	81.9
	2022-06-14	83.6
	2022-06-20	86.9
	2022-07-11	85.7
LC_DC1	2022-03-30	89.2
	2022-04-19	88.7
	2022-04-24	87.7
	2022-05-03	89.5
	2022-06-14	87.8
	2022-06-28	85
	2022-07-18	81.8
	2022-08-02	89.7
2022-11-29	88.7	
LC_DC3	2022-01-12	87.5
	2022-03-30	89
	2022-06-28	85.4
	2022-08-02	87.7
	2022-10-07	86.5
LC_DC4	2022-01-12	88.9
	2022-04-12	89.5
	2022-04-19	86.6
	2022-04-28	81.6
	2022-06-28	89.2
	2022-07-18	85.6
	2022-08-02	88.7
	2022-09-20	88.5
LC_FRDSDC	2022-04-19	85.6
	2022-05-11	89.5
	2022-07-06	89.2
LC_LC2	2022-03-28	89.2
	2022-07-05	87.8
	2022-08-03	84.2
	2022-08-23	89

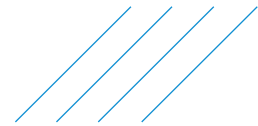


Table R (Cont'd): Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
LC_LC3	2022-01-07	88.2
	2022-01-10	85
	2022-01-25	87.3
	2022-03-15	83.6
	2022-04-25	88
	2022-05-05	89.1
	2022-05-31	89.6
	2022-07-11	88.7
	2022-08-03	87.7
	2022-08-23	89.1
LC_LC3GS	2022-11-24	89.5
LC_LC4	2022-01-25	88.5
	2022-02-14	87.3
	2022-03-14	83.9
	2022-04-25	34.8
	2022-05-05	88.8
	2022-07-11	84.3
	2022-08-02	86.2
LC_LC5	2022-04-05	85
	2022-05-09	86.4
	2022-05-24	87.8
	2022-06-06	88.5
	2022-06-14	86.5
	2022-07-05	88.6
	2022-07-11	88.4
LC_LCDSSLCC	2022-03-22	85.4
	2022-04-11	89.7
	2022-04-19	88
	2022-04-25	87.3
	2022-05-09	87.2
	2022-06-06	86.6
	2022-07-19	85.4
	2022-10-18	89.7
	2022-11-01	115

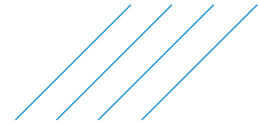
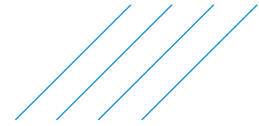


Table R (Cont'd): Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
LC_LCUSWLC	2022-01-21	87.4
	2022-01-29	89.7
	2022-02-01	89.4
	2022-02-03	86.8
	2022-02-06	89
	2022-02-08	84.4
	2022-02-14	86.3
	2022-03-07	85.2
	2022-03-21	88.2
	2022-04-04	84.6
	2022-05-10	82.7
	2022-06-08	85.7
	2022-06-22	88.4
	2022-06-29	88
2022-11-16	88.5	
LC_WLC	2022-01-10	87.6
	2022-01-25	85.8
	2022-02-14	88.5
	2022-03-14	84.8
	2022-06-13	88.7
	2022-07-05	89.7
	2022-09-06	86
	2022-10-12	111
LC_MW_CP1A	2022-07-26	86.7
	2022-10-20	84.8
LC_MW_ER4A	2022-08-03	89.6
LC_MW20_03	2022-06-03	88.6
LC_PIZ1207A	2022-06-02	84.9
LC_PIZ1207B	2022-06-02	89.4
LC_PIZ1210C	2022-03-15	88.6
	2022-09-26	88
LC_PIZ1211N	2022-10-19	83.4
	2022-10-19	83.4
LC_PIZDC0901	2022-06-10	86.9
	2022-10-25	114
LC_PIZDC1306	2022-04-17	84
LC_PIZDC1307	2022-08-16	85.7
LC_PIZP1104	2022-03-15	80.2



5.6 Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XVI. The quality control reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL raised due to dilution required for high concentration of test analytes;
- Detection Limit Raised. Analyte detected at comparable level in Method Blank;
- DL raised due to dilution required due to high dissolved solids / electrical conductivity;
- DL adjusted for required dilution; and
- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity).

The raised DLs were consistently less than screening standards and as such, these DL qualifiers did not affect data interpretation.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers did not affect data interpretation, and included:

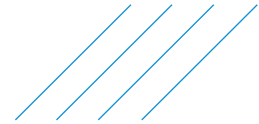
- Reported result verified by repeat analysis;
- Turbidity exceeded upper limit of the nephelometric method. Minimum value reported;
- Ion Balance Reviewed: Imbalance is due to interference or non-measured component;
- TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN;
- TKN may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN;
- TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN;
- Duplicate results outside ALS DQO, due to sample heterogeneity;
- Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable);
- Dissolved concentration exceeds total. Results were confirmed by re-analysis;
- Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration;
- Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species.
- Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable;
- Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits less than 5x blank level; and
- Quality control parameter frequency compliance for Matrix Spike.

5.7 Field QA/QC

Field parameters were collected from all wells in 2022, except for turbidity for LC_PIZDC1404D in Q1 and WL_MW-15-04-B in Q4.

Static manual water level measurements were collected from all wells in 2022, except for in Q1 at LC_PIZP1001, LC_PIZP1002, and LC_PIZP1003 and in Q4 at LC_PIZP1004. The manual water level measurement made at LC_PIZP1002 on October 14 was erroneous and was remeasured manually during logger deployment on October 25. The October 25 measurement was applied to the data set.

Both the logger and data were lost for LC_PIZ1211N (Q1 to Q4) and for LC_PIZ1212 (Q4). New loggers were installed in both wells.



5.8 QA/QC Summary

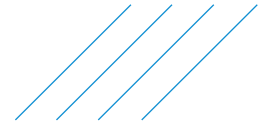
A total of 118 samples, nine field duplicates, six field blanks, and four trip blanks were included in the 2022 LCO QA/QC assessment. The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report, except for the Q1 sample from LC_PIZP1101 which was deemed by a Qualified Professional to be an unrepresentative sample from the targeted aquifer due to extremely high turbidity.

Review of the sample and duplicate RPDs greater than 20% revealed data interpretation was not affected.

Hold time exceedances were mostly for pH and ORP, which have hold times of 15 minutes and are measured in the field.

The laboratory quality control reports were reviewed, and the data are considered reliable. Detectable concentrations of parameters in blanks were less than five times the DLs except for ammonia-N, dissolved molybdenum, and dissolved zinc. However, concentrations were less than the applicable primary screening criteria and therefore, data interpretation was not affected.

In addition, the missing field turbidity measurements and single erroneous manual water level are not expected to impact the overall data interpretation.



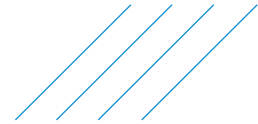
6 Elkview Operations (EVO)

6.1 Miscellaneous Program Variances

A summary of program variances from the 2022 monitoring program is provided in Table S.

Table S: Summary of Miscellaneous Program Variances

Quarter	Well ID (Sample ID)	Comment
1	EV_OCgw	Ultra-trace Hg (0.5 ng/L) instead of low-level Hg (5 ng/L).
	EV_ECgw	Sample not collected because well was frozen.
3	EV_MW_MC3	Possible DOC and TOC bottles mislabelled and incorrectly filtered for the requested analyses.
	EV_MW_MCgwA	
	EV_ER1gwS	
	RG_MW-03-04	
	EV_MW_BC1A	
	EV_MW_MC2B	
	EV_MW_SP1A	
	EV_MW_SP1B	
EV_MW_SP1C		
3	EV_MW_BC2	Possible DOC and TOC bottles mislabelled and incorrectly filtered for the requested analyses.
4	EV_OCgw	Ultra-trace Hg (0.5 ng/L) instead of low-level Hg (5 ng/L).
	Duplicate of EV_OCgw	The duplicate pH of 5.41 was deemed to be highly unlikely, given the Sample pH of 8.12. ALS could not find any errors and no additional water sample remained for follow-up analysis. SNC-Lavalin proposes the error originated from a lab transcription error because sample 003 (Field Blank EV_MC6GW) also has a pH of exactly 5.41. The pH value for the duplicate was deemed erroneous by SNC-Lavalin Qualified Personnel (QP) and therefore was excluded from the report.



6.2 Shipping and Handling Issues

A summary of shipping and handling issues from the 2022 sampling program is provided in Table T.

Table T: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, blanks, and duplicates	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
1	Hold Time Exceedance	EV_WH50gw (and duplicate)	Orthophosphate, TDS, TSS, turbidity	Recommended hold time of three days exceeded prior to analysis for Orthophosphate and Turbidity; and seven days for TDS and TSS. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_WH50gw (Trip Blank)		
		EV_WH50gw (Field Blank)		
		EV_MW_MC2A		
		RG_MW_WW	TKN	Recommended hold time of three days exceeded prior to analysis. All samples were received within recommended hold time by the lab; however, all samples were analysed at least three days past recommended hold time.
		EV_MW_GC1B		
		EV_HW1 (EV_HM1)		
		EV_MW_MC1A		
		EV_MW_MC1B		
		RG_MW_AC1A		
		RG_MW_AC1B		
2	Hold Time Exceedance	RG_MW_WW	Orthophosphate, Turbidity, TSS, TDS	Recommended hold time of three days exceeded prior to analysis for Orthophosphate and Turbidity; and seven days for TDS and TSS. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_OCgw (and duplicate)	Orthophosphate, Turbidity	Recommended hold time of three days exceeded prior to analysis for Orthophosphate and Turbidity. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_OCgw (Trip Blank)		
		EV_OCgw (Field Blank)		
		EV_HW1 (EV_HM1)	Turbidity	Recommended hold time of three days exceeded prior to analysis for Turbidity; samples were received less than 24 hours prior to expiry.
		RG_MW_AC1A		
		RG_MW_AC1B		

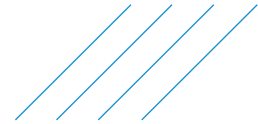


Table T (Cont'd): Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
3	Hold Time Exceedance	EV_GV3gw	Orthophosphate, Turbidity, TDS, TSS	Recommended hold time of three days exceeded prior to analysis for Orthophosphate and Turbidity; and seven days for TDS and TSS. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_GV3gwS		
		EV_MW_BC1A	Orthophosphate, Nitrate, Nitrite, Turbidity	Recommended hold time of three days exceeded prior to analysis for Orthophosphate, Nitrate, Nitrite and Turbidity. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_MW_BC1B		
4	Hold Time Exceedance	EV_WH50gw (and duplicate)	Orthophosphate, Turbidity, TSS, TDS	Recommended hold time of three days exceeded prior to analysis for Orthophosphate and Turbidity; and seven days for TDS and TSS. Laboratory received samples on time; however, samples were analyzed past hold time by the lab.
		EV_WH50gw (Trip Blank)		
		EV_WH50gw (Field Blank)		
		EV_BRgw		
		EV_MW_MC1A		
		EV_MW_MC1B		

The recommended hold times for laboratory pH and ORP were exceeded for all samples, duplicates, and blanks in 2022. These parameters have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis. The hold time of three days for dissolved orthophosphate and turbidity for various samples was not met for each quarter in 2022, as well as TKN analysis in Q1, and nitrate-N and nitrite-N in Q3. In addition, the hold time of seven days for TDS and TSS was not met for several samples for each quarter, which could possibly bias concentrations low. Samples were received within the recommended hold time by lab but were not analyzed in time for unknown reasons. Based on comparison to applicable standards in each quarter's QA/QC program, the laboratory results were typical, and not affected by exceeding the hold time.

6.3 Duplicate Samples

A total of 195 samples and 17 field duplicates collected in 2022 were included in the EVO QA/QC assessment. A summary of samples with RPD values greater than 20% and concentrations of parameters greater than five times the DL are provided in Table U, below.

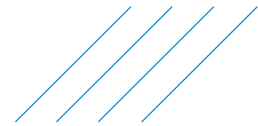


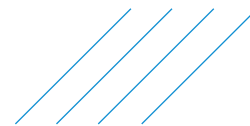
Table U: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Total Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	4	EV_OCgw	Ammonia-N	35%
		EV_ER1gwS	Chloride	<u>76%</u>
			Fluoride	46%
			Sulphate	<u>74%</u>
			Nitrate-N	<u>67%</u>
			Barium	42%
			Molybdenum	48%
			Selenium	<u>72%</u>
			Sodium	<u>90%</u>
			Uranium	26%
EV_MW_BC1A	TDS	26%		
EV_WH50gw	Turbidity	<u>107%</u>		
2	4	EV_MW_AQ2	TDS	40%
		EV_MW_MC2A	Turbidity	22%
3	5	EV_OCgw	Turbidity	26%
4	3	EV_OCgw	pH	40%
			Turbidity	<u>52%</u>
		EV_WH50gw	Total Alkalinity	<u>55%</u>
			Bicarbonate	<u>55%</u>

Note:

RPD values greater than 50% are underlined.
 All other sample analytes had RPD values less than 20%.

Review of the duplicate sample results indicated calculated RPDs were greater than acceptable levels (50%) for chloride, sulphate, nitrate-N, selenium and sodium (Q1 EV_ER1gwS), turbidity (Q1 EV_WH50gw, Q4 EV_OCgw), and total alkalinity and bicarbonate (Q4 EV_HW50gw). Total alkalinity and bicarbonate do not have applicable primary screening criteria and, therefore are not considered a significant concern. All other parameters were at least one order of magnitude less than the applicable primary screening criteria and as such, not identified as issues for reporting, except for selenium at EV_ER1gwS. The concentrations of this sample and its duplicate for selenium were 3.58 µg/L and 7.62 µg/L, respectively, which is less than the DW standard of 10 µg/L. A review of selenium concentrations in groundwater at this location over the past three years indicated that the Q1 sample concentration of 3.58 µg/L is lower than historical concentrations. The average concentration of dissolved selenium over the past three years is 8.88 µg/L (excluding the Q1 2022 sample and any duplicates). The dissolved concentration in Q1 of 2020 and 2021 was 9.74 µg/L and 13 µg/L, respectively. This indicates the sample concentration is potentially biased low, and the duplicate is a more representative sample, and therefore, the duplicate value was used for reporting. This low bias was also observed for sulphate between the sample EV_ER1gwS and its duplicate (34.1 and 74 µg/L, respectively); however, both were an order of magnitude lower than the lowest applicable standard, and therefore, was not considered a significant concern. Nonetheless, sulphate is an OC, so a conservative approach was taken and the duplicate value's higher concentration was used for reporting.



Although the large number of elevated RPDs between EV_ER1gwS sample and its duplicate may indicate improper sampling techniques, the calculated RPDs for most analytes were less than 20%. These results indicated low variability in constituent concentrations from sampling and handling.

6.4 Field and Trip Blanks

Detections were reported in six of fifteen Field Blanks and thirteen of fifteen Trip Blanks submitted for laboratory analysis in 2022. Concentrations of detectable parameters and laboratory detection limits are provided in Table V, below.

Table V: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	EV_OCgw (March 13)	Ammonia-N	0.0097 mg/L	0.0050 mg/L
		Barium	0.38 µg/L	0.10 µg/L
	EV_WH50gw (March 04)	Copper	0.79 µg/L	0.20 µg/L
		Sodium	<u>0.265 mg/L</u>	0.050 mg/L
		Strontium	0.21 µg/L	0.20 µg/L
2	EV_MW_AQ2 (April 24)	Aluminum	1.6 µg/L	1.0 µg/L
		Copper	0.31 µg/L	0.20 µg/L
	EV_MW_BC1A (May 01)	Aluminum	1.1 µg/L	1.0 µg/L
		Copper	0.61 µg/L	0.20 µg/L
		Iron	19 µg/L	10 µg/L
		Lead	0.171 µg/L	0.050 µg/L
3	EV_MW_GC1B (August 16)	Nitrate-N	0.0101 mg/L	0.0050 mg/L
		Zinc	1.7 µg/L	1.0 µg/L
4	EV_MW_BC3 (November 13)	Barium	0.29 µg/L	0.10 µg/L
		Copper	0.69 µg/L	0.20 µg/L
		Magnesium	0.0064 mg/L	0.0050 mg/L
		Manganese	0.14 µg/L	0.10 µg/L
		Sodium	0.187 mg/L	0.050 mg/L
Trip Blanks				
1	January 30	Ammonia-N	0.0131 mg/L	0.0050 mg/L
		TKN	0.094 mg/L	0.050 mg/L
	February 24	Ammonia-N	<u>0.0307 mg/L</u>	0.0050 mg/L
		TKN	0.071 mg/L	0.050 mg/L
		Aluminum	3.4 µg/L	1.0 µg/L
	March 04	Ammonia-N	0.0222 mg/L	0.0050 mg/L
		Zinc	2.2 µg/L	1.0 µg/L
	March 13	Ammonia-N	0.0124 mg/L	0.0050 mg/L
TKN		0.124 mg/L	0.050 mg/L	

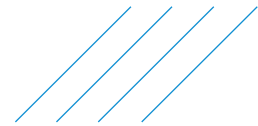


Table V (Cont'd): Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
2	April 24	Ammonia-N	0.0248 mg/L	0.0050 mg/L
		Aluminum	1.0 µg/L	1.0 µg/L
		Sodium	0.071 mg/L	0.050 mg/L
	May 15	Ammonia-N	<u>0.0541 mg/L</u>	0.0050 mg/L
	May 20	Ammonia-N	0.0228 mg/L	0.0050 mg/L
		Molybdenum	0.144 µg/L	0.050 µg/L
3	August 04	Ammonia-N	0.0248 mg/L	0.0050 mg/L
		Lead	0.056 µg/L	0.050 µg/L
	August 15	Ammonia-N	0.0059 mg/L	0.0050 mg/L
	August 16	Ammonia-N	0.0239 mg/L	0.0050 mg/L
		TKN	0.062 mg/L	0.050 mg/L
	September 09	Ammonia-N	0.0154 mg/L	0.0050 mg/L
4	October 04	Ammonia-N	0.0182 mg/L	0.0050 mg/L
	November 13	Ammonia-N	<u>0.0788 mg/L</u>	0.0050 mg/L
		TKN	0.085 mg/L	0.050 mg/L

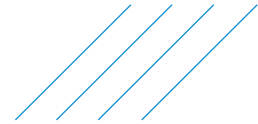
Notes:

Values greater than five times the RDL are underlined.

Concentrations of all constituents in field and trip blanks were less than the primary screening criteria.

Sodium was the only parameter measured in the Field Blank (Q1) and ammonia-N was the only parameter measured in the Trip Blank samples (Q1, Q2 and Q4) with concentrations greater than five times the DL in 2022. Results for ammonia-N in groundwater samples collected at EVO ranged from the DL (0.0050 mg/L) to 1.47 mg/L. As a result, the ammonia-N groundwater results may not be representative of formation water quality, since the source of the ammonia-N concentrations in the blank samples is not known, and concentrations in blanks ranged from the DL (0.05 mg/L) to eight times the DL (0.0788 mg/L) and were over the same order of magnitude as the sample results. Both the results and blank detections were less than the pH-dependant applicable primary screening criteria (3.7 mg/L – 18 mg/L), and therefore, the ammonia-N detections in the trip blank and field blank samples have not affected the data interpretation.

Previously, the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks; however, sample cross-contamination was not found (SNC-Lavalin, 2019). Elevated concentrations may have been caused by contamination in the field or from sample bottles or preservatives. The ammonia-N concentrations greater than the DLs did not affect data interpretation due to their low concentrations at less than the primary screening criteria.



6.5 Ion Balance

EVO groundwater and surface water samples that were excluded from the piper diagram due to an ion balance outside the acceptable range of $\pm 10\%$ range are listed in Table W.

Table W: Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
EV_OC1	2022-04-12	87.6
	2022-06-07	88.7
EV_OCGW	2022-03-13	81.9
	2022-10-28	81.5

6.6 Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XVI. The quality control reports were reviewed and are summarized below.

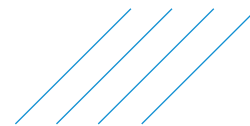
Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL raised due to dilution required due to high concentration of test analytes;
- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity);
- DL adjusted for required dilution; and
- DL raised due to dilution required due to high dissolved solids/electrical conductivity.

The raised DLs were consistently less than the screening standards and as such, these DL qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. The laboratory has indicated the following qualifiers have not affected data interpretation, and include:

- Reported result verified by repeat analysis;
- Dissolved concentration exceeds total. Results were confirmed by re-analysis;
- Lab duplicates RPDs do not meet the DQO;
- Lab Control Sample recovery less than lower control limit;
- Matrix Spike recoveries less than lower data quality objective;
- Method blank exceeds ALS DQO. Associated samples results which are less than Limit of Reporting or greater than five times blank level are considered reliable;
- Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits less than 5x blank level;
- Data quality objective was marginally exceeded (by less than 10% absolute) for less than 10% of analyte in a multi-element scan / multi-parameter scan (considered acceptable);
- Ion Balance Reviewed: Imbalance is due to interference or non-measured component;
- TKN results may be biased low due to nitrate-N interference. nitrate-N is greater than 10 times TKN;
- TKN matrix spike recovery was low due to interference from high nitrate, which causes negative bias on TKN;
- TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN;
- Quality control parameter frequency compliance for Matrix Spikes; and
- Quality control parameter frequency compliance for Laboratory Duplicates.



These notes are not unusual for these analyses considering the chemistry of the samples reflect mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). Ion balance review was only noted at EV_WF_SW in Q1 (84.2%) and Q3 (121%). Ion imbalances were not observed in 2022 samples collected at this well and this appears to have been an isolated occurrence. Concentrations of most analytical results at this well were less than the primary screening criteria, except for manganese and iron; therefore, the ion imbalance is not inferred to affect data interpretation. The results of the laboratory QA/QC were considered acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

6.7 Field QA/QC

Field parameters and quarterly water level measurements were collected from all wells in 2022, except for Q1 EV_ECgw, which was frozen.

Continuous groundwater level data was unavailable at: EV_OCgw between August 15 and October 28, 2022, due to instrumentation errors; RG_MW_GCA between September 14 and October 28, as the logger was not started; EV_BALgw between September 16 and October 26, as the logger was not started.

New Solinst Levellogger pressure transducers were installed in: RG_MW-03-04 on April 7, 2022, as the previous logger malfunctioned; in EV_MW_MC4 on May 1, 2022; and in EV_HW1 (EV_HM1) on April 16, 2022.

Due to well decommissioning, the loggers EV_MCgwS and EV_MCgwD were removed on July 23, 2022.

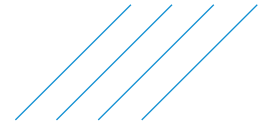
6.8 QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Several parameters in three field duplicate samples had calculated RPDs greater than 50%; however, the parameters either do not have an applicable primary screening criteria or concentrations in samples were less than the applicable primary screening criteria. Therefore, the RPDs greater than acceptable levels were not considered to affect data interpretation, except for dissolved selenium and sulphate from the Q1 sample from EV_ER1gwS. Noted hold time exceedances were primarily for parameters that required re-analysis, with the exception of TSS and TDS at select wells, where analysis of these parameters were overlooked by the laboratory.

Select parameters were detected in 19 of the 30 trip and field blanks collected in 2022. Of the detectable parameters, concentrations of sodium in one field blank and ammonia-N in three trip blanks were greater than five times the DL. The concentrations of these parameters in samples and blanks were less than the applicable screening criteria or the parameter(s) did not have an applicable screening criterion. The detection of parameters in blanks did not affect data interpretation.

The laboratory quality control reports were reviewed, and the data are considered reliable.

Although continuous water levels could not be obtained from select monitoring wells, manual measurements were collected, and the 2022 data are considered reliable.



7 Coal Mountain mine (CMm)

The QA/QC program included the quarterly samples from 19 RGMP/SSGMP monitoring wells, along with an additional 18 samples from RGMP/SSGMP monitoring wells sampled to support CMm project-specific monitoring programs. Six extra Q4 2022 groundwater samples were collected from CM_MW7-SH, CM_MW7-DP, and CM-MW8 as part of the 34 Pit Study, and 12 extra samples were collected from CM_MW5-SH and CM_MW5-DP in Q4 2021 and Q1 2022 as part of the Corbin Dam Construction Project. These extra samples were evaluated with the same rigour as the quarterly samples and are included in the sections below.

7.1 Miscellaneous Program Variations

A summary of program variations from the 2022 monitoring program is provided in Table X.

Table X: Summary of Miscellaneous Program Variations

Quarter	Well ID	Comment
1	CM_MW4-SH/DP, CM_MW6-SH/DP, CM_MW7-SH, CM_MW8	In 2022, wells were sampled based on the recommendations presented in the 2021 SSGMP Update.

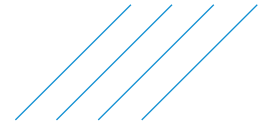
7.2 Shipping and Handling

A summary of shipping and handling issues from the 2022 sampling program is provided in Table Y.

Table Y: Summary of Shipping and Handling Issues

Qualifier	Quarter	Well ID	Possibly Affected Analytes	Comments
Hold Time Exceedance	1-4	All wells, duplicates and blanks	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
Hold Time Exceedance	3	CM_MW4-SH CM_MW4-DP	Turbidity, Orthophosphate, Nitrate-N, Nitrite-N	Exceeded ALS recommended hold time of three days prior to analysis. Laboratory received samples on time but was analyzed on day 4.
		CM_MW_AG1B		
		CM_MW6-DP	Nitrate-N, Nitrite-N	Exceeded ALS recommended hold time of three days prior to analysis. Laboratory received samples on time, but sample was analyzed on day 6.

The recommended hold times for laboratory pH and ORP were exceeded for all samples, duplicates, and blanks in 2022. These parameters have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances did not affect data interpretation, as field measurement for pH and ORP are used for data analysis. The hold time of three days for turbidity, orthophosphate and Nitrate-N, Nitrite-N was not met for Q3 for the samples presented in Table Y. Samples were received within recommended hold time by the lab; however, for unknown reasons extraction and analysis were delayed. Despite these delays, the impact on the samples was deemed to be minimal, either because the analyte has no, or was far less than, any applicable standard.



7.3 Duplicate Samples

A total of 66 samples and nine field duplicates collected in 2022 were included in the CMm QA/QC assessment. A summary of samples with RPD values greater than greater than 20% and concentrations of parameters greater than five times the DL are provided in Table Z, below.

Table Z: Summary of Relative Percent Difference Values for Duplicate Sample

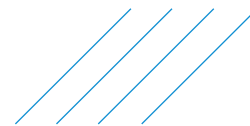
Quarter	Total Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	2	CM_MW1-DP	Turbidity	46%
			Total Suspended Solids	<u>69%</u>
			Total Phosphorous - P	33%
2	3	CM_MW6-DP	Turbidity	34%
			Ortho-Phosphate	<u>78%</u>
			Total Phosphorous - P	22%
			Molybdenum	28%
		CM_MW1-OB	Turbidity	29%
			Nitrate (N)	<u>98%</u>
			Nitrite (N)	48%
CM_MW3-SH	Chloride	38%		
	Copper	<u>75%</u>		
3	2	CM_MW2-SH	Selenium	25%
		CM_MW8	Chloride	39%
			Total Phosphorous - P	49%
			Iron	27%
			Molybdenum	21%
4	2	CM_MW1-DP	Selenium	<u>92%</u>
		CM_MW_AG1B	Sulphate	21%
			Nitrate (N)	45%

Notes:

RPD values greater than 50% are underlined.
All other sample analytes had RPD values less than 20%.

Review of the duplicate sample results indicated calculated RPD for TSS (Q1, CM_MW1-DP), orthophosphate (Q2 CM_MW6-DP), nitrate-N (Q2, CM_MW1-OB), copper (Q2, CM_MW3-SH) and selenium (Q4, CM_MW1-DP) were greater than the acceptable level (50%).

TSS and orthophosphate parameters do not have applicable primary screening criteria, and therefore, the RPD results greater than 50% do not affect the interpretation. The highest nitrate-N concentration among the samples/duplicates pair at CM_MW1-OB in Q2 (0.570 mg/L) was one order of magnitude lower than the applicable primary screening criteria (10 mg/L). The highest copper concentrations among the samples/duplicates pair at CM_MW3-SH in Q2 (3.30 µg/L) was 6 times lower than the most stringent primary screening criteria (20 µg/L). The highest selenium concentration for the duplicates pair (1.16 µg/L), which was reported at CM_MW1-DP, was an order of magnitude lower than the applicable primary screening criteria (10 mg/L). Based on the concentrations of parameters shown greater than, the RPD values that were greater than 50% are not inferred to affect interpretation.



Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling, handling, and laboratory analyses.

7.4 Field and Trip Blanks

Detections were reported in two of five field blanks and two of five trip blanks submitted for laboratory analysis in 2022. Concentrations of detectable parameters and laboratory detection limits are provided in Table AA, below.

Table AA: Summary of Blank Samples with Parameters greater than Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
3	CM_MW2-SH (July 13, 2022)	Kjeldahl Nitrogen-N	0.073 mg/L	0.050 mg/L
4	CM_MW_AG1B (October 6, 2022)	Barium	0.22 µg/L	0.10 µg/L
		Copper	0.95 µg/L	0.20 µg/L
		Sodium	0.175 µg/L	0.050 µg/L
		Tin	0.11 µg/L	0.10 µg/L
Trip Blanks				
1	March 3, 2022	Ammonia-N	0.0225 mg/L	0.0050 mg/L
		Kjeldahl Nitrogen-N	0.135 mg/L	0.050 mg/L
		Molybdenum	<u>3.98</u> µg/L	0.050 µg/L
5	October 26, 2022	Kjeldahl Nitrogen-N	0.053 mg/L	0.050 mg/L

Notes:

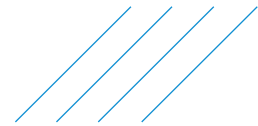
Values greater than five times the RDL are underlined.

Concentrations of Kjeldahl Nitrogen-N and dissolved molybdenum exceeded primary screening criteria in the Q3 field and Q1 trip blanks, respectively. All other constituents in field and trip blanks were less than the primary screening criteria.

Overall detectable concentrations in the field and trip blanks were within five times the DL except for dissolved molybdenum.

Dissolved molybdenum in the March 3, 2022 trip blank groundwater sample was five times the RDL, but two times less than the lowest applicable standard (CSR DW, 10 µg/L). The results were verified by repeat laboratory analysis. There is no indication the source of the dissolved molybdenum impacted the other groundwater samples included in the shipment (CM_MW3-SH, CM_MW3-DP, CM_MW10, CM_NNP2). Because the concentration in the blank did not exceed the applicable primary screening criteria, the blank detection did not affect data interpretation.

Previously, the laboratory investigated the source(s) of parameters greater than DLs in blanks; however, they did not identify any cross-contamination (SNC-Lavalin, 2019). Elevated concentrations may have been caused by contamination in the field or from sample bottles or preservatives. The parameters greater than the DLs did not affect data interpretation due to their low concentrations (less than the primary screening criteria).



7.5 Ion Balance

CMm groundwater and surface water samples that were excluded from the piper diagram due to an ion balance outside the acceptable range of $\pm 10\%$ range are listed in Table BB.

Table BB: Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
CM_AG2	2022-06-29	88.3
	2022-09-08	83.1
CM_CC1	2022-01-11	87
	2022-04-26	89.8
	2022-05-10	89
	2022-06-14	81.8
CM_CCHW	2022-06-30	88.7
CM_CCOFF	2022-01-11	86.2
	2022-02-02	85.7
	2022-03-15	88.2
	2022-06-07	88.8
	2022-06-15	86.2
	2022-11-08	88.6
CM_MC1	2022-02-22	87.6
	2022-03-15	88.3
	2022-04-12	88.6
	2022-05-03	89.4
	2022-06-14	88.9
	2022-07-05	89.7
	2022-09-13	84.9
	2022-10-11	86
CM_MC2	2022-10-18	89.5
	2022-01-11	88
	2022-03-15	89.2
	2022-04-26	89
	2022-06-07	88.3
	2022-07-05	89.4
	2022-07-12	112
	2022-07-26	87.4
	2022-10-11	87.2
	2022-10-25	88
	2022-11-22	88
2022-12-20	116	

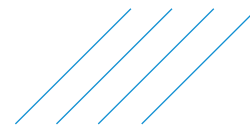


Table BB (Cont'd): Summary of Samples Excluded due to Ion Balance Range

Sample ID	Date	Ion Balance %
CM_MC4	2022-08-03	81.9
	2022-09-06	84.7
	2022-09-08	86
	2022-11-02	85.6
CM_ND2	2022-02-02	87.8
CM_NS1	2022-09-14	86.5
CM_PC2	2022-05-17	89.1
	2022-07-19	84.6
	2022-08-02	83.3
CM_SPD	2022-01-11	86.2
	2022-03-15	89
	2022-04-26	88.5
	2022-05-03	89.8
	2022-05-10	87.9
	2022-06-07	83.8
	2022-07-26	88.2
	2022-11-17	89.4
CM_WD	2022-04-29	88.4
	2022-06-08	89.1
	2022-07-06	117
CM_WD18	2022-09-14	85.5
CM_MW10	2022-07-20	87.8
CM_MW2-SH	2022-07-13	88.6
CM_MW3-DP	2022-10-13	86.2
CM_MW4-DP	2022-10-13	85.7
CM_MW5-DP	2022-01-10	89.2
CM_MW5-SH	2022-01-10	85.4
CM_MW6-DP	2022-05-19	87.4
CM_MW7-DP	2022-06-02	84.7

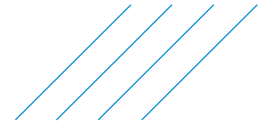
7.6 Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XVI. The quality control reports included in the laboratory COAs were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples. Qualifiers included:

- DL adjusted due to sample matrix effects (e.g., chemical interference, colour, turbidity);
- DL adjusted for required dilution; and
- DL raised due to dilution for high dissolved solids and/or electrical conductivity.

The raised DLs were consistently less than the screening standards and as such these detection limit qualifiers did not affect data interpretation.



Laboratory QA/QC sample results occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers did not affect data interpretation and included:

- Reported result verified by repeat analysis;
- Dissolved concentration exceeds total. Results were confirmed by re-analysis;
- TKN results may be biased low due to nitrate-N interference. nitrate-N is greater than 10 times TKN;
- TKN matrix spike recovery was low due to interference from high nitrate, which causes negative bias on TKN;
- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable;
- Exceeded ALS recommended hold time prior to analysis; and
- Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.

These notes are not unusual for these analyses considering the chemistry of the samples reflecting mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). The results of the laboratory QA/QC were considered acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

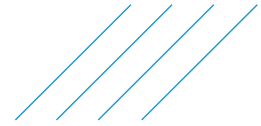
7.7 Field QA/QC

Field parameters and quarterly (Q2 to Q4 at CM_MW4-SH/DP, CM_MW6-SH/DP, CM_MW7-SH, and CM_MW8) water level measurements were collected from all wells in 2022. Monitoring wells CM_MW4-SH/DP were observed to be under flowing artesian conditions during each quarterly visit. Monitoring wells CM_MW1-OB/SB/DP, CM_MW2-SH, CM_MW3-SH/DP, CM_MW4-SH/DP, CM_MW5-SH/DP and CM_MW_AG1A/B had pressure transducers installed prior to 2022 and have continuous water levels measured throughout 2022. Monitoring wells CM_MW6-SH/DP, CM_MW7-SH/DP, CM_MW8, CM_MW9, CM_MW10 had pressure transducers installed in Q4 2022.

7.8 QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for the analyses conducted in this report. Calculated RPDs for the eight duplicate samples collected were less than 50% except for TSS, ortho-phosphate, nitrate-N, copper, and selenium in separate duplicate samples. Hold time exceedances were only identified for laboratory pH and ORP. The results reflect low variability for handling and sampling for the program.

The laboratory quality control reports were reviewed, and the data are considered reliable. Detectable concentrations of parameters in field blanks were less than five times the detection limits. Detectable concentrations of parameters in trip blanks were less than five times the detection limits, except for molybdenum in one trip blank. The concentrations of molybdenum in the blank did not exceed the applicable primary screening criteria, and therefore, did not affect data interpretation. Field measurements and manual and/or continuous water levels were collected from select CMm wells in 2022 and data are considered reliable.



8 References

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Appendix XIV

Tables

TABLE XIV – A: Summary of "For Evaluation" Wells – Installation Details (Background)

TABLE XIV – B: Summary of "For Evaluation" Wells – Installation Details (FRO)

TABLE XIV – C: Summary of "For Evaluation" Wells – Installation Details (GHO)

TABLE XIV – D: Summary of "For Evaluation" Wells – Installation Details (LCO)

TABLE XIV – E: Summary of "For Evaluation" Wells – Installation Details (EVO)

Borehole Logs

- Background Borehole Logs – Wells For Evaluation
- Fording River Operations Borehole Logs – Wells For Evaluation
- Greenhills Operations Borehole Logs – Wells For Evaluation
- Line Creek Operations Borehole Logs – Wells For Evaluation
- Elkview Operations Borehole Logs – Wells For Evaluation



Tables

TABLE XIV – A: Summary of "For Evaluation" Wells – Installation Details (Background)

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TABLE XIV – D: Summary of "For Evaluation" Wells – Installation Details (LCO)

TABLE XIV – E: Summary of "For Evaluation" Wells – Installation Details (EVO)



TABLE XIV - A: Summary of "For Evaluation" Wells - Installation Details (Background)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Upgradient of Study Area 1 (FRO)	1	FR_MW22_CH3A	For Evaluation for RGMP	Monitoring	N	658263	5555526	-
	2	FR_MW22_CH3B	For Evaluation for RGMP	Monitoring	N	658262	5555526	-
	3	FR_MW22_FRX3465	For Evaluation for RGMP	Monitoring	N	653635	5558523	-
	4	FR_MW22_FRX3534	For Evaluation for RGMP	Monitoring	N	656260	5554565	-
	5	FR_MW22_KCWD1A	For Evaluation for RGMP	Monitoring	Draft	657212	5560555	Bedrock (Dolostone)
	6	FR_MW22_KCWD1B	For Evaluation for RGMP	Monitoring	Draft	657213	5560555	Sand and Gravel
Upgradient of Study Areas 5/6 (LCO)	7	LC_MW22_LC1-1ABR	For Evaluation for RGMP	Monitoring	Draft	661957	5538175	Bedrock (Shale)
	8	LC_MW_HC-1A	For Evaluation for RGMP	Monitoring	Y	663089	5535742	Gravel
	9	LC_MW_HC-2A	For Evaluation for RGMP	Monitoring	Y	662980	5535814	Cobble and Gravel
	10	LC_MW_HC-3A	For Evaluation for RGMP	Monitoring	Y	662800	5535787	Gravel and Clay
Upgradient of Study Area 7 (EVO)	11	EV_MW22_GV5A	For Evaluation for RGMP	Monitoring	Draft	659300	5523750	Sand and Gravel
	12	EV_MW22_GV5B	For Evaluation for RGMP	Monitoring	Draft	659299	5523749	Sand and Gravel
Upgradient of Study Area 10 (EVO)	13	RG_MW_AC1A	For Evaluation for RGMP	Monitoring	Y	663653	5502845	Silty Clay
	14	RG_MW_AC1B	For Evaluation for RGMP	Monitoring	Y	663654	5502845	Sand and Gravel

Notes:

a: RGMP denotes Regional Groundwater Monitoring Program.

"-" denotes data not available.

Draft borehole data is subject to change.

Also considered For Evaluation for Site-Specific Groundwater Monitoring Program (SSGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Henretta Creek Watershed	1	FR_MW23_HMW2_V2	For Evaluation for SSGMP	Monitoring	N	652643	5566630	-
	2	FR_MW23_HMW2_BR	For Evaluation for SSGMP	Monitoring	N	652643	5566630	-
	3	FR_MW22_HC1_1A	For Evaluation for SSGMP	Monitoring	Y	652233	5566416	Bedrock (Siltstone)
	4	FR_MW-HC1A	For Evaluation for SSGMP	Monitoring	Y	652261	5566589	Sand and Gravel
	5	FR_MW-HC1B	For Evaluation for SSGMP	Monitoring	Y	652262	5566590	Gravel (Waste Rock)
	6	FR_MW-HC2A	For Evaluation for SSGMP	Monitoring	Y	652352	5566598	Gravel
	7	FR_MW-HC2B	For Evaluation for SSGMP	Monitoring	Y	652352	5566597	Gravel and Cobbles (Waste Rock)
	8	FR_MW-HC3A	For Evaluation for SSGMP	Monitoring	Y	652580	5566548	Gravel (Colluvium)
	9	FR_MW-HC3B	For Evaluation for SSGMP	Monitoring	Y	652581	5566547	Gravel (Waste Rock)
Fording River Watershed	10	FR_MW-TB1A	For Evaluation for SSGMP	Monitoring	Draft	650891	5565248	Silt
	11	FR_MW-TB1B	For Evaluation for SSGMP	Monitoring	Draft	650901	5565248	Sand and Gravel
	12	FR_MW-TB2A	For Evaluation for SSGMP	Monitoring	Draft	650908	5565253	Sand and Gravel
	13	FR_MW-TB2B	For Evaluation for SSGMP	Monitoring	Draft	650907	5565251	Sand and Gravel
	14	FR_MW-TB2C	For Evaluation for SSGMP	Monitoring	N	650904	5565252	Gravel
	15	FR_MW-TB3A	For Evaluation for SSGMP	Monitoring	N	651011	5565267	Sandy Clay
	16	FR_MW-TB3B	For Evaluation for SSGMP	Monitoring	N	651009	5565268	Sand
	17	FR_MW-TB3C	For Evaluation for SSGMP	Monitoring	N	651009	5565271	Gravel
	18	FR_MW-TB5A	For Evaluation for SSGMP	Monitoring	N	650872	5565220	Sand and Gravel
	19	FR_MW-TB5B	For Evaluation for SSGMP	Monitoring	N	650871	5565222	Sand and Gravel
	20	FR_MW-TB6A	For Evaluation for SSGMP	Monitoring	N	650860	5565176	Sand and Gravel
	21	FR_MW-TB6B	For Evaluation for SSGMP	Monitoring	N	650857	5565175	Sand
	22	FR_MW-TB8A	For Evaluation for SSGMP	Monitoring	N	650919	5565200	Sand and Gravel
	23	FR_MW-TB8B	For Evaluation for SSGMP	Monitoring	N	650918	5565198	Gravel
	24	FR_MW-TB9A	For Evaluation for SSGMP	Monitoring	N	650848	5565252	Gravelly Clay
	25	FR_MW-TB9B	For Evaluation for SSGMP	Monitoring	N	650846	5565251	Gravel
	26	FR_MW22_TBSTSF1A	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	27	FR_MW22_TBSTSF1B	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	28	FR_MW22_TBSTSF1C	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	29	FR_MW22_POTW1A	For Evaluation for SSGMP	Monitoring	Y	651190	5565188	Silty Sand and Silt and Sand
	30	FR_MW22_POTW1B	For Evaluation for SSGMP	Monitoring	Y	651189	5565188	Gravelly Sand and Sand and Silt
	31	FR_MW22_POTW1C	For Evaluation for SSGMP	Monitoring	Y	651189	5565187	Sandy Gravel
	32	FR_MW22_POTW2A	For Evaluation for SSGMP	Monitoring	Y	651040	5565024	Sand
	33	FR_MW22_POTW2B	For Evaluation for SSGMP	Monitoring	Y	651039	5565021	Sand and Gravel and Sand
	34	FR_MW22_POTW3A	For Evaluation for SSGMP	Monitoring	Y	651145	5565041	Siltstone and Weathered Bedrock
	35	FR_MW22_POTW3B	For Evaluation for SSGMP	Monitoring	Y	651148	5565042	Sand and Gravel
	36	FR_MW22_POTW4A	For Evaluation for SSGMP	Monitoring	N	651182	5565097	-
	37	FR_MW22_POTW4B	For Evaluation for SSGMP	Monitoring	N	651182	5565097	-
	38	FR_MW22_POTW5	For Evaluation for SSGMP	Monitoring	N	651099	5565084	-
	39	FR_MW22_POTW6A	For Evaluation for SSGMP	Monitoring	N	651023	5564991	-
	40	FR_MW22_POTW6B	For Evaluation for SSGMP	Monitoring	N	651023	5564991	-
	41	FR_MW22_POTW7	For Evaluation for SSGMP	Monitoring	N	651144	5565129	-
	42	FR_MW22_POTW8A	For Evaluation for SSGMP	Monitoring	N	651077	5565077	-
	43	FR_MW22_POTW8B	For Evaluation for SSGMP	Monitoring	N	651077	5565077	-
	44	FR_MW22_POTW9	For Evaluation for SSGMP	Monitoring	N	651121	5564997	-

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
"- " denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Fording River Watershed	45	FR_MW22_FC1_1A	For Evaluation for SSGMP	Monitoring	Draft	650935	5564677	Bedrock (Siltstone)
	46	FR_MW22_FC1_1B	For Evaluation for SSGMP	Monitoring	Draft	650936	5564677	Sand and Gravel
	47	FR_MW22_CB-1C	For Evaluation for SSGMP	Monitoring	Y	651080	5564422	Gravelly sand and Silt
	48	FR_MW22_CB-7A	For Evaluation for SSGMP	Monitoring	Y	650849	5564165	Bedrock
	49	FR_MW22_CB-7B	For Evaluation for SSGMP	Monitoring	Y	650850	5564162	Silty Sand
	50	FR_MW22_CB-7C	For Evaluation for SSGMP	Monitoring	Y	650851	5564160	Gravel Overlying Clay
	51	FR_MW22_CB-X3A	For Evaluation for SSGMP	Monitoring	Y	650939	5564528	Gravelly Clay
	52	FR_MW22_CB-X3B	For Evaluation for SSGMP	Monitoring	Y	650940	5564530	Silty Sand
	53	FR_LMA-1	For Evaluation for SSGMP	Monitoring	Y	650785	5563845	Bedrock (Fernie Formation)
	54	FR_LMA-2	For Evaluation for SSGMP	Monitoring	Y	650853	5563847	Bedrock (Fernie Formation)
	55	FR_LMA-3	For Evaluation for SSGMP	Monitoring	Y	650780	5563951	Bedrock (Fernie Formation)
	56	FR_GCMW-3A	For Evaluation for SSGMP	Monitoring	Draft	651075	5563962	Bedrock (Fernie Formation)
	57	FR_GCMW-3B	For Evaluation for SSGMP	Monitoring	Draft	651077	5563964	Clay and Cobble
	58	FR_GCMW-3C	For Evaluation for SSGMP	Monitoring	Draft	651078	5563962	Gravel/Silty Clay
	59	FR_GCMW-4A	For Evaluation for SSGMP	Monitoring	Draft	651059	5563798	Bedrock (Fernie Formation)
	60	FR_GCMW-4B	For Evaluation for SSGMP	Monitoring	Draft	651059	5563800	Clay and Gravel
	61	FR_GCMW-4C	For Evaluation for SSGMP	Monitoring	Draft	651057	5563799	Silty Clay
	62	FR_GCMW-5A	For Evaluation for SSGMP	Monitoring	Draft	651094	5563573	Bedrock (Fernie Formation)
	63	FR_GCMW-5B	For Evaluation for SSGMP	Monitoring	Draft	651092	5563576	Silty Clay/Clay
	64	FR_GCMW-5C	For Evaluation for SSGMP	Monitoring	Draft	651090	5563580	Gravel
	65	FR_MW22_GCMW-6A	For Evaluation for SSGMP	Monitoring	Y	651033	5563917	Weathered/Fractured Bedrock
	66	FR_MW22_GCMW-6B	For Evaluation for SSGMP	Monitoring	Y	651033	5563917	Silt and Clay
	67	FR_MW_R41A	For Evaluation for SSGMP	Monitoring	Draft	651291	5563908	Alluvium/Bedrock (Fernie Formation)
	68	FR_MW_R42A	For Evaluation for SSGMP	Monitoring	Draft	651293	5563898	Bedrock (Fernie Formation)
	69	FR_MW_E41A	For Evaluation for SSGMP	Monitoring	Draft	652835	5561944	Bedrock (Kootenay Group)
	70	FR_MW_E42A	For Evaluation for SSGMP	Monitoring	Draft	652829	5561958	Bedrock (Kootenay Group)
	71	FR_MW-EC1A	For Evaluation for SSGMP	Monitoring	N	651261	5562779	Sand and Gravel
	72	FR_MW-EC1B	For Evaluation for SSGMP	Monitoring	N	651261	5562779	Gravel
	73	FR_MW-EC2A	For Evaluation for SSGMP	Monitoring	N	651201	5562878	Gravelly Till
	74	FR_MW-EC2B	For Evaluation for SSGMP	Monitoring	N	651201	5562877	Gravel with Sand
	75	FR_MW-EC3A	For Evaluation for SSGMP	Monitoring	N	651330	5562916	Gravel
	76	FR_MW-EC3B	For Evaluation for SSGMP	Monitoring	N	651331	5562916	Sand and Gravel
	77	FR_MW-EC4A	For Evaluation for SSGMP	Monitoring	N	651420	5562817	Sandy Till
	78	FR_MW-EC4B	For Evaluation for SSGMP	Monitoring	N	651420	5562818	Gravel with Sand
	79	FR_09-03-A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652107	5559996	Gravelly sand
	80	FR_09-03-B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652107	5559996	Gravelly sand
	81	FR_BH-03-16	For Evaluation for RGMP / SSGMP	Monitoring	N	652097	5559837	-
	82	FR_BH-04-16	For Evaluation for RGMP / SSGMP	Monitoring	N	652195	5559886	-
	83	FR_MW22_KCWD1A	For Inclusion in SSGMP ^b	Monitoring	Draft	657212	5560555	Bedrock (Dolostone)
84	FR_MW22_KCWD1B	For Inclusion in SSGMP ^b	Monitoring	Draft	657213	5560555	Sand and Gravel	
85	FR_KB-10MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652650	5559881	Silty Gravel	
86	FR_KB-11MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652698	5559870	Gravel	
87	FR_KB-12PW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652721	5559856	Gravel	
88	FR_KB-13A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652695	5559839	Sand and Gravel	
89	FR_KB-13B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652695	5559840	Gravel	

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
"-" denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Fording River Watershed	90	FR_KB-14MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652738	5559753	Sandy gravel
	91	FR_KB-15MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652756	5559695	Gravel
	92	FR_KB-16MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652773	5559643	Clayey sand
	93	FR_KB-17MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652769	5559871	Gravel
	94	FR_KB-18MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652834	5559840	Gravel
	95	FR_KB-19MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652888	5559879	Gravel
	96	FR_KB-20MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652949	5559837	Gravel
	97	RG_MW_FR2A	For Evaluation for RGMP	Monitoring	Y	653499	5556756	Sand and Gravel
	98	RG_MW_FR2B	For Evaluation for RGMP	Monitoring	Y	653500	5556755	Gravel
	99	RG_MW_FR3A	For Evaluation for RGMP	Monitoring	Y	653233	5556777	Sand and Gravel
	100	RG_MW_FR3B	For Evaluation for RGMP	Monitoring	Y	653233	5556778	Sand and Gravel
	101	RG_MW_FR4A	For Evaluation for RGMP	Monitoring	Y	653496	5556366	Gravel
	102	RG_MW_FR4B	For Evaluation for RGMP	Monitoring	Y	653496	5556368	Sand
	103	RG_MW_FR5A	For Evaluation for RGMP	Monitoring	Y	653572	5556260	Clayed Sand
	104	RG_MW_FR5B	For Evaluation for RGMP	Monitoring	Y	653573	5556257	Sand and Gravel
	105	RG_MW_FR5C	For Evaluation for RGMP	Monitoring	Y	653570	5556259	Sand and Gravel
	106	RG_MW_FR6A	For Evaluation for RGMP	Monitoring	Y	653598	5556055	Sand and Gravel
	107	RG_MW_FR6B	For Evaluation for RGMP	Monitoring	Y	653596	5556055	Sand and Gravel
	108	RG_MW_FR7A ^c	For Evaluation for RGMP	Monitoring	Y	653634	5555487	Sand
109	RG_MW_FR7B ^c	For Evaluation for RGMP	Monitoring	Y	653634	5555484	Sand and Gravel	
110	RG_MW22_FR12A	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Bedrock (Shale)	
111	RG_MW22_FR12B	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand and Gravel	
112	RG_MW22_FR12C	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand	
113	RG_MW22_FR12D	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand and Gravel	
114	RG_MW22_FR13A	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Bedrock	
115	RG_MW22_FR13B	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Gravelly Silt	
116	RG_MW22_FR13C	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Sand	
117	RG_MW22_FR14A	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Bedrock	
118	RG_MW22_FR14B	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Sand	
119	RG_MW22_FR14C	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Gravel	
Swift Creek	120	FR_MW20-01S	For Evaluation for SSGMP	Monitoring	Y	652228	5558245	Unconsolidated material
	121	FR_MW20-01D	For Evaluation for SSGMP	Monitoring	Y	652229	5558243	Bedrock (Spray River Fm)
	122	FR_MW20-02S	For Evaluation for SSGMP	Monitoring	Y	652176	5558374	Unconsolidated material
	123	FR_MW20-02D	For Evaluation for SSGMP	Monitoring	Y	652177	5558373	Bedrock (Spray River Fm)
	124	FR_MW20-03S	For Evaluation for SSGMP	Monitoring	Y	652187	5558166	Unconsolidated material
	125	FR_MW20-03D	For Evaluation for SSGMP	Monitoring	Y	652187	5558167	Bedrock (Spray River Fm)
Cataract Creek	126	FR_MW22_CC1A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652434	5557526	Bedrock (Spray River Fm)
	127	FR_MW22_CC1B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652435	5557525	Silt and Bedrock
	128	FR_MW22_CC2A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652516	5557519	Bedrock (Spray River Fm)
	129	FR_MW22_CC2B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652515	5557520	Bedrock (Spray River Fm)
	130	FR_MW22_CC2C	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652514	5557518	Overburden, Sand and Gravel
	131	FR_MW22_CC3A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557492	Bedrock (Spray River Fm)
	132	FR_MW22_CC3B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557491	Bedrock (Spray River Fm)
	133	FR_MW22_CC3C	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557491	Silt

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
^c denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Greenhills Creek Watershed (Fording River Valley)	1	GH_MW_GHC_2A	For Evaluation for SSGMP	Monitoring	Y	653699	5546782	Bedrock
	2	GH_MW_GHC_3B	For Evaluation for SSGMP	Monitoring	Y	653615	5546508	Bedrock
	3	GH_MW_E1_1A	For Evaluation for SSGMP	Monitoring	Y	653158	5546210	Bedrock
	4	GH_POTW06	For Evaluation for RGMP	Supply	Y	653494 ^b	5545826 ^b	Sand and Gravel
	5	GH_MW_FR1A	For Evaluation for RGMP	Monitoring	Y	653461	5545629	Sand and Gravel
	6	GH_MW_FR1B	For Evaluation for RGMP	Monitoring	Y	653460	5545627	Silt and Clay
	7	GH_MW_FR2A	For Evaluation for RGMP	Monitoring	Y	654322	5545366	Sand and Gravel
	8	GH_MW_FR2B	For Evaluation for RGMP	Monitoring	Y	654323	5545365	Sand and Gravel
	9	GH_MW_FR3A	For Evaluation for RGMP	Monitoring	Y	653086	5545568	Bedded Sand and Gravel / Silt and Clay
	10	GH_MW_FR3B	For Evaluation for RGMP	Monitoring	Y	653087	5545568	Bedded Sand and Gravel / Silt and Clay
	11	GH_MW_FR4A	For Evaluation for RGMP	Monitoring	Y	653169	5545821	Gravel, Silt and Clay
	12	GH_MW_FR4B	For Evaluation for RGMP	Monitoring	Y	653171	5545820	Sandy Silt and Clay
	13	GH_MW_FR5A	For Evaluation for RGMP	Monitoring	Y	653288	5545477	Sandy Gravel, some silt
	14	GH_MW_FR5B	For Evaluation for RGMP	Monitoring	Y	653287	5545478	Sand and Gravel, some silt
	15	GH_MW_FR6	For Evaluation for RGMP	Monitoring	Y	653861	5545301	Sand and Gravel, some silt
	16	GH_MW_FR7	For Evaluation for RGMP	Monitoring	Y	653753	5545432	Sand and Gravel, some silt
	17	GH_MW_FR8A	For Evaluation for RGMP	Monitoring	Y	654146	5545205	Sand bedded with fines
	18	GH_MW_FR8B	For Evaluation for RGMP	Monitoring	Y	654146	5545207	Sand and Gravel

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Greenhills Creek Watershed (Fording River Valley)	19	RG_MW_LC3C	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648181	5552738	Clay and Gravel
	20	RG_MW_ER1A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648900	5548591	Sand and Gravel
	21	RG_MW_ER1B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648899	5548590	Gravel
	22	RG_MW_ER2A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	649044	5548451	Sandy Clay/Silty Sand
	23	RG_MW_ER2B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	649043	5548451	Gravel
	24	RG_MW_ER3A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648288	5550080	Sand and Gravel
	25	RG_MW_ER3B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648288	5550080	Sand and Gravel
	26	RG_MW_ER4A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648300	5549330	Sand and Gravel
	27	RG_MW_ER4B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648300	5549329	Sand and Gravel
	28	RG_MW_ER5A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648692	5549074	Bedrock
	29	RG_MW_ER5B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648691	5549074	Sand and Gravel
	30	RG_MW_ER6A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549334	Bedrock
	31	RG_MW_ER6B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel
	32	RG_MW_ER7A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549334	Bedrock
	33	RG_MW_ER7B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel
34	RG_MW_ER8	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel	

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Elk River Valley	35	RG_MW_ER9A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648386	5551764	Sand, some silt
	36	RG_MW_ER9B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648392	5551766	Sand and Gravel
	37	RG_MW_ER10A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648928	5548902	Sandy Gravel
	38	RG_MW_ER10B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648928	5548903	Sandy Gravel
	39	RG_MW_ER11A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648840	5548753	Gravelly Silt
	40	RG_MW_ER11B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648840	5548754	Sand and Gravel
	41	GH_MW_LC1-A	For Evaluation for SSGM/RGMP	Monitoring	Y	648131	5552871	Silty Gravel
	42	GH_MW_LC1-B	For Evaluation for SSGM/RGMP	Monitoring	Y	648131	5552870	Sand and Gravel
	43	GH_MW_LC2-A	For Evaluation for SSGM/RGMP	Monitoring	Y	648158	5552978	Sand and Gravel
	44	GH_MW_LC2-B	For Evaluation for SSGM/RGMP	Monitoring	Y	648159	5552979	Sand and Gravel
	45	GH_MW_WC1-A	For Evaluation for SSGM/RGMP	Monitoring	Y	647987	5552217	Sand and Gravel
	46	GH_MW_WC1-B	For Evaluation for SSGM/RGMP	Monitoring	Y	647987	5552217	Sand and Gravel
	47	GH_MW_WC1-C	For Evaluation for SSGM/RGMP	Monitoring	Y	647985	5552218	Sand and Gravel

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - D: Summary of "For Evaluation" Wells - Installation Details (LCO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
LCO Phase II Dry Creek	1	LC_MW22_DCDS-1A	For Evaluation for SSGMP	Monitoring	N	-	-	-
	2	LC_MW22_DCDS-1C	For Evaluation for SSGMP	Monitoring	N	-	-	-
LCO Phase I Upper Line Creek (Tornado Creek)	3	LC_MW_LC1-1A	For Evaluation for SSGMP	Monitoring	Y	661955	5538176	Gravel
	4	LC_MW22_LC1-1ABR	For Evaluation for SSGMP	Monitoring	Draft	661957	5538175	Bedrock (Shale)
	5	LC_MW_LC1-2A	For Evaluation for SSGMP/RGMP	Monitoring	Y	662008	5538214	Gravel, Sand, Cobbles and Sand
	6	LC_MW_LC1-3A	For Evaluation for SSGMP	Monitoring	Y	661990	5538247	Gravel, Sand
West Line Creek	7	LC_MW_WLC-1A	For Evaluation for SSGMP	Monitoring	Y	659753	5532228	Gravel
	8	LC_MW_WLC-2A	For Evaluation for SSGMP	Monitoring	Y	659869	5532370	Gravel
	9	LC_MW_WLC-3A	For Evaluation for SSGMP	Monitoring	Y	659583	5532281	Gravel
Process Plant	10	RG_MW_LC4A	For Evaluation for RGMP	Monitoring	Y	655533	5528823	Bedrock - shale
	11	RG_MW_LC4B	For Evaluation for RGMP	Monitoring	Y	655535	5528823	Sand and Gravel
	12	LC_MW_ERX1A	For Evaluation for SSGMP	Monitoring	Y	655036	5526827	Bedrock - shale
	13	LC_MW_ERX1B	For Evaluation for SSGMP	Monitoring	Y	655035	5526832	Silty Gravel
	14	LC_MW_SRD1A	For Evaluation for SSGMP	Monitoring	Y	653604	5526818	Silty Clay
	15	LC_MW_SRD1B	For Evaluation for SSGMP	Monitoring	Y	653601	5526820	Sand and Gravel
	16	LC_MW_SRD2A	For Evaluation for SSGMP	Monitoring	Y	653885	5525984	Sandy Clay
	17	LC_MW_SRD2B	For Evaluation for SSGMP	Monitoring	Y	653885	5525983	Gravel

Notes:

a: SSGMP denotes LCO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

"-" denotes data not available.

Draft borehole data is subject to change.

Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - E: Summary of "For Evaluation" Wells - Installation Details (EVO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Erickson Creek and Michel Creek Downstream of Erickson Creek (Study Area 10)	1	EV_MW_EC3A	For Evaluation for SSGMP	Monitoring	Y	660840	5506540	Sand and Gravel
	2	EV_MW_EC3B	For Evaluation for SSGMP	Monitoring	Y	660842	5506516	Sand
Road Crew Shop	3	EV_MW22_RCSgw_1A	For Evaluation for SSGMP	Monitoring	Draft	655899	5509281	Sand
	4	EV_MW22_RCSgw_1B	For Evaluation for SSGMP	Monitoring	Y	655902	5509281	Sand
	5	EV_MW22_RCSgw_1C	For Evaluation for SSGMP	Monitoring	Y	655902	5509280	Sand
Near BCgw	6	EV_MW22_BCgw_1A	For Evaluation for SSGMP	Monitoring	Y	655385	5509655	Gravel
	7	EV_MW22_BCgw_1B	For Evaluation for SSGMP	Monitoring	Y	655386	5509656	Sand and Gravel
Near MC2B	8	EV_MW22_MC2C	For Evaluation for SSGMP	Monitoring	Y	654751	5510511	Gravel
MC3 (D1)	9	EV_MW22_MC3B	For Evaluation for SSGMP	Monitoring	Y	653660	5510983	Sand and Gravel
Grave Creek	10	EV_MW22_GV5A	For Evaluation for SSGMP	Monitoring	Draft	659300	5523750	Sand and Gravel
	11	EV_MW22_GV5B	For Evaluation for SSGMP	Monitoring	Draft	659299	5523749	Sand and Gravel

Notes:

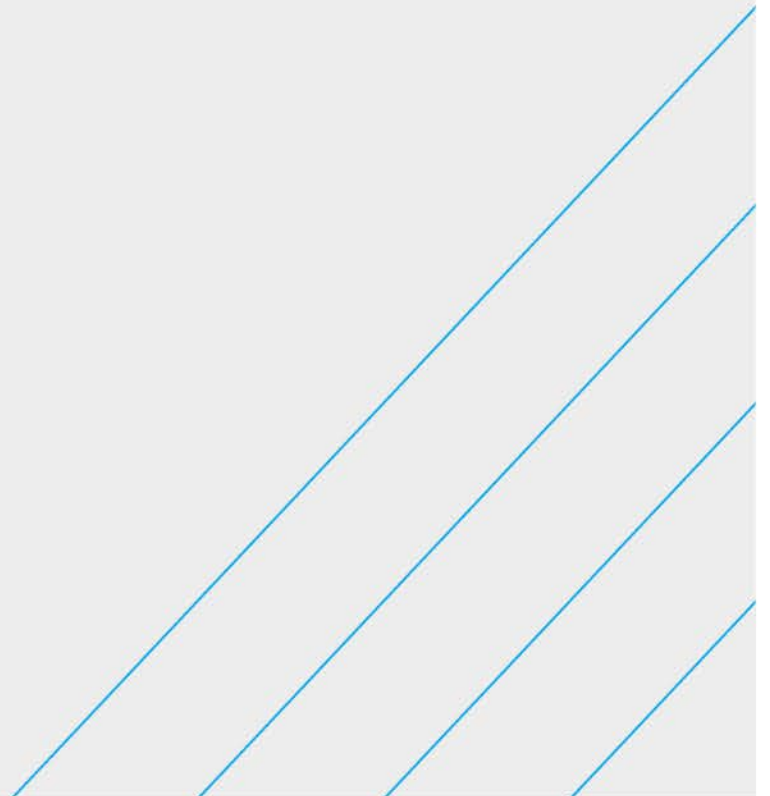
a: SSGMP denotes EVO Site-Specific Groundwater Monitoring Program

Draft borehole data is subject to change.

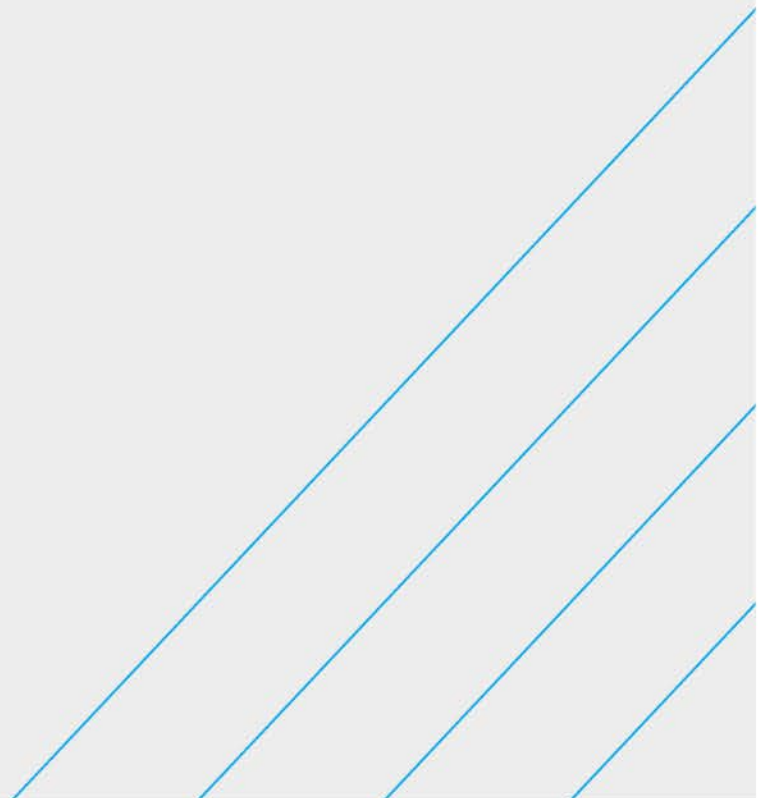
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

Borehole Logs

- Background Borehole Logs – Wells for Evaluation
- Fording River Operations Borehole Logs – Wells for Evaluation
- Greenhills Operations Borehole Logs – Wells for Evaluation
- Line Creek Operations Borehole Logs – Wells for Evaluation
- Elkview Operations Borehole Logs – Wells for Evaluation



Background Borehole Logs – Wells for Evaluation



Teck Coal Limited

Borehole No: LC_MW_HC-1A

Project: LCO Phase 2 Water Treatment

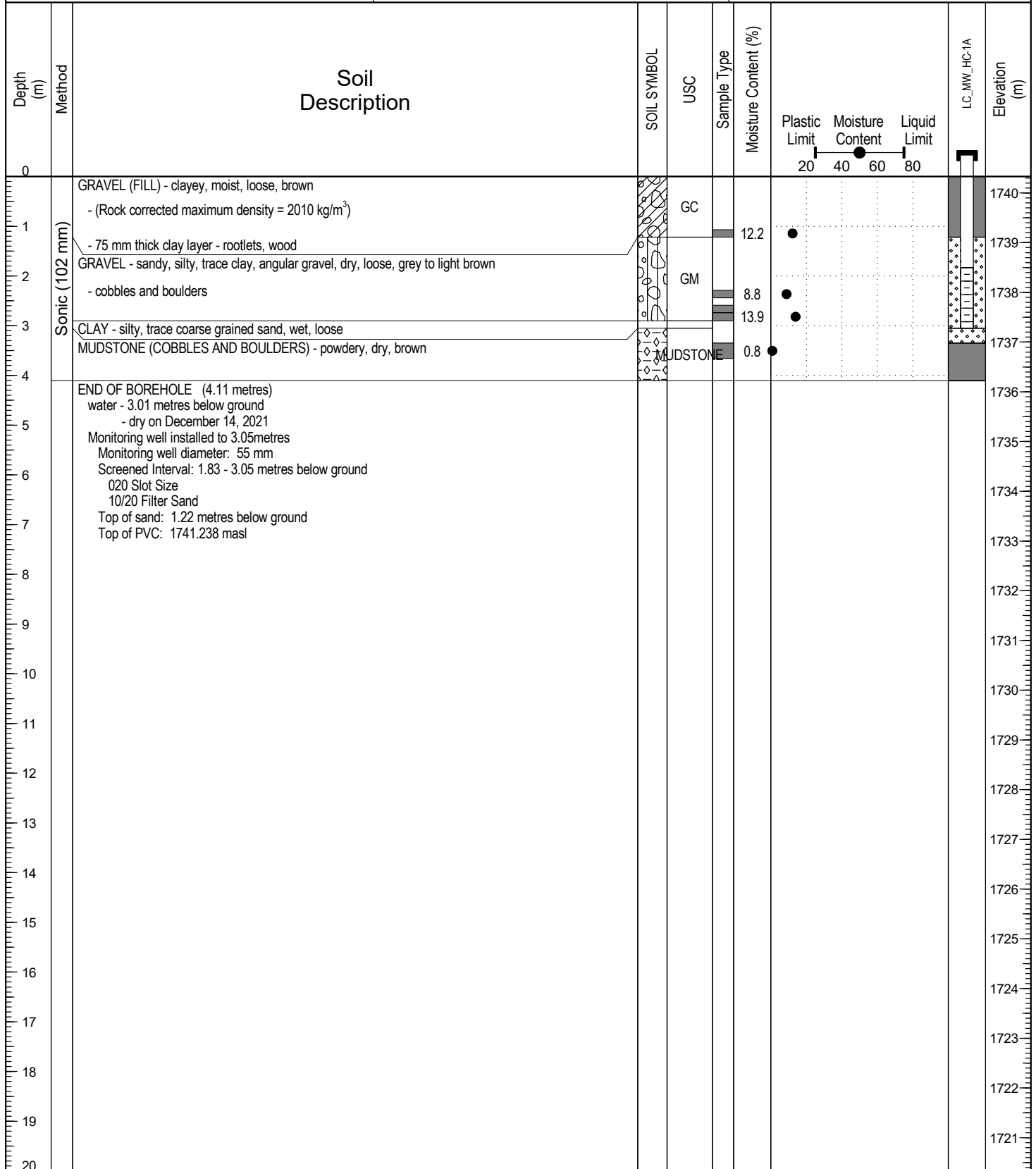
Project No: ENW.GENV03056-01

Location: Horseshoe Creek

Ground Elev: 1740.33 m

Elk Valley, British Columbia

UTM: 663089.16 E; 5535741.73 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 4.11 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 7

Logged By: Carl Forkheim

Completion Date: 2021 December 7

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_HC-2A

Project: LCO Phase 2 Water Treatment

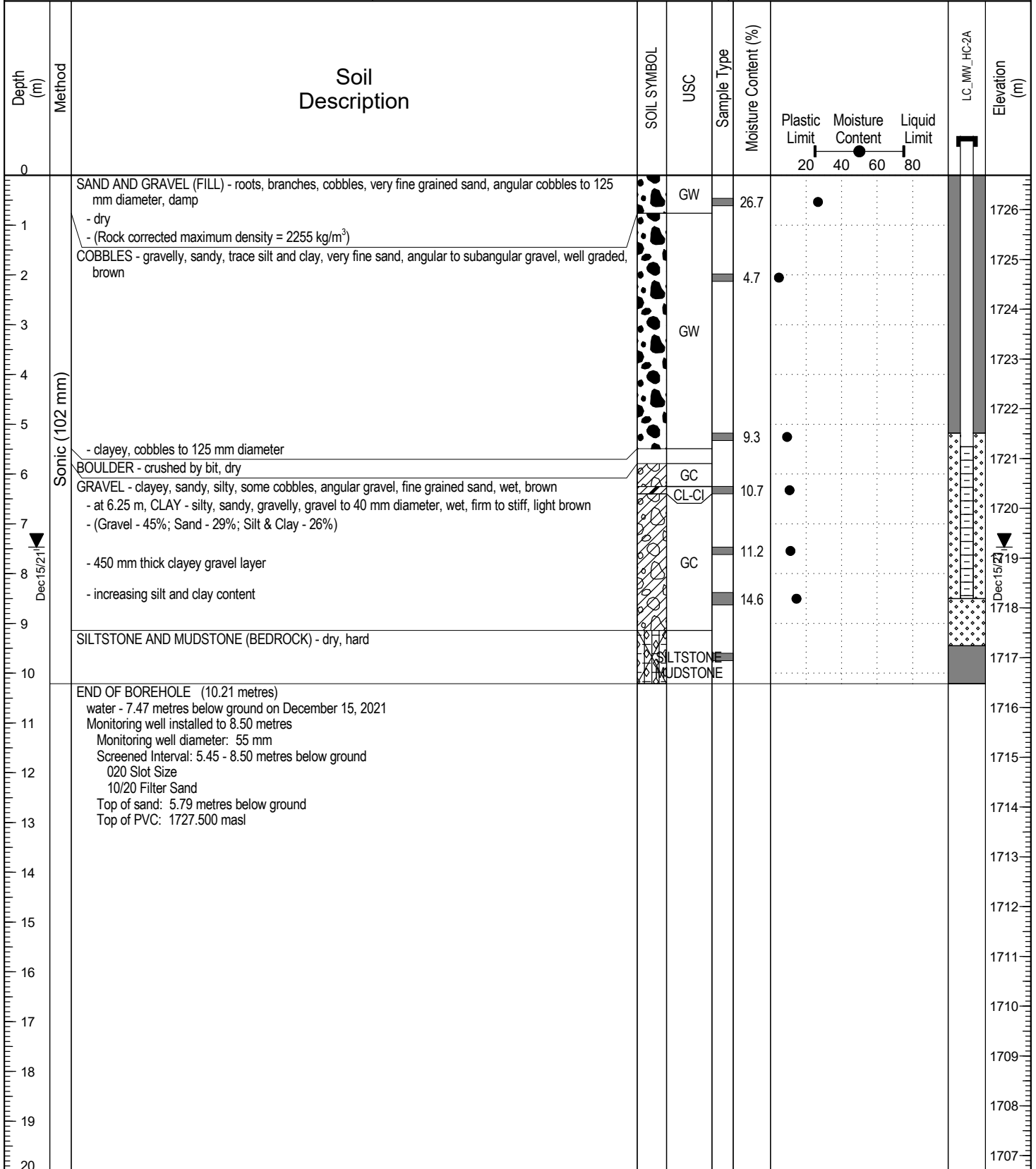
Project No: ENW.GENV03056-01

Location: Horseshoe Creek

Ground Elev: 1726.69 m

Elk Valley, British Columbia

UTM: 662979.57 E; 5535813.54 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 10.21 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

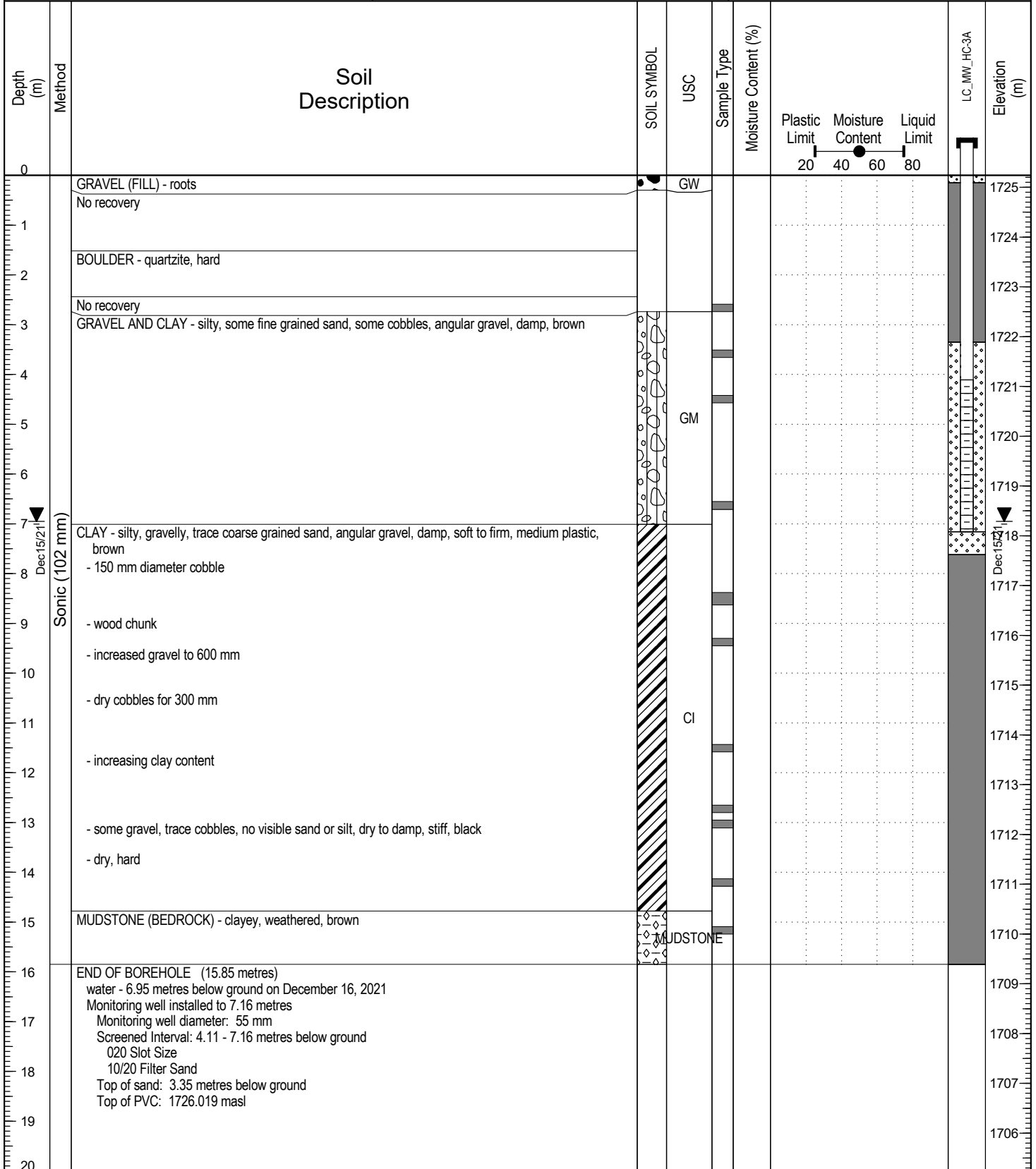
Start Date: 2021 December 8

Logged By: Carl Forkheim

Completion Date: 2021 December 8

Reviewed By: Stephan Klump

Page 1 of 1



Contractor: Mud Bay Drilling

Completion Depth: 15.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 9

Logged By: Carl Forkheim

Completion Date: 2021 December 9

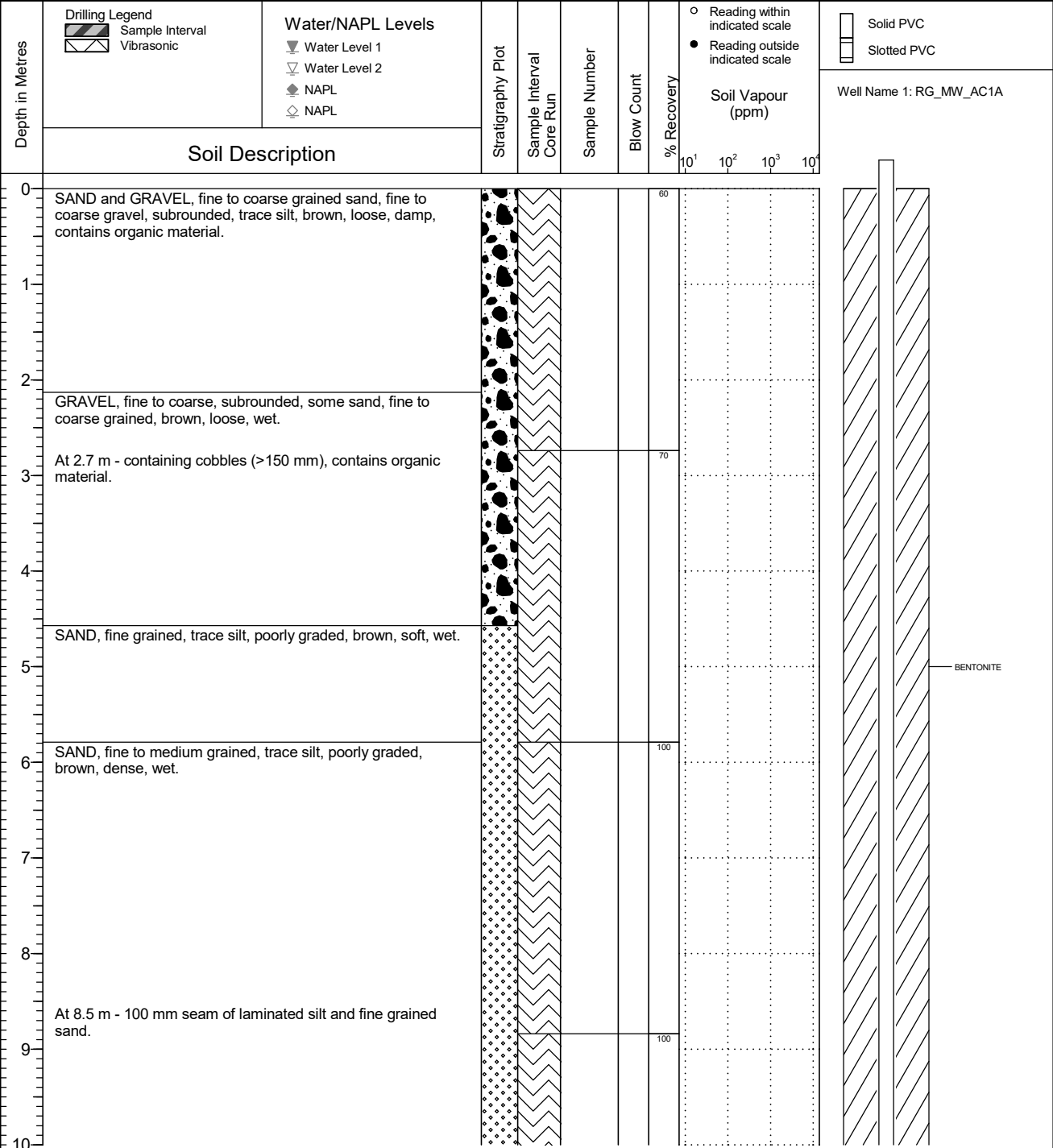
Reviewed By: Stephan Klump

Page 1 of 1

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_AC1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.926 Top of Casing Elev. (m): 1304.821 Northing: 5502845.016 Easting: 663652.864	Project Number: 683032 Borehole Logged By: AH Date Drilled: 2021 09 13 Log Typed By: VL
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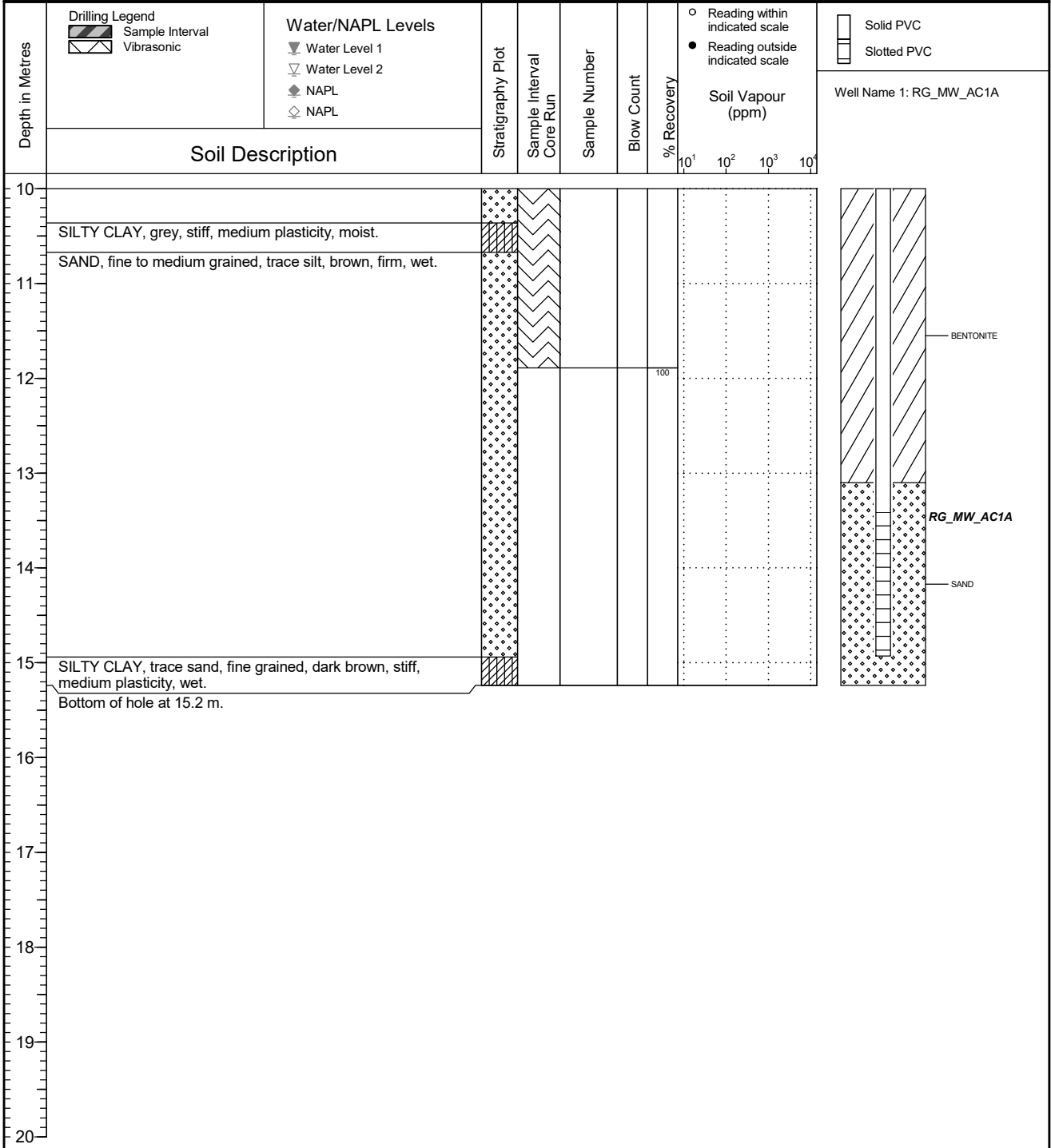
NOTES

QA/QC: KH 2022 01 25 Print Date: 2022-03-03

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_AC1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.926 Top of Casing Elev. (m): 1304.821 Northing: 5502845.016 Easting: 663652.864	Project Number: 683032 Borehole Logged By: AH Date Drilled: 2021 09 13 Log Typed By: VL
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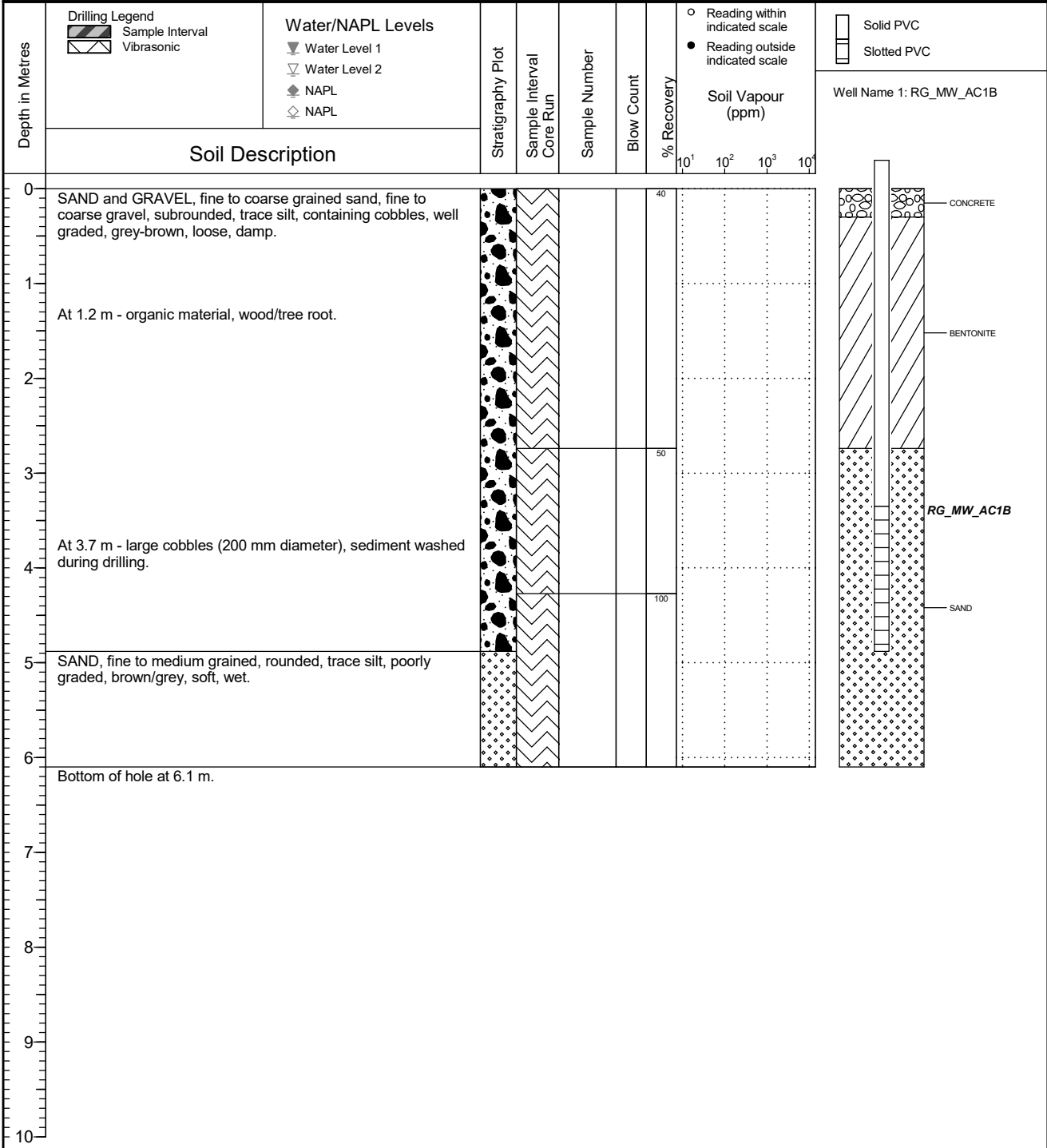


NOTES

FINAL

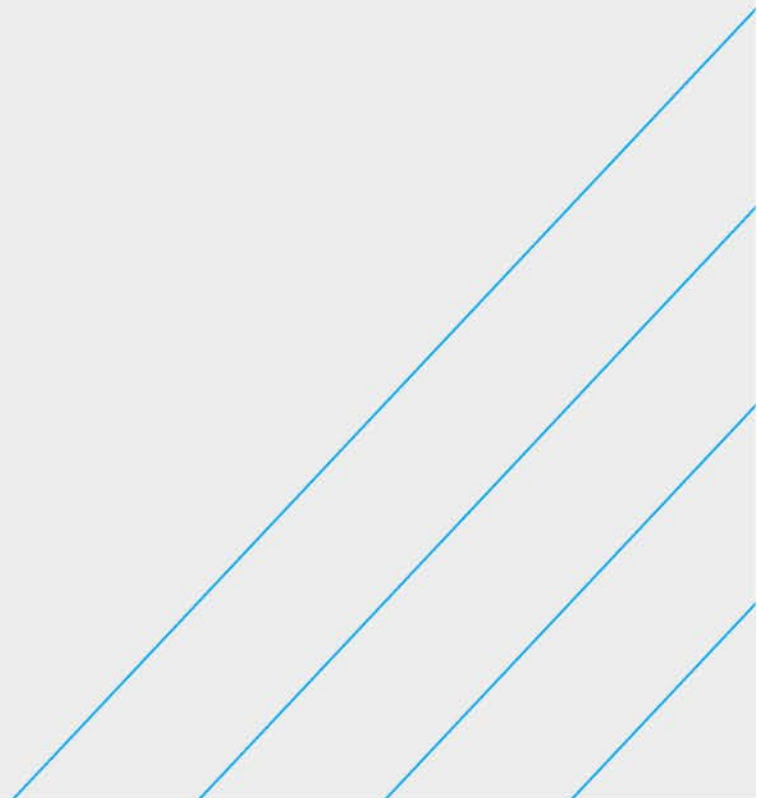
	Client Teck Coal Limited	Borehole No. : RG_BH_AC1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.989 Top of Casing Elev. (m): 1304.831 Northing: 5502844.815 Easting: 663654.387	Project Number: 683032 Borehole Logged By: MM/AH Date Drilled: 2021 09 14 Log Typed By: VL
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NOTES

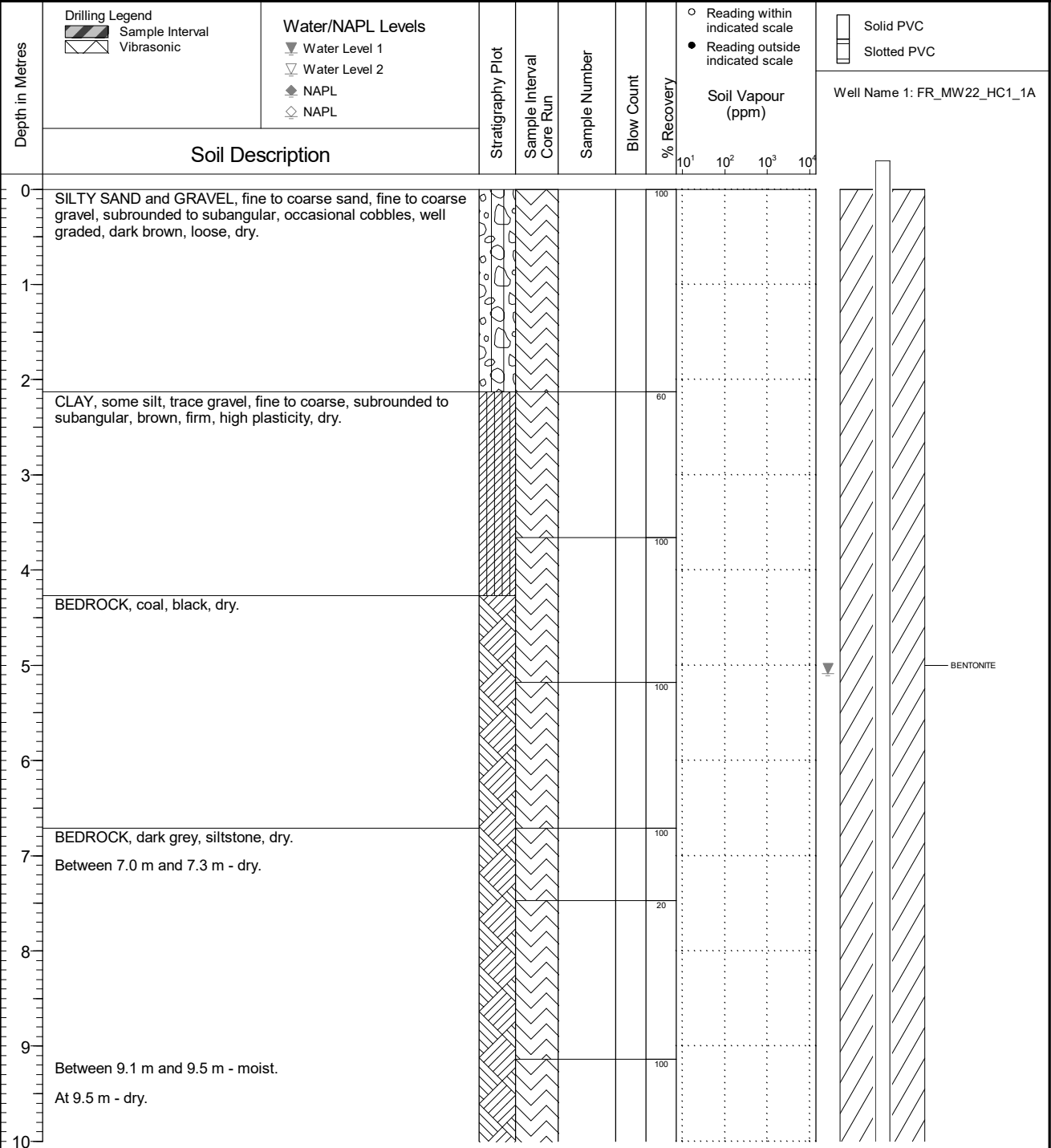
Fording River Operations Borehole Logs – Wells for Evaluation



FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_HC1_1A
	Location FRO - Henretta Creek Valley	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 19 Ground Surface Elev. (m): 1718.443 Top of Casing Elev. (m): 1719.269 Northing: 5566416.227 Easting: 652232.660	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 18 Log Typed By: LC
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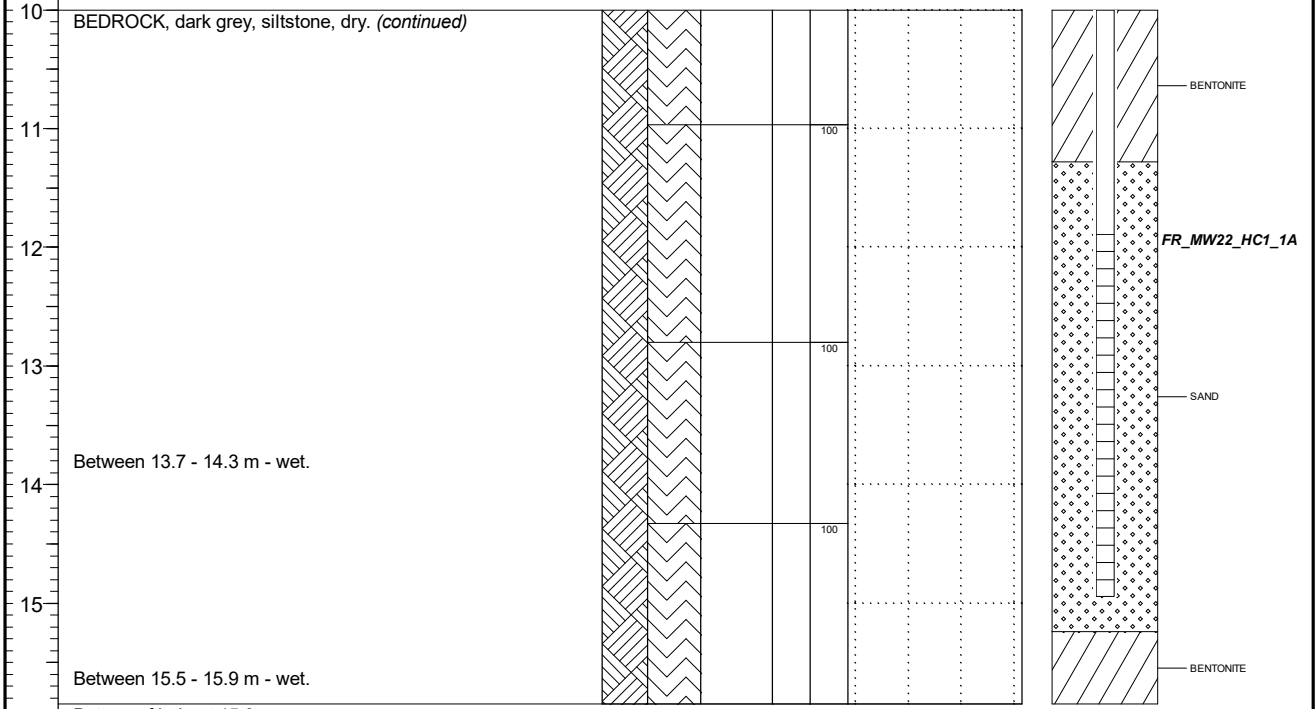
NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_HC1_1A
	Location FRO - Henretta Creek Valley	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 19 Ground Surface Elev. (m): 1718.443 Top of Casing Elev. (m): 1719.269 Northing: 5566416.227 Easting: 652232.660	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 18 Log Typed By: LC
--	---	---

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_HC1_1A
	Soil Description								



NOTES

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				COBBLES (0.0 m to 1.5 m) Gravelly, some silt, well graded, loose, angular, brown, dry, trace coal. [WASTE ROCK]							
1				0.8 m to 1.1 m - COAL Fractured, low grade, black, dry.							
2				GRAVEL (1.5 m to 4.3 m) Some silt, trace sand, well graded, angular to subangular, brown, dry, trace coal. [WASTE ROCK]							
3				3.0 m - Becomes GRAVEL, trace clay, trace cobble, dark grey.							
4				COAL (4.3 to 4.6 m) Fractured, black, dry, friable.							
5				SAND (4.6 m to 6.5 m) Gravelly, trace silt, well graded, angular, brown, dry. [WASTE ROCK]							
6		G01		COAL (6.5 m to 7.6 m) Pulverized, loose, dry, black.							
7				BOULDER (7.6 m to 9.4 m) Pulverized, loose, brown to grey, dry. [WASTE ROCK]							
8				GRAVEL (9.4 m to 11.9 m) Trace sand, trace cobble, trace silt, well graded, brown to grey, angular, dry, trace staining. [WASTE ROCK]							
9											
10											

(Continued on next page)

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
10				GRAVEL (9.4 m to 11.9 m) Trace sand, trace cobble, trace silt, well graded, brown to grey, angular, dry, trace staining. [WASTE ROCK]							
11				11.5 m - Some cobbles.							
12				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]							
13		G02									
14				14.5 m - Becomes brown.							
15				15.7 m - Becomes some clay, subrounded, trace staining.							
16		G03									
17				16.7 m - Some cobbles.							
18											
19											
20											

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
20				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]								
21												
22												
23				22.7 m - Becomes sandy, some silt, trace cobble, subrounded to subangular, compact.								
24		G04										
25				25.1 m - Fractured boulder, dry, grey.								
26												
27												
28				28.3 m - Becomes black, some coal.								
29												
30												

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
30				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]							
31				BOULDER (30.7 m to 31.2 m) Fractured, dry, grey.							
32				SAND AND GRAVEL (31.2 m to 32.0 m) Trace cobble, trace silt, well graded, loose, subangular, brown grey, dry, some coal. [WASTE ROCK]							
33				GRAVEL (32.0 m to 37.3 m) Trace cobble, some sand, well graded, angular to subangular, dark brown, wet. [WASTE ROCK]							
34											
35											
36		G05								Sample G05 (35.9 m to 36.1 m): Grain size analysis - Gravel 86%, Sand 14%, Fines 0%.	
37											
38				GRAVEL (37.3 m to 39.0 m) Silty, trace cobble, trace sand, rounded to subrounded, black, moist, some orange, brown and yellow staining, humus rich. [POSSIBLE ORIGINAL GROUND SURFACE]							
39				BOULDER (39.0 m to 39.9 m) Pulverized, grey to white, dry.							
40											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,261E, 5,566,589N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 44.2

Start Date: 30/07/2021
Finish Date: 31/07/2021
Final Depth of Hole (m): 44.2
Depth to Top of Rock (m): 41.1
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
40		G06		SAND AND GRAVEL (39.9 m to 41.1 m) Silty, subrounded to subangular, loose, black, wet, trace weathering, humus rich.						Sample G06 (40.7 m to 40.9 m): Grain size analysis - Gravel 37%, Sand 40%, Fines 22%.	
41				BEDROCK (41.1 m to 44.2 m) Dry, friable, grey.							
42											
43											
44											
45				END OF DRILL HOLE AT 44.2 m							
46				Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC1A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 39.5 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 39.5 mbgs to 41.0 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 39.2 m bgs to 41.5 m bgs, bentonite chips from surface to 39.2 m bgs, and from 41.5 m bgs to 44.2 m bgs. 6. The monitoring well was completed at surface with 0.85 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 30.1 m bgs on August 2, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
47											
48											
49											
50											

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)	
							W _p %	W _L %	W _U %			
0				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.			● SPT/LPT (Blows/300mm)	×	○	×		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.							
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
20				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.							
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.	▼ 02/08/21						
31											
32											
33											
34											
35											
36											
37				END OF DRILL HOLE AT 36.3 m							
38				Notes: 1. Monitoring well (FR_MW-HC1B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 32.9 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 32.9 m bgs to 36 m bgs. 2. The monitoring well was completed with 10-20 filter sand from 32.6 m bgs to 36.3 m bgs, and bentonite chips from surface to 32.6 m bgs. 3. The monitoring well was completed at surface with 0.79 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 30.3 m bgs on August 2, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
39											
40											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				GRAVEL (0.0 m to 2.1 m) Some sand, trace cobble, trace silt, well graded, loose, angular, grey to brown, dry, homogeneous, trace weathering, trace coal. [WASTE ROCK]							
1											
2		G01		GRAVEL AND SAND (2.1 m to 4.6 m) Trace cobble, some silt, well graded, loose, angular to subangular, dry, brown grey. [WASTE ROCK]							
3											
4				4.3 m - Becomes GRAVEL, some sand, compact, brown, moist.							
5				SAND (4.6 m to 7.0 m) Gravelly, well graded, subangular, loose, grey, dry, homogeneous. [WASTE ROCK]							
6											
7				GRAVEL (7.0 m to 13.7 m) Some sand, trace silt, trace cobble, well graded, angular, dark brown, dry, some coal. [WASTE ROCK]							
8		G02									
9											
10				9.9 m - Boulder, fractured, loose, dry, grey.							

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TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
10				GRAVEL (7.0 m to 13.7 m) Some sand, trace silt, trace cobble, well graded, angular, dark brown, dry, some coal. [WASTE ROCK]							
11											
12				12.0 m to 13.1 m - COAL Low grade, fractured, loose, black, dry.							
13											
14				SAND (13.7 m to 18.5 m) Some gravel, angular to subangular, brown, dry. [WASTE ROCK]							
15		G03									
16				15.4 m to 16.0 m - COAL Low grade, fractured, loose, black, dry.							
17				17.3 m - Boulders, fractured, dry.							
18											
19				GRAVEL (18.5 m to 26.9 m) Trace silt, trace sand, trace clay, well graded, friable, angular to subangular, grey, moist. [WASTE ROCK]							
20		G04									

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
20				GRAVEL (18.5 m to 26.9 m) Trace silt, trace sand, trace clay, well graded, friable, angular to subangular, grey, moist. [WASTE ROCK]							
21				20.8 m - Becomes some cobbles, dry.							
22											
23											
24											
25				25.2 m to 26.0 m - COAL Low grade, loose, moist, black.							
26				26.0 m - Fractured boulders.							
27				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK]							
28				28.3 m to 28.8 m - COAL Low grade, dry.							
29				28.8 m - Becomes GRAVEL, silty, some sand, trace cobble, compact, subangular, brown, moist, trace weathering. [WASTE ROCK]							
30											

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK]							
31				30.9 m - Trace woody debris.							
32	G	G05		31.8 m - Becomes moist to wet. 32.0 m - Becomes GRAVEL AND SAND, some clay, trace silt, trace cobbles, well graded, compact, rounded to subrounded, brown, moist, multilithic, trace wood debris, trace weathering.							
33											
34											
35				35.0 m - Becomes SAND, gravelly, angular, some woody debris (sticks and possible weathered lumber)							
36											
37				37.0 m - Becomes GRAVEL, sandy, trace silt, poorly graded, subrounded, grey, moist to wet, trace weathering.							
38	G	G06		38.1 m - Becomes silty.							
39											
40	G	G07		39.3 m - Becomes wet.						Sample G07 (39.5 m to 39.7 m): Grain size analysis - Gravel 45%, Sand 34%, Fines 21%.	

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
40				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK] 40.4 m - Becomes silty, some sand.								
41				41.0 m - Becomes sandy.								
42				42.3 m - Becomes SILT, gravelly, some clay, trace cobble, grey, moist to dry, compact, trace roots and woody debris.								
43	☞	G08										
44												
45												
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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
50				SILT (49.7 m to 50.6 m) Gravelly, trace sand, well graded, dense, rapid dilatency, low plasticity, brown, wet, white and orange staining, trace coal, organic debris / roots present. [POSSIBLE ORIGINAL GROUND SURFACE]							
51		G09		GRAVEL (50.6 m to 62.3 m) Some silt, trace sand, trace cobble, well graded, very dense, subrounded to subangular, grey brown, dry to moist, stratified. [TILL]							
52				52.0 m to 52.3 m - Becomes SILT, gravelly, moist.							
53											
54											
55											
56											
57		G10		56.4 m - Becomes GRAVEL, silty, some cobbles.							
58											
59											
60				59.4 m - Becomes GRAVEL, some silt, some sand, trace clay, trace cobble, dark brown, moist, trace weathering.							

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,598N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 64.0

Start Date: 27/07/2021
Finish Date: 29/07/2021
Final Depth of Hole (m): 64.0
Depth to Top of Rock (m): 62.3
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
60				GRAVEL (50.6 m to 62.3 m) Some silt, trace sand, trace cobble, well graded, very dense, subrounded to subangular, grey brown, dry to moist, stratified. [TILL]							
61				61.5 m - Boulder, fractured, grey, dry.							
62				BEDROCK (62.3 m to 64.0 m) Pulverized, grey, dry.							
63											
64				END OF DRILL HOLE AT 64.0 m							
65				Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC2A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 50.2 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 50.2 mbgs to 53.3 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 50 m bgs to 53.6 m bgs, bentonite chips from surface to 50 m bgs, and from 53.6 m bgs to 64.0 m bgs. 6. The monitoring well was completed at surface with 0.91 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 35.4 m bgs on August 2, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
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67											
68											
69											
70											

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,597N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 42.7

Start Date: 30/07/2021
 Finish Date: 30/07/2021
 Final Depth of Hole (m): 42.7
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.								
11												
12												
13												
14												
15												
16												
17												
18												
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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
20				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
31											
32											
33											
34											
35											
36					▼ 02/08/21						
37											
38											
39											
40											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
40				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
41											
42											
43				END OF DRILL HOLE AT 42.7 m							
44				Notes: 1. Monitoring well (FR_MW-HC2B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 39.3 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 39.3 mbgs to 42.4 mbgs. 2. The monitoring well was completed with 10-20 filter sand from 38.9 m bgs to 42.7 bgs, and bentonite chips from surface to 38.9 m bgs. 3. The monitoring well was completed at surface with 0.91 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 35.8 m bgs on August 2, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
45											
46											
47											
48											
49											
50											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,580E, 5,566,548N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 27.4

Start Date: 02/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 27.4
 Depth to Top of Rock (m): 24.0
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				COAL (0.0 m to 0.8 m) Fractured, low grade, loose, black, dry. [WASTE ROCK]							
1				GRAVEL (0.8 m to 10.0 m) Some sand, trace cobble, well graded, subangular, brown, moist, trace weathering. [WASTE ROCK]							
4				3.9 m to 4.5 m - Boulder, fractured, grey, dry.							
5				5.1 m - Becomes angular to subangular, dry, trace coal.							
7		G01									
9				9.1 m - Boulder, pulverized, grey, dry.							

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,580E, 5,566,548N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 27.4

Start Date: 02/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 27.4
 Depth to Top of Rock (m): 24.0
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
10				GRAVEL (10.0 m to 10.7 m) Some sand, trace silt, some cobbles, trace clay, well graded, subangular, grey, moist to wet. [WASTE ROCK]						Sample G02 (10.3 m to 10.5 m): Grain size analysis - Gravel 80%, Sand 14%, Fines 6%.	
11		G02		GRAVEL (10.7 m to 14.9 m) Some cobbles, trace sand, trace clay, well graded, rounded to subrounded, grey to brown, moist to wet. [FLUVIAL]							
13											
14		G03									
15				GRAVEL (14.9 m to 24.0 m) Trace sand, trace silt, trace cobble, well graded, angular to subangular, brown, wet. [COLLUVIUM]							
16											
17											
18											
19											
20		G04		19.8 m - Becomes angular.						Sample G04 (19.4 m to 19.6 m): Grain size analysis - Gravel 86%, Sand 9%, Fines 5%.	

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,580E, 5,566,548N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 27.4

Start Date: 02/08/2021
Finish Date: 03/08/2021
Final Depth of Hole (m): 27.4
Depth to Top of Rock (m): 24.0
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
20				GRAVEL (14.9 m to 24.0 m) Trace sand, trace silt, trace cobble, well graded, angular to subangular, brown, wet. [COLLUVIUM]							
21											
22											
23				22.8 m - Becomes GRAVEL AND SAND, trace clay, trace cobble, well graded, angular to subangular, grey, moist, trace weathering.							
24	G05			BEDROCK (24.0 m to 27.4 m) Pulverized, dry, grey.							
25											
26											
27											
28				END OF DRILL HOLE AT 27.4 m							
29				Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC3A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 18.9 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 18.9 mbgs to 21.9 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 18.6 m bgs to 22.2 m bgs, bentonite chips from surface to 18.5 m bgs, and from 22.2 m bgs to 27.4 m bgs. 6. The monitoring well was completed at surface with 0.83 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 9.3 m bgs on August 3, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
30											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21

BGC ENGINEERING INC.
 AN APPLIED EARTH SCIENCES COMPANY

Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,581E, 5,566,547N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 14.0

Start Date: 03/08/2021
Finish Date: 03/08/2021
Final Depth of Hole (m): 14.0
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				[WASTE ROCK] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
1											
2											
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7											
8											
9											
10											

▼
03/08/21

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,581E, 5,566,547N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 14.0

Start Date: 03/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 14.0
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
11				[FLUVIAL] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
12											
13											
14				END OF DRILL HOLE AT 14.0 m							
15				Notes: 1. Monitoring well (FR_MW-HC3B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 10.1 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 10.1 mbgs to 13.1 mbgs. 2. The monitoring well was completed with 10-20 filter sand from 9.8 m bgs to 14.0 bgs, and bentonite chips from surface to 9.8 m bgs. 3. The monitoring well was completed at surface with 0.80 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 9.3 m bgs on August 3, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
16											
17											
18											
19											
20											

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021

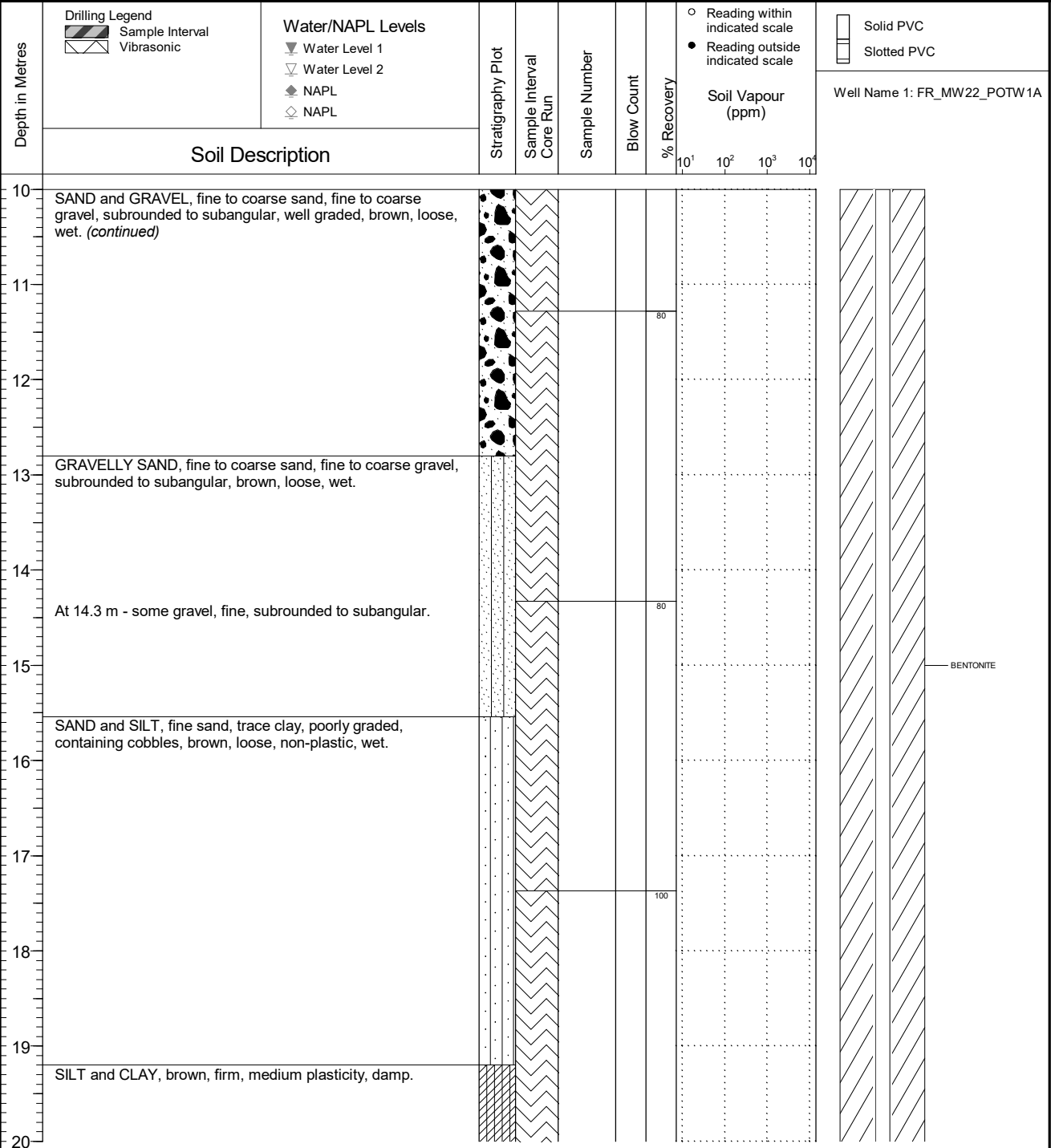


All noted depths are in metres along hole.

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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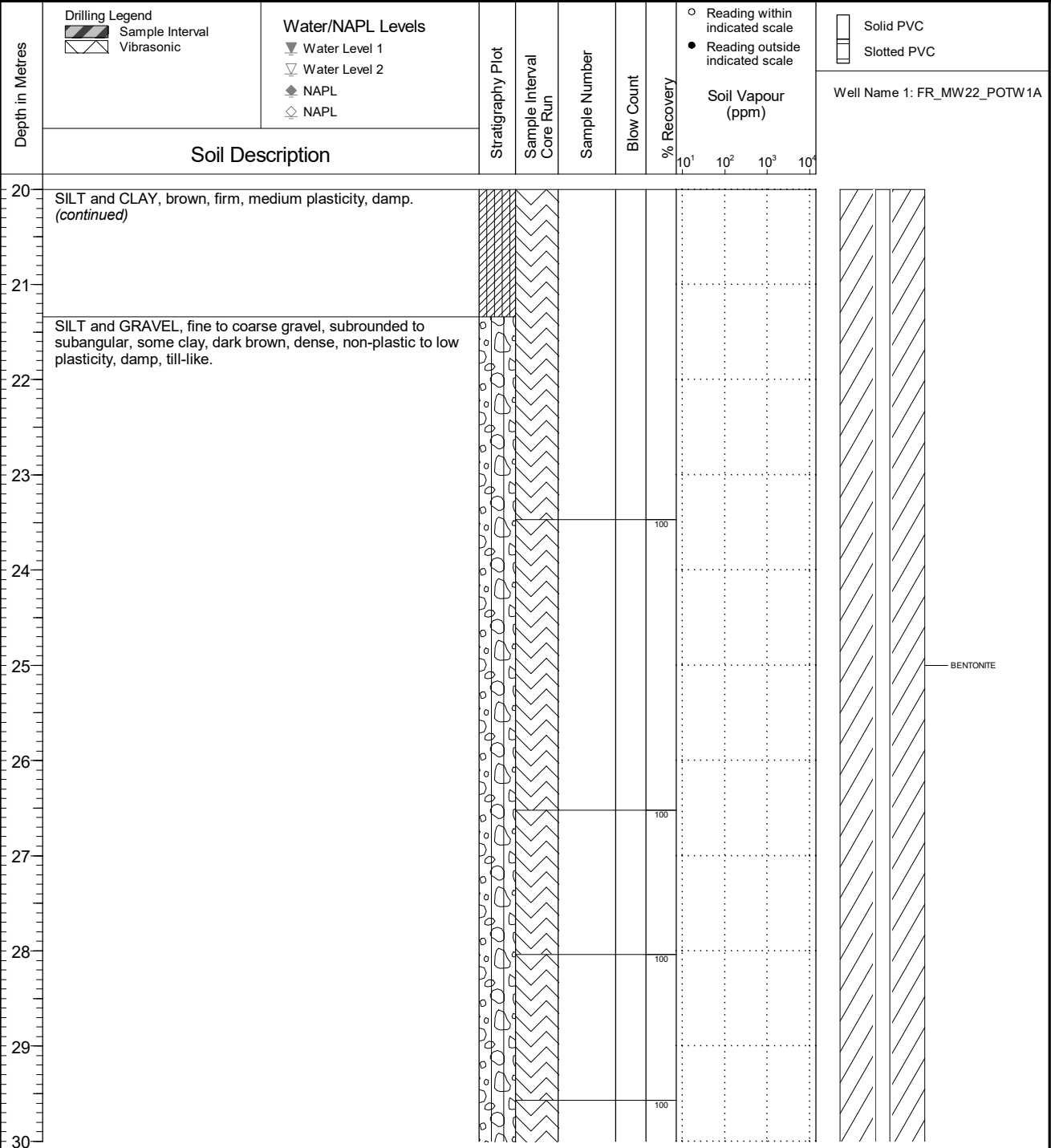


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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FINAL

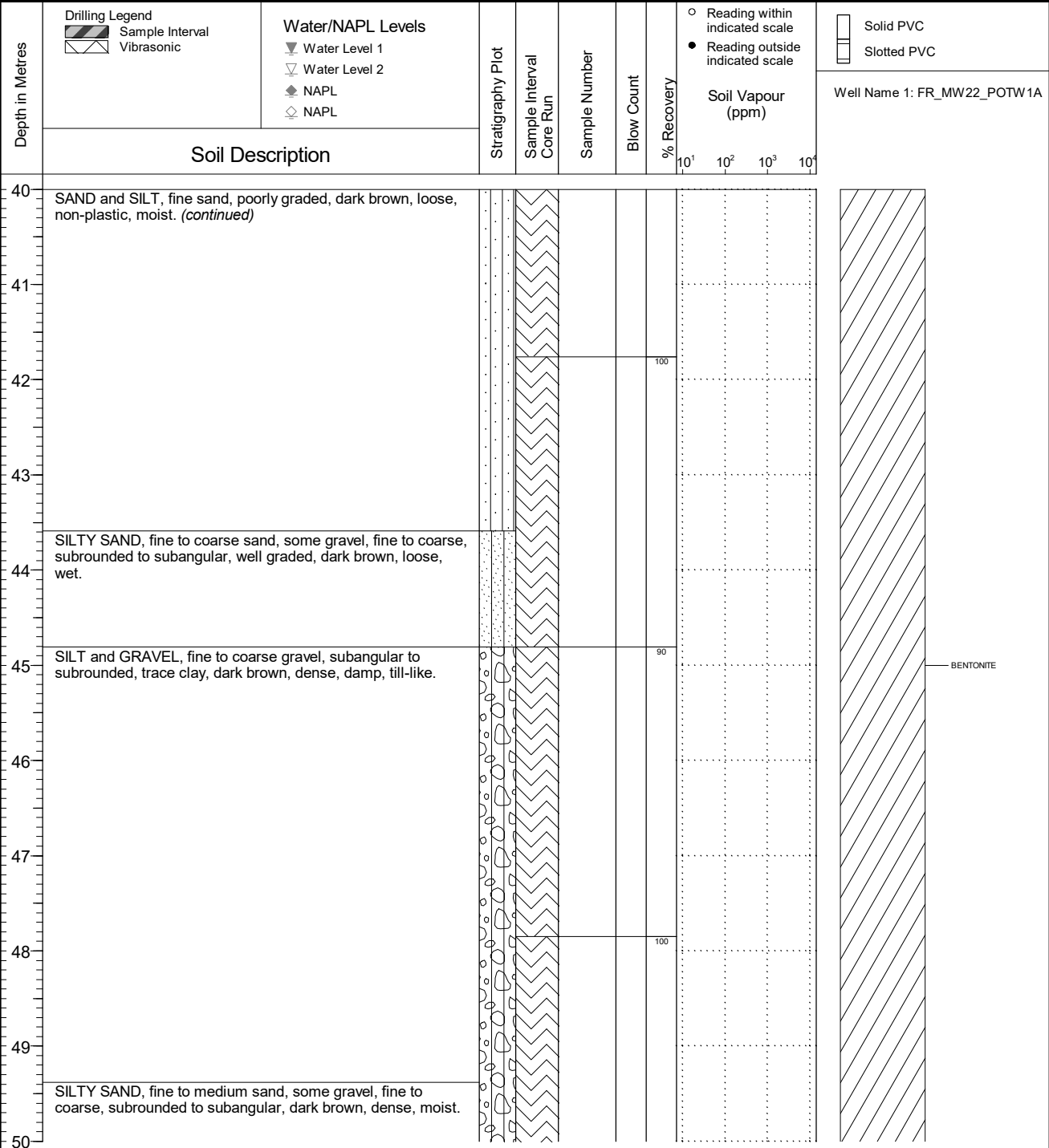
		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW1A	
		Location FRO - Potwells		PAGE 4 OF 6	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 18		Project Number: 692207	
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1684.332		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1685.324		Date Drilled: 2022 08 13	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565188.275		Easting: 651189.554	
Drilling Legend		Water/NAPL Levels		Soil Vapour (ppm)	
Sample Interval Vibrasonic		Water Level 1 Water Level 2 NAPL NAPL		○ Reading within indicated scale ● Reading outside indicated scale	
Solid PVC Slotted PVC		Well Name 1: FR_MW22_POTW1A			
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count
					% Recovery
					10 ¹ 10 ² 10 ³ 10 ⁴
30	SILT and GRAVEL, fine to coarse gravel, subrounded to subangular, some clay, dark brown, dense, non-plastic to low plasticity, damp, till-like. <i>(continued)</i>				
31					
32					
33	SILTY SAND, fine to coarse sand, some gravel, fine, subrounded to subangular, some clay, well graded, dark brown, loose, wet.				100
34	SILT and SAND, fine sand, some clay, trace gravel, fine, subrounded to subangular, dark brown, soft, low plasticity, moist. At 33.8 m - some gravel.				
35	SILTY, GRAVELLY SAND, fine to coarse sand, fine to coarse gravel, subrounded to subangular, some clay, well graded, dark brown, loose, wet.				
36					100
37	SAND and SILT, fine sand, poorly graded, dark brown, loose, non-plastic, moist.				
38					
39					100
40					

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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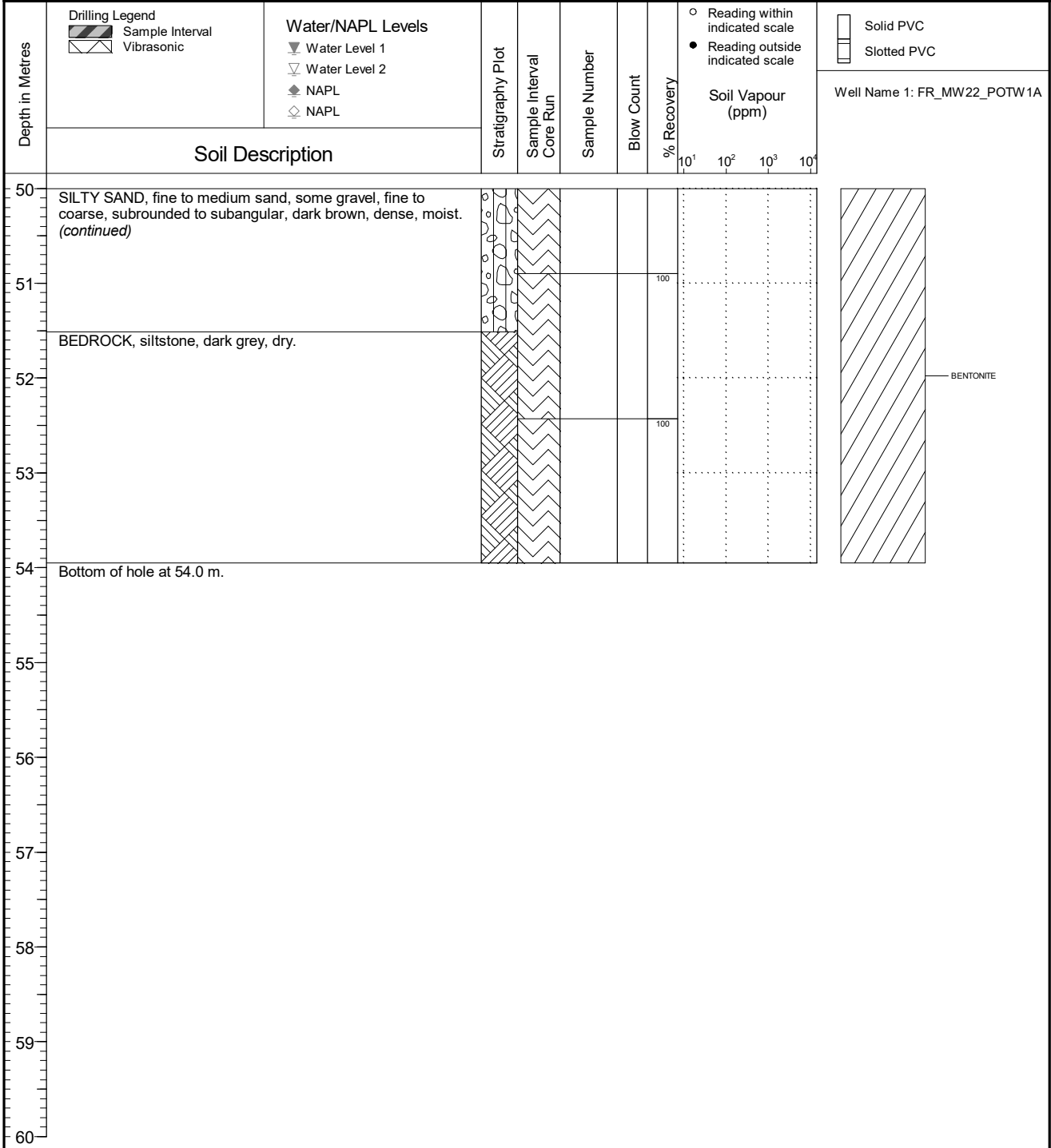


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 6 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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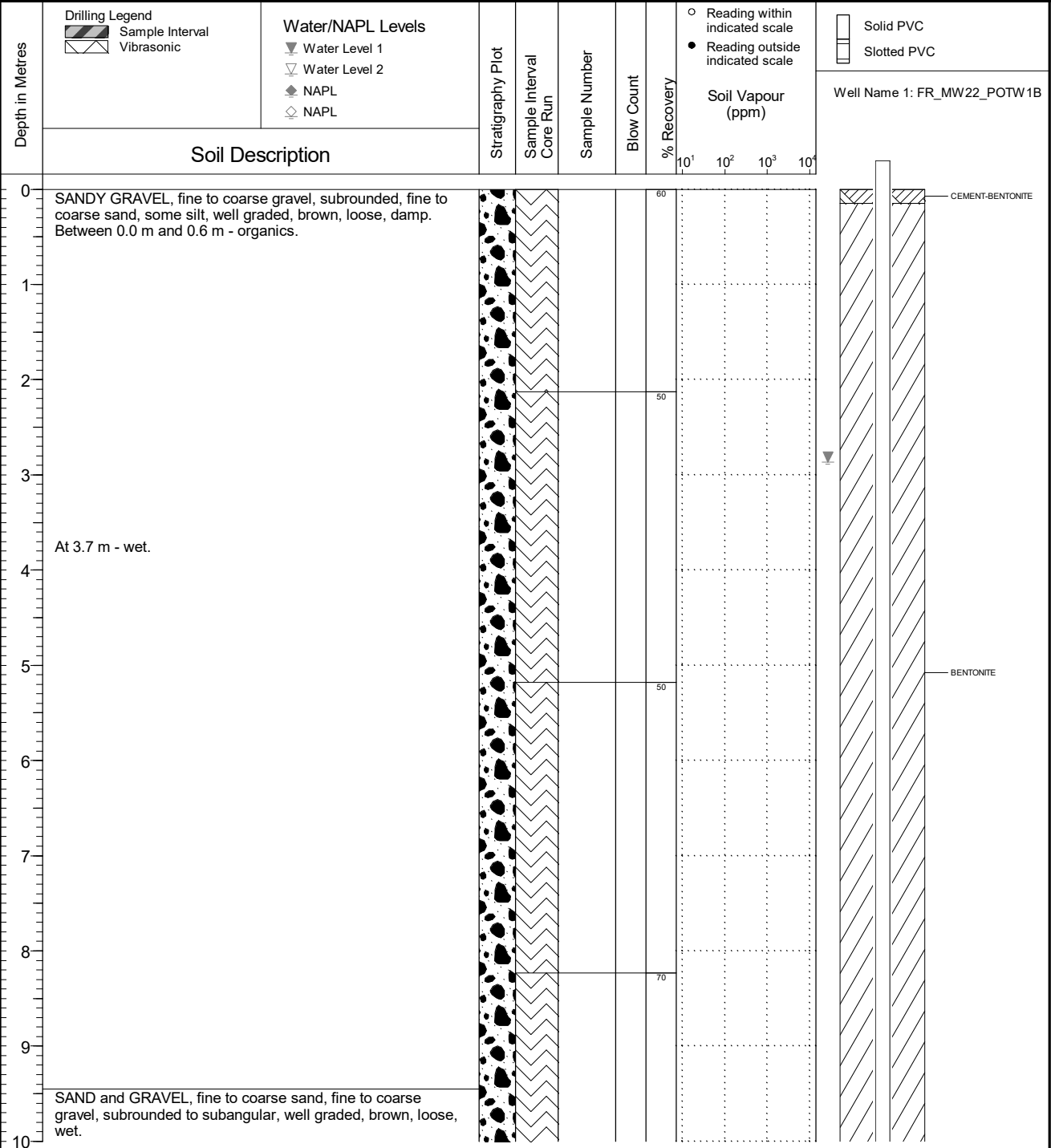


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1B
	Location FRO - Potwells	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.308 Top of Casing Elev. (m): 1685.379 Northing: 5565187.739 Easting: 651189.056	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 15 Log Typed By: LC
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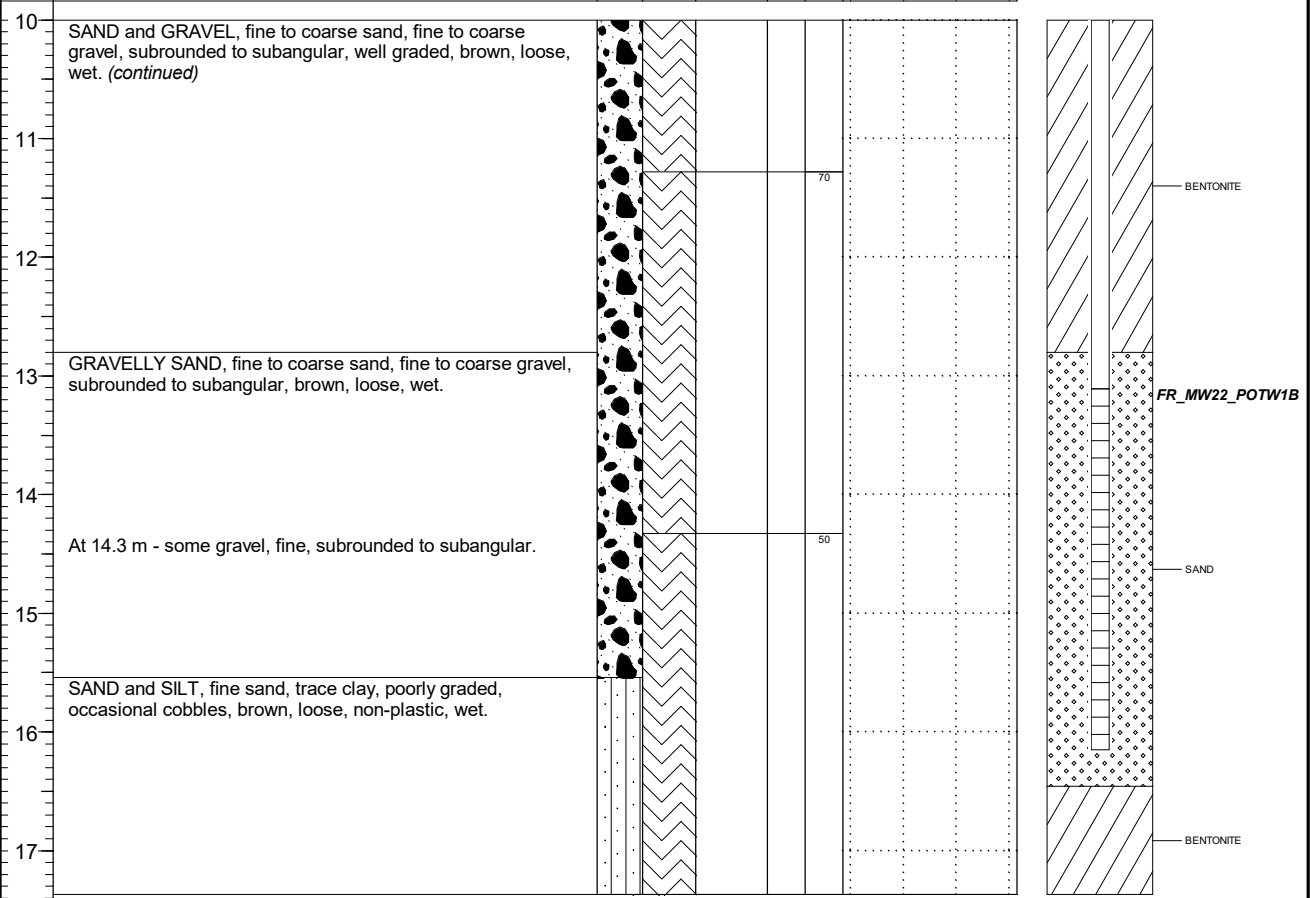
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1B
	Location FRO - Potwells	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.308 Top of Casing Elev. (m): 1685.379 Northing: 5565187.739 Easting: 651189.056	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 15 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_POTW1B
	Soil Description								



NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : FR_BH22_POTW1C

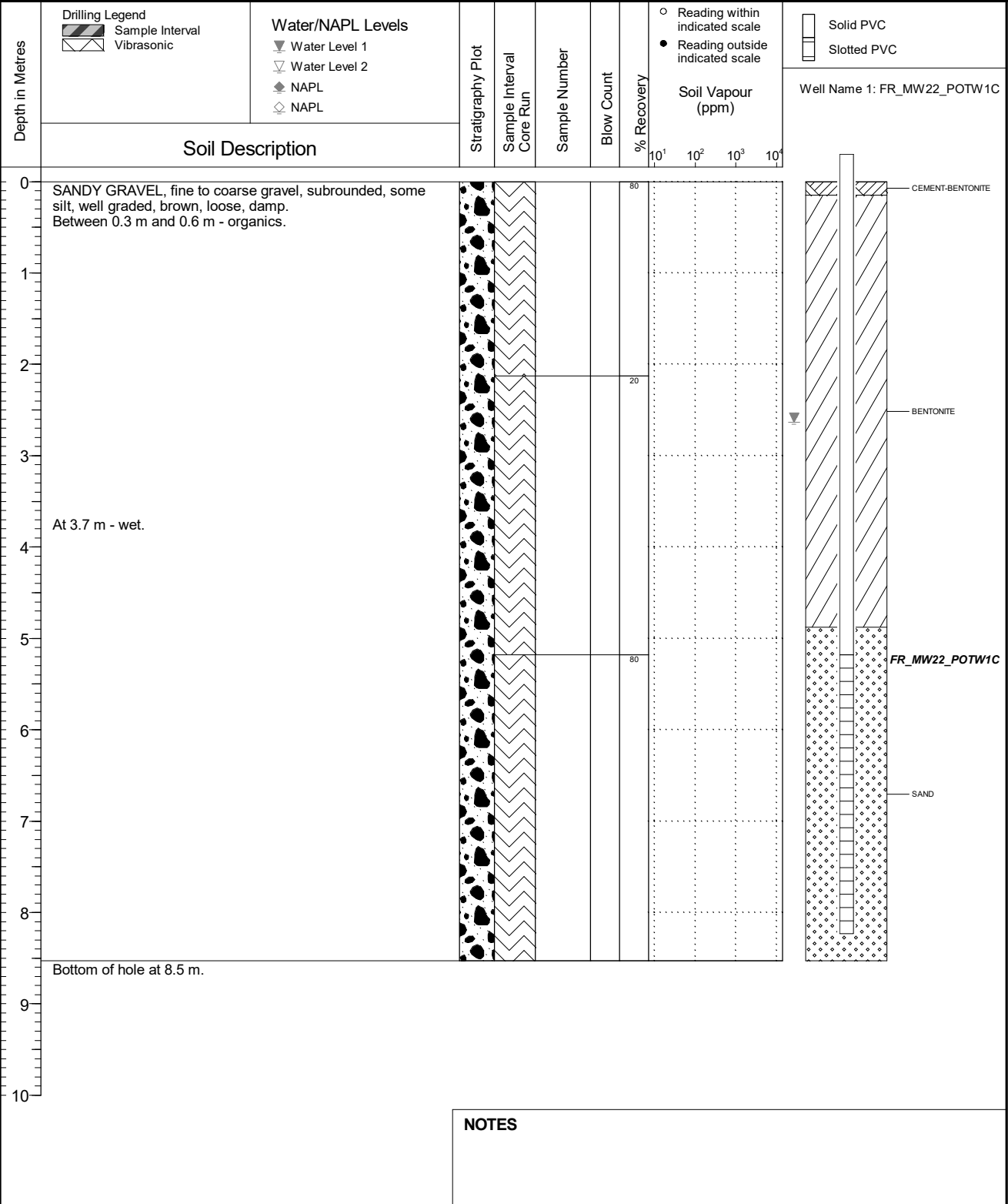
Location
FRO - Potwells

PAGE 1 OF 1

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2022 08 18
Ground Surface Elev. (m) 1684.345
Top of Casing Elev. (m) 1685.354
Northing: 5565187.167 Easting: 651188.530

Project Number: 692207
Borehole Logged By: MTB
Date Drilled: 2022 08 16
Log Typed By: LC

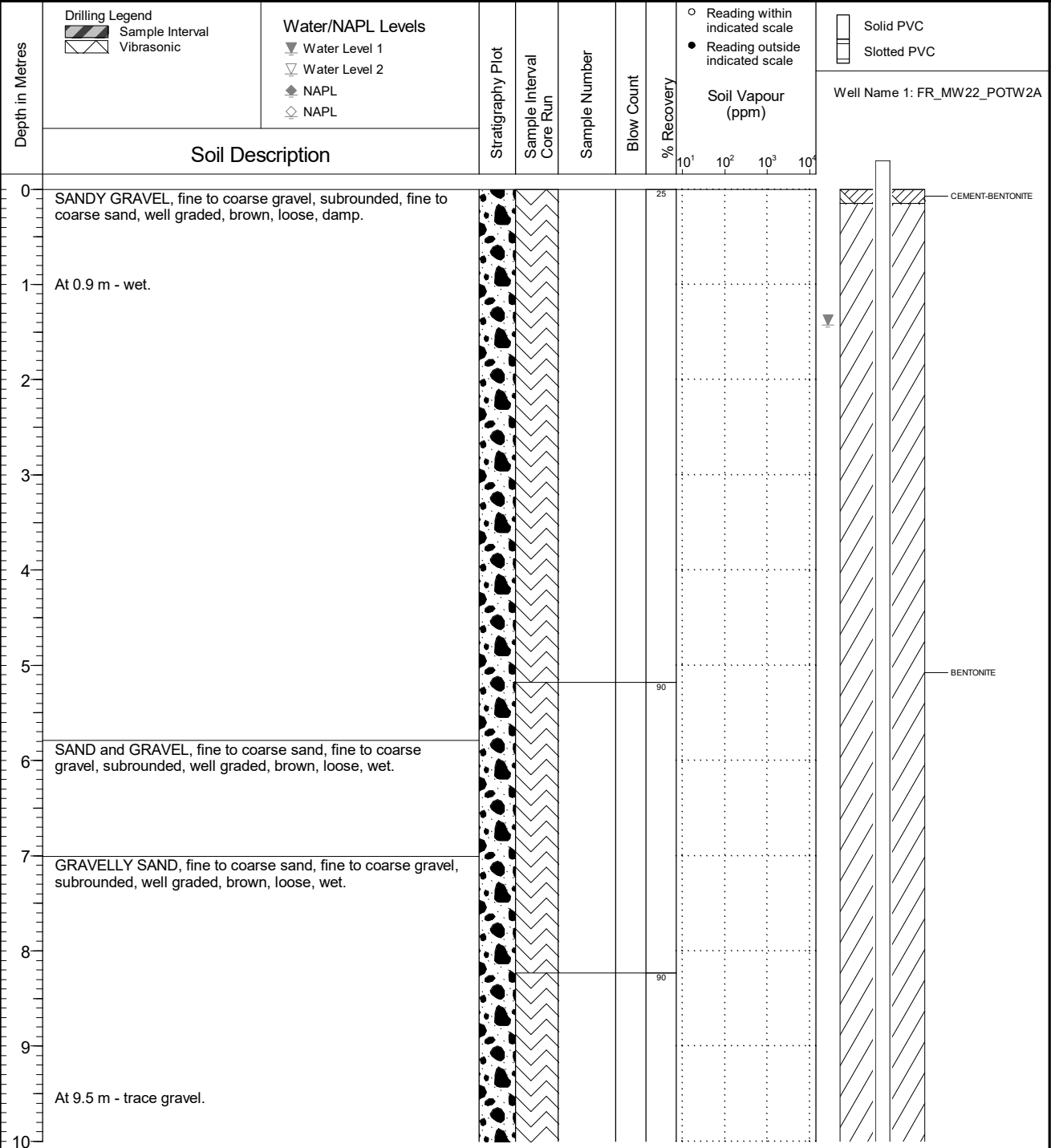


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 1 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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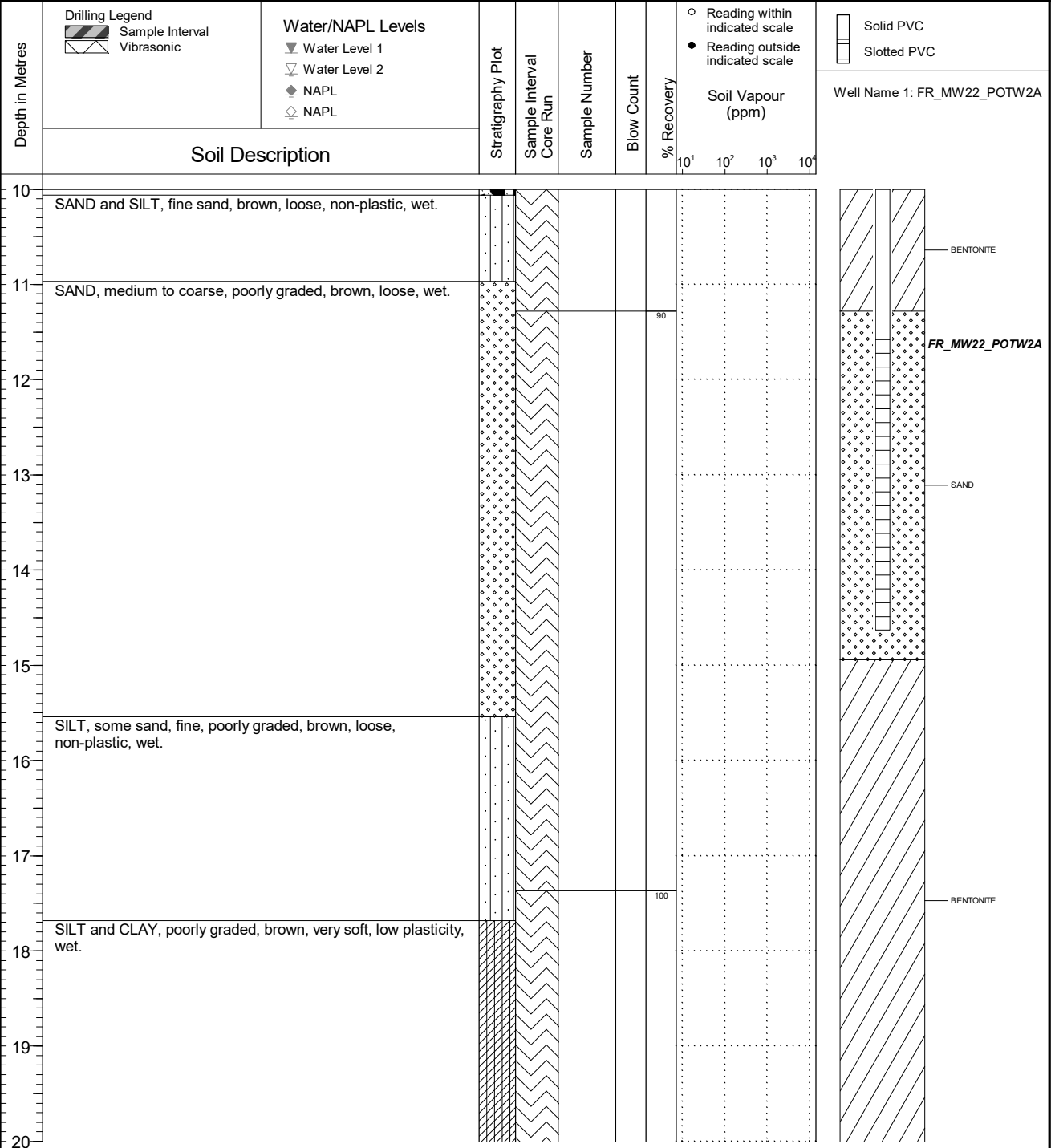


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 2 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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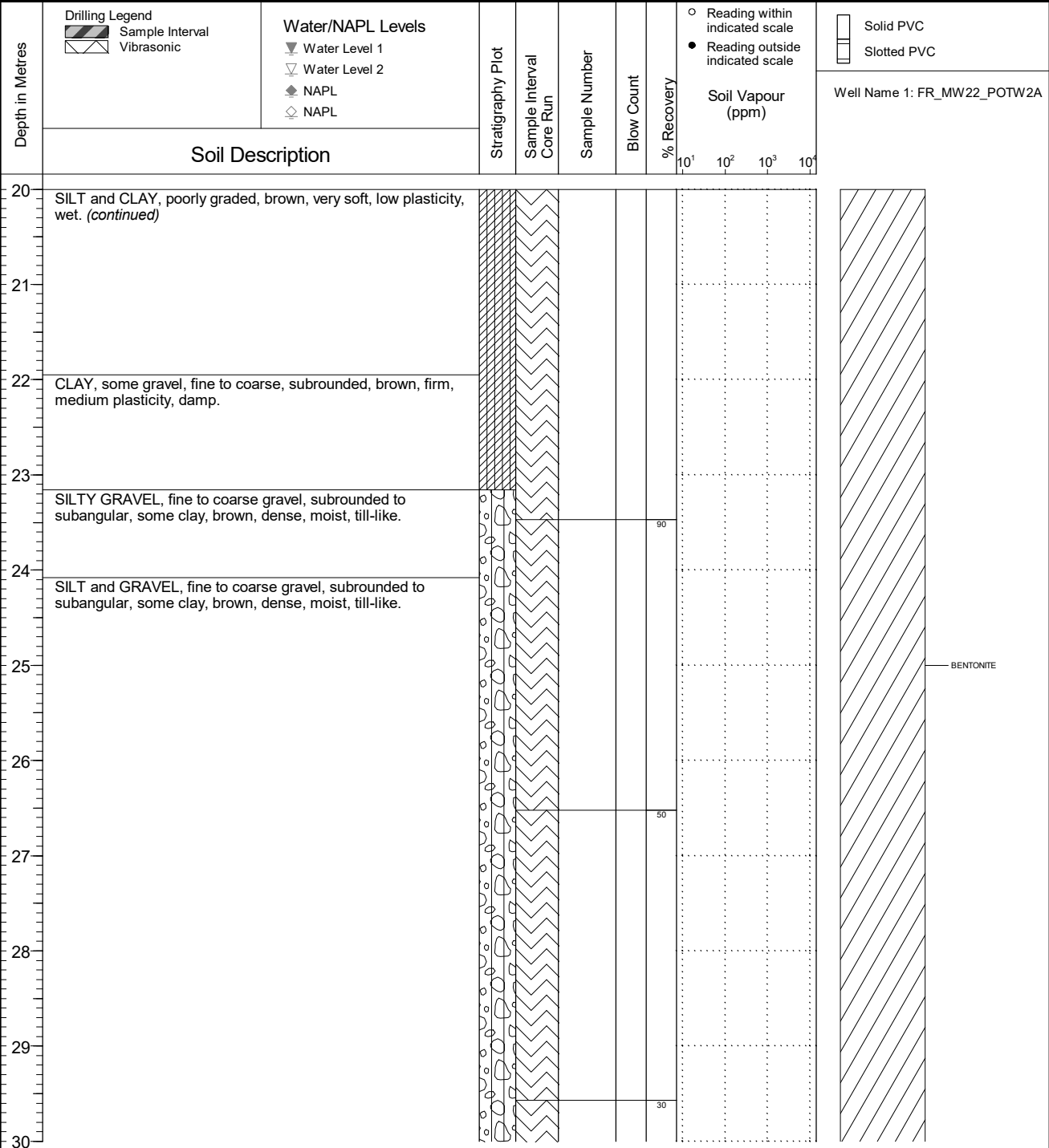


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 3 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A								
		Location FRO - Potwells		PAGE 4 OF 7								
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 12		Project Number: 692207		Borehole Logged By: MTB						
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1679.614		Borehole Logged By: MTB		Date Drilled: 2022 08 07						
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1680.519		Date Drilled: 2022 08 07		Log Typed By: LC						
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565024.168		Easting: 651039.776								
Depth in Metres	Drilling Legend Sample Interval Vibrasonic		Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL		Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴		Solid PVC Slotted PVC
	Soil Description											Well Name 1: FR_MW22_POTW2A
30	SILT and GRAVEL, fine to coarse gravel, subrounded to subangular, some clay, brown, dense, moist, till-like. <i>(continued)</i>											
31												
32												
33	SAND and SILT, fine sand, trace clay, poorly graded, dark brown, loose, non-plastic, moist.							100				
34												
35												
36								100				
37	GRAVELLY SILT, fine to coarse gravel, subrounded to subangular, some clay, dark brown, soft, low plasticity, damp, till-like.											
38	At 37.6 m - containing cobbles.							100				
39								100				
40												
NOTES 												

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A					
		Location FRO - Potwells		PAGE 5 OF 7					
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 12		Project Number: 692207					
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1679.614		Borehole Logged By: MTB					
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1680.519		Date Drilled: 2022 08 07					
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565024.168		Easting: 651039.776					
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565024.168		Easting: 651039.776					
Depth in Metres	Drilling Legend Sample Interval Vibrosonic		Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL		○ Reading within indicated scale ● Reading outside indicated scale				
	Soil Description		Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery		
						Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴			
40	GRAVELLY SILT, fine to coarse gravel, subrounded to subangular, some clay, dark brown, soft, low plasticity, damp, till-like. <i>(continued)</i> At 40.2 m - some gravel.								
41									
42	At 42.3 m - no gravel.								
43									
44									
45	At 45.4 m - some gravel, fine to coarse, subrounded to subangular.								
46									
47	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark brown, soft, non-plastic, wet.								
48									
49	At 49.4 m - encountered artesian flow.								
50									
NOTES									

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A								
		Location FRO - Potwells		PAGE 6 OF 7								
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776		Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC								
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Reading within indicated scale Reading outside indicated scale				Solid PVC Slotted PVC	
	Soil Description						Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴				Well Name 1: FR_MW22_POTW2A	
50	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark brown, soft, non-plastic, wet. (continued)			100	100	100	100	100	100	100	100	100
51												
52	Between 52.1 m and 52.4 m - siltstone, dark grey.			100	100	100	100	100	100	100	100	100
53	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark grey, dense, wet.											
54				100	100	100	100	100	100	100	100	100
55	Between 54.9 m and 55.2 m - siltstone, dark grey.											
56	Between 55.5 m and 56.1 m - siltstone, dark grey.			100	100	100	100	100	100	100	100	100
57	SILTSTONE, dark grey.											
58				50	50	50	50	50	50	50	50	50
59												
60				50	50	50	50	50	50	50	50	50
61												
NOTES												

BENTONITE

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 7 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description								Well Name 1: FR_MW22_POTW2A

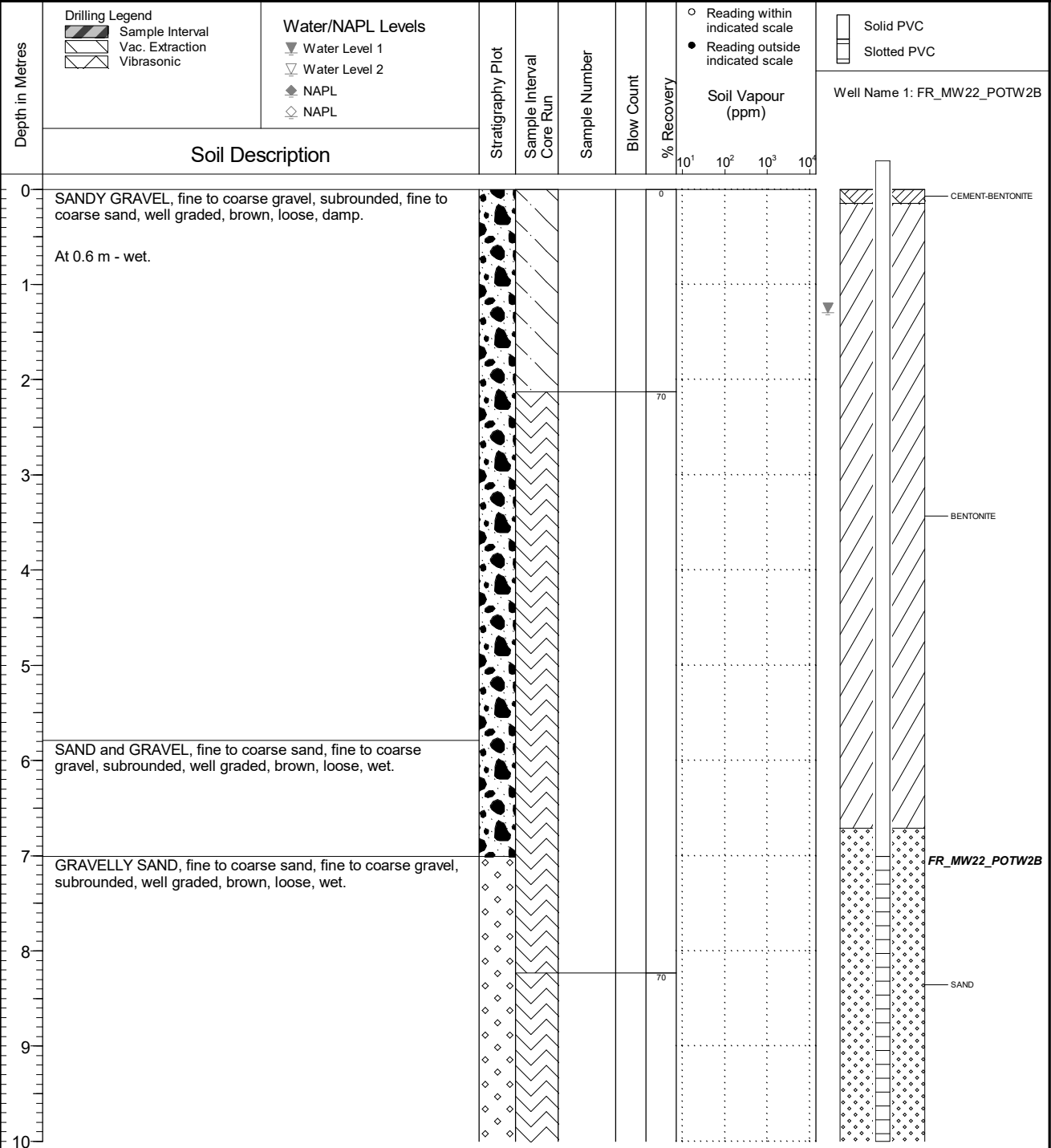


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2B
	Location FRO - Potwells	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.618 Top of Casing Elev. (m): 1680.494 Northing: 5565021.279 Easting: 651038.914	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 10 Log Typed By: LC
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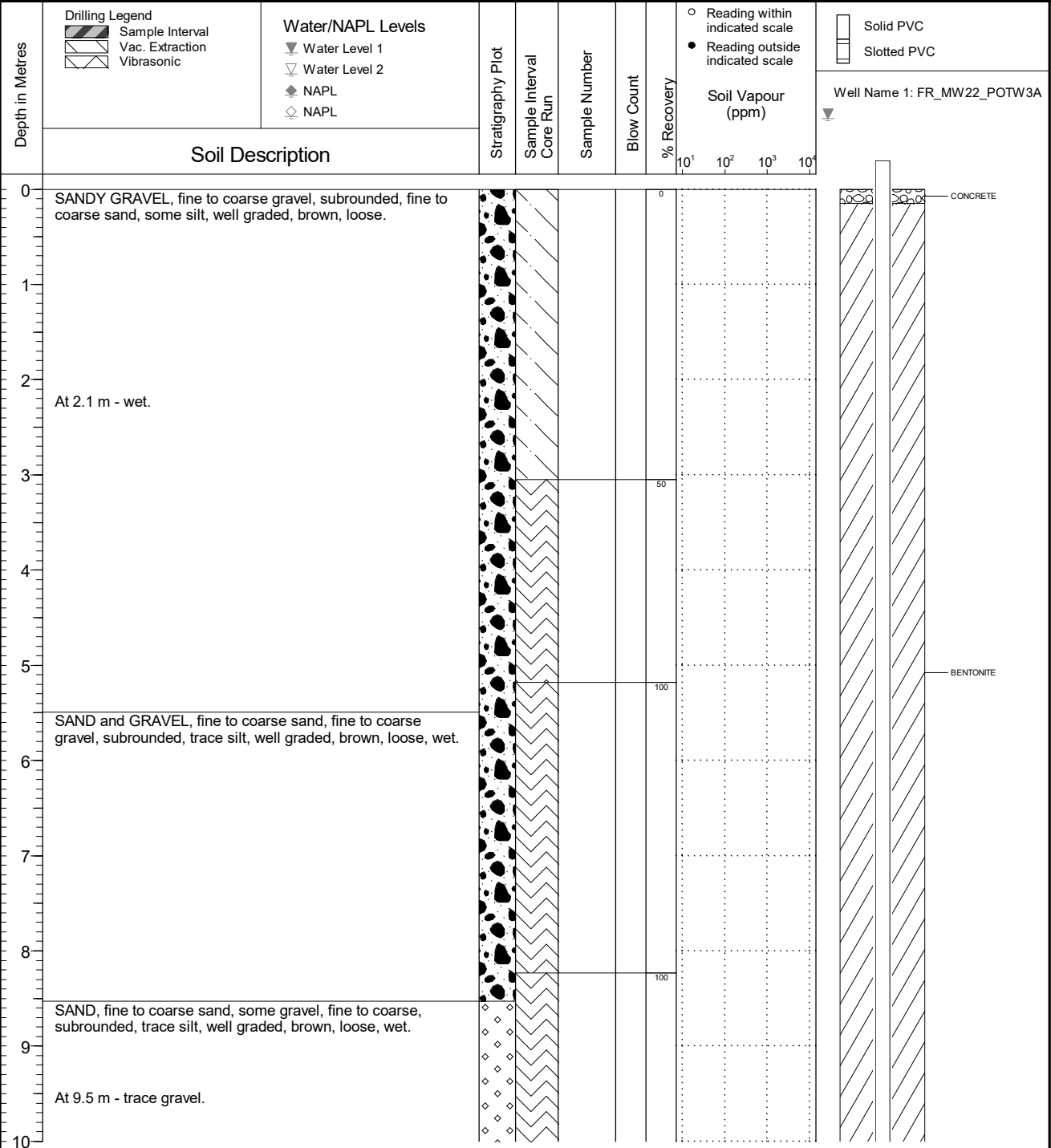


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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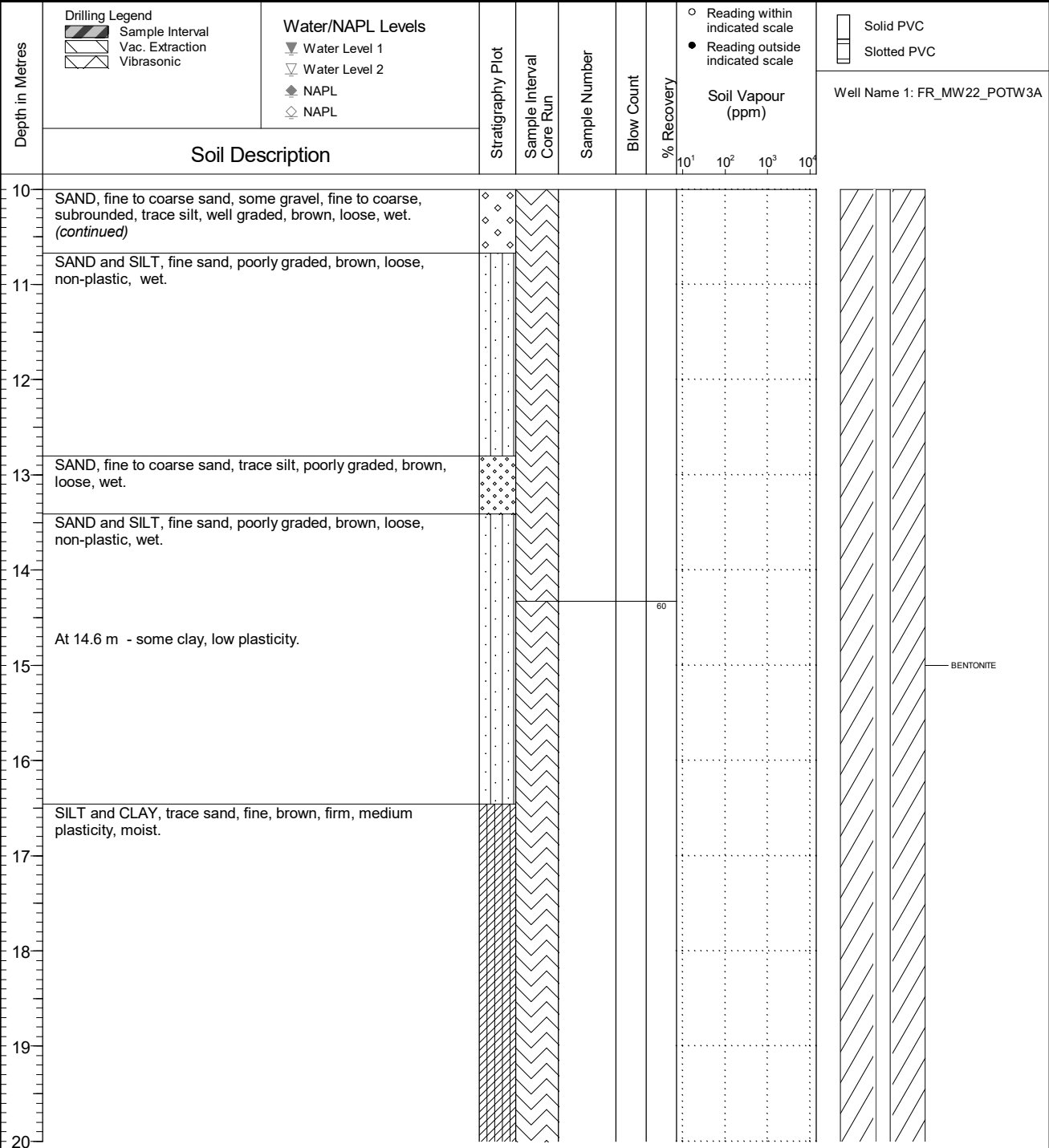


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW3A	
		Location FRO - Potwells		PAGE 3 OF 6	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15		Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034		Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922		Easting: 651145.111	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15		Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034		Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922		Easting: 651145.111	

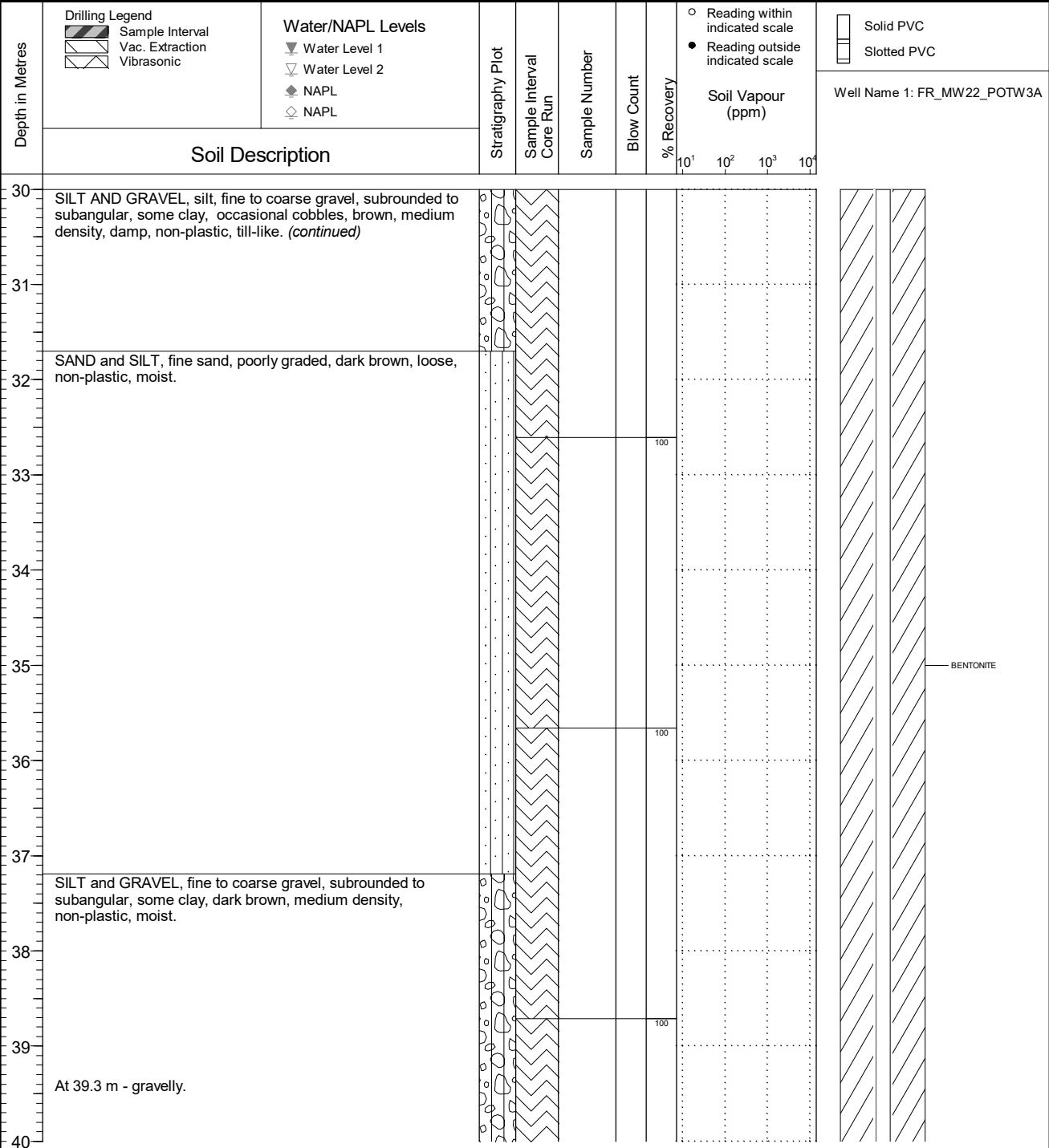
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: FR_MW22_POTW3A	
							10 ¹	10 ²	10 ³	10 ⁴		
20	SILT and CLAY, trace sand, fine, brown, firm, medium plasticity, moist. <i>(continued)</i>	[Stratigraphy Plot]				90						
21												
22												
23	SILT AND GRAVEL, silt, fine to coarse gravel, subrounded to subangular, some clay, occasional cobbles, brown, medium density, damp, non-plastic, till-like.	[Stratigraphy Plot]										
24												
25												BENTONITE
26						100						
27						100						
28												
29												
30						100						

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 4 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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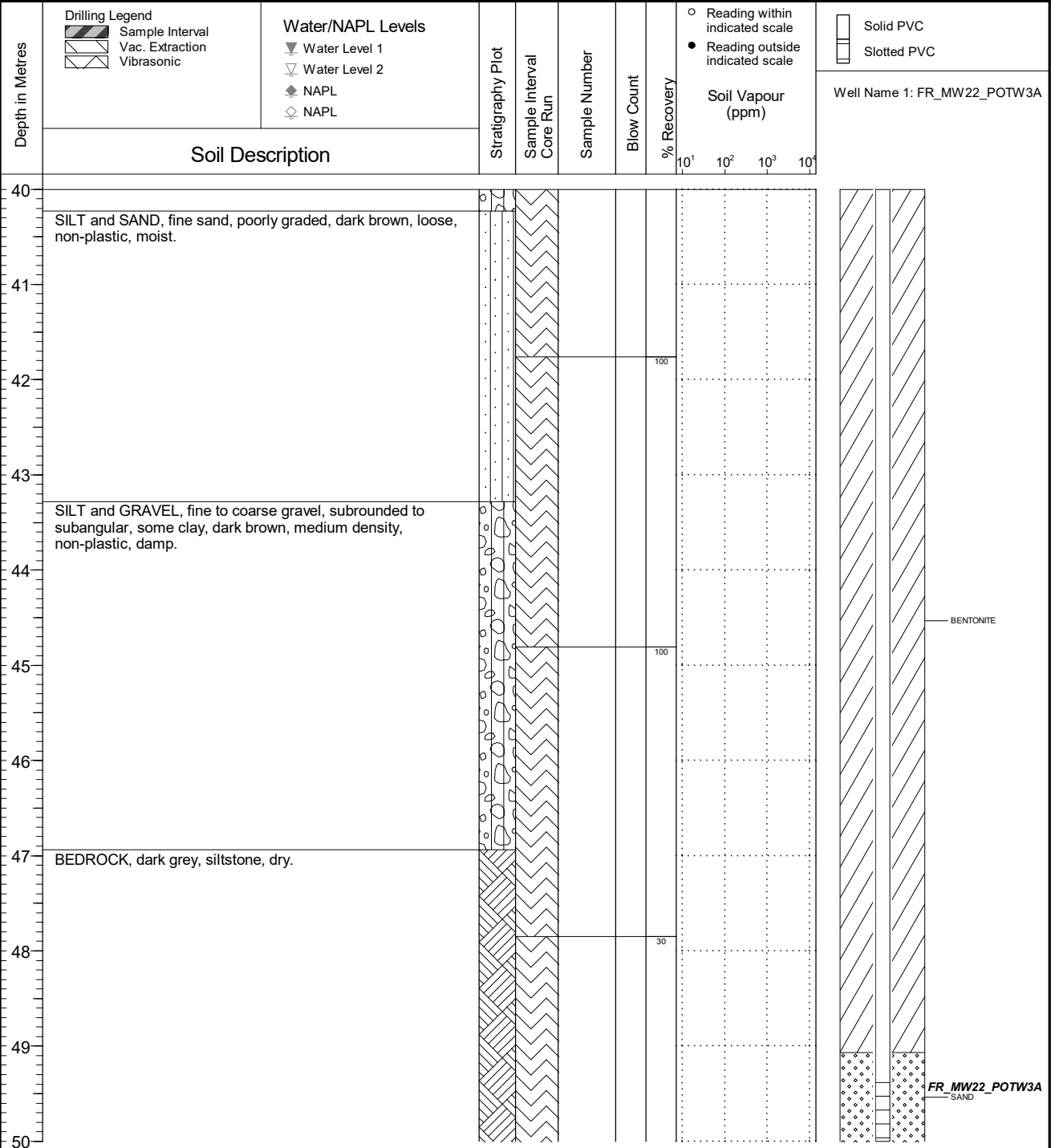


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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FINAL

		Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A	
		Location FRO - Potwells		PAGE 6 OF 6
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15	Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133	Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034	Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922	Easting: 651145.111	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15	Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133	Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034	Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922	Easting: 651145.111	

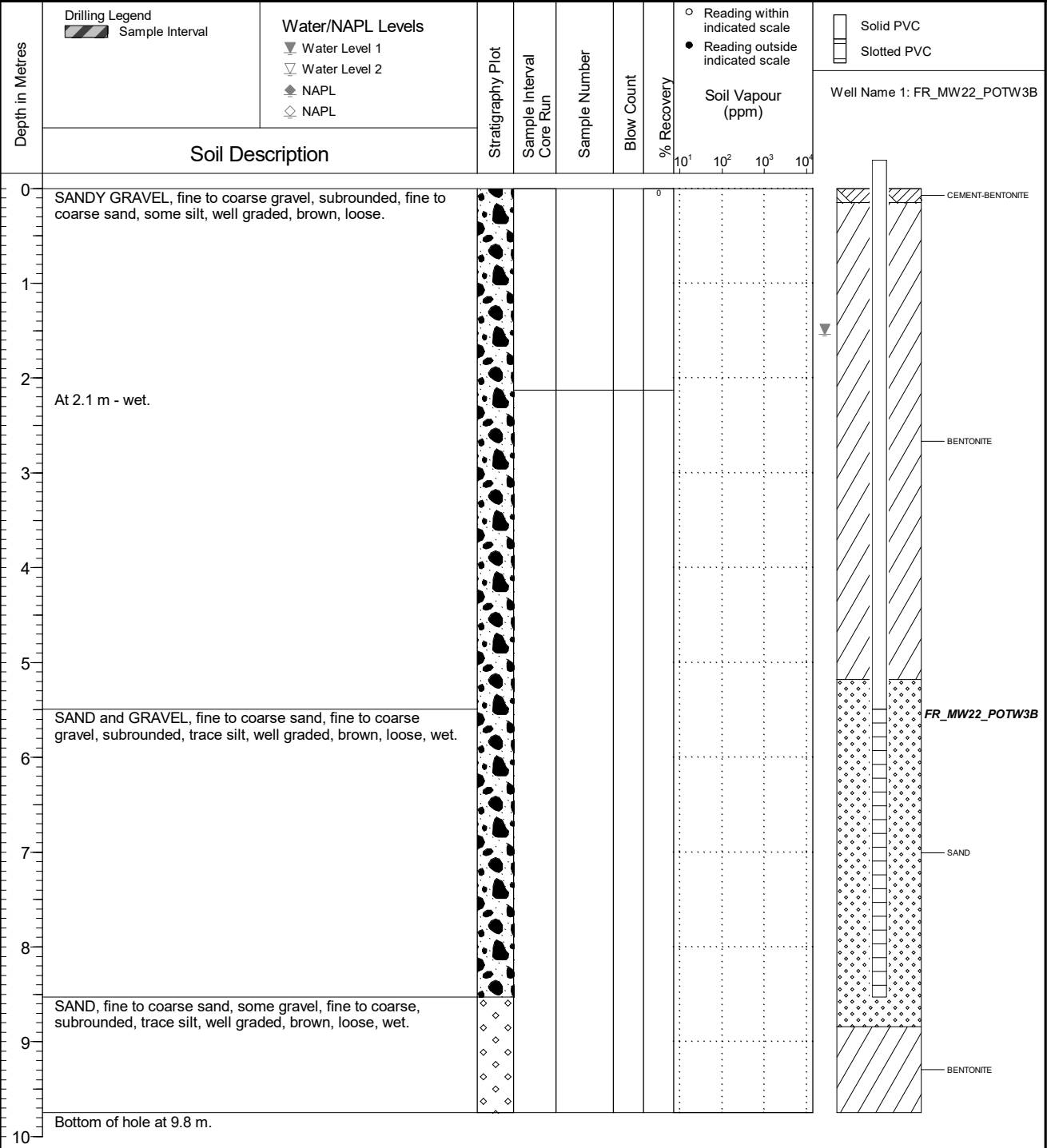
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) ○ Reading within indicated scale ● Reading outside indicated scale	Well Name 1: FR_MW22_POTW3A	
								Water/NAPL Levels ▼ Water Level 1 ▽ Water Level 2 ◆ NAPL ◇ NAPL	Drilling Legend ▨ Sample Interval ▧ Vac. Extraction ▩ Vibrasonic
50	BEDROCK, dark grey, siltstone, dry. <i>(continued)</i>								
51	Between 51.5 m and 52.7 m - brown, weathered, fractured.				100				
52									
53	Bottom of hole at 52.7 m.								
54									
55									
56									
57									
58									
59									
60									

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3B
	Location FRO - Potwells	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.186 Top of Casing Elev. (m): 1681.079 Northing: 5565042.076 Easting: 651147.517	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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SANDY GRAVEL, fine to coarse gravel, subrounded, fine to coarse sand, some silt, well graded, brown, loose.

At 2.1 m - wet.

SAND and GRAVEL, fine to coarse sand, fine to coarse gravel, subrounded, trace silt, well graded, brown, loose, wet.

SAND, fine to coarse sand, some gravel, fine to coarse, subrounded, trace silt, well graded, brown, loose, wet.

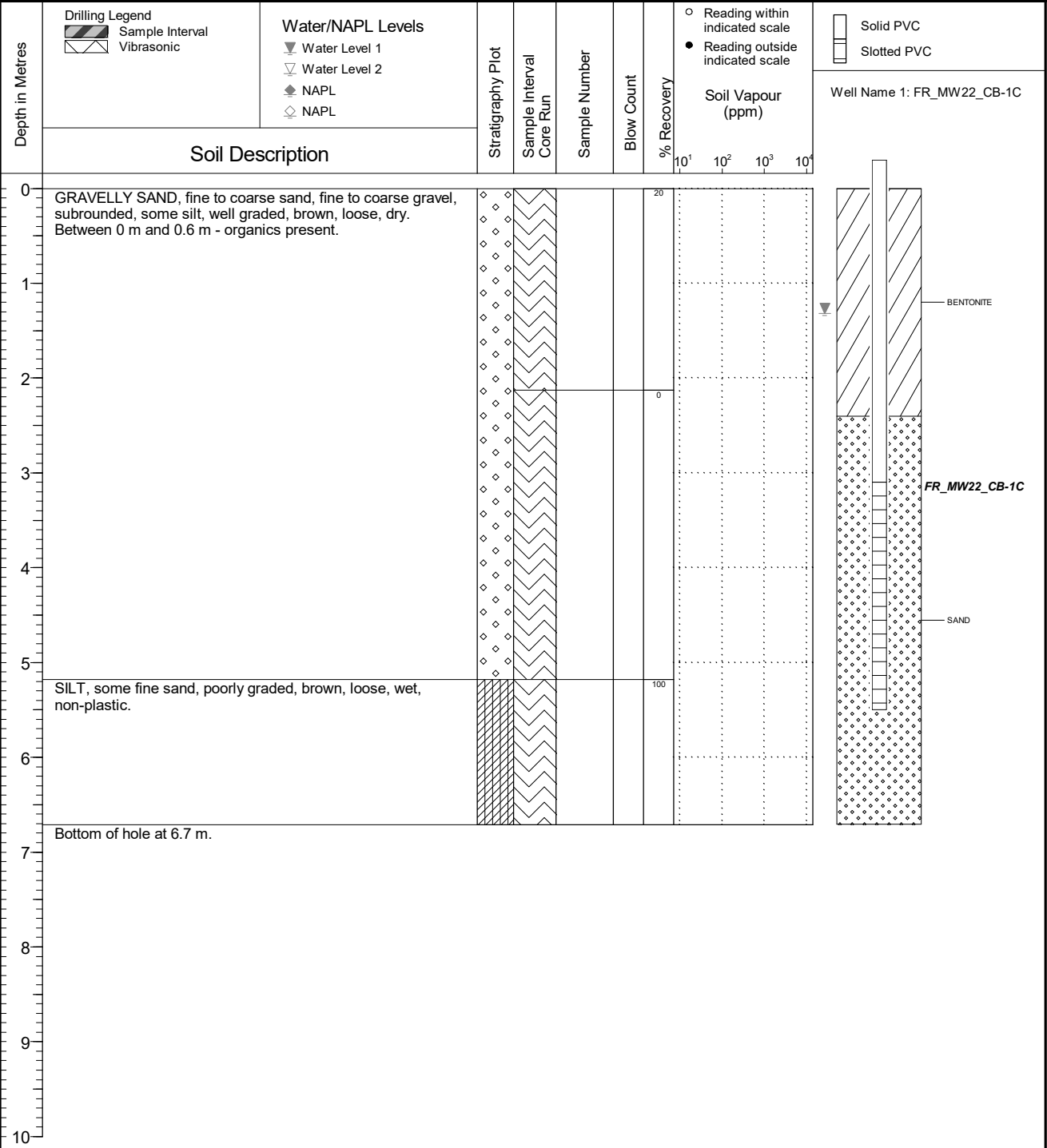
Bottom of hole at 9.8 m.

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-1C
	Location FRO Clode Pond	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 09 09 Ground Surface Elev. (m): 1672.736 Top of Casing Elev. (m): 1673.976 Northing: 5564422.122 Easting: 651080.188	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 09 09 Log Typed By: LC
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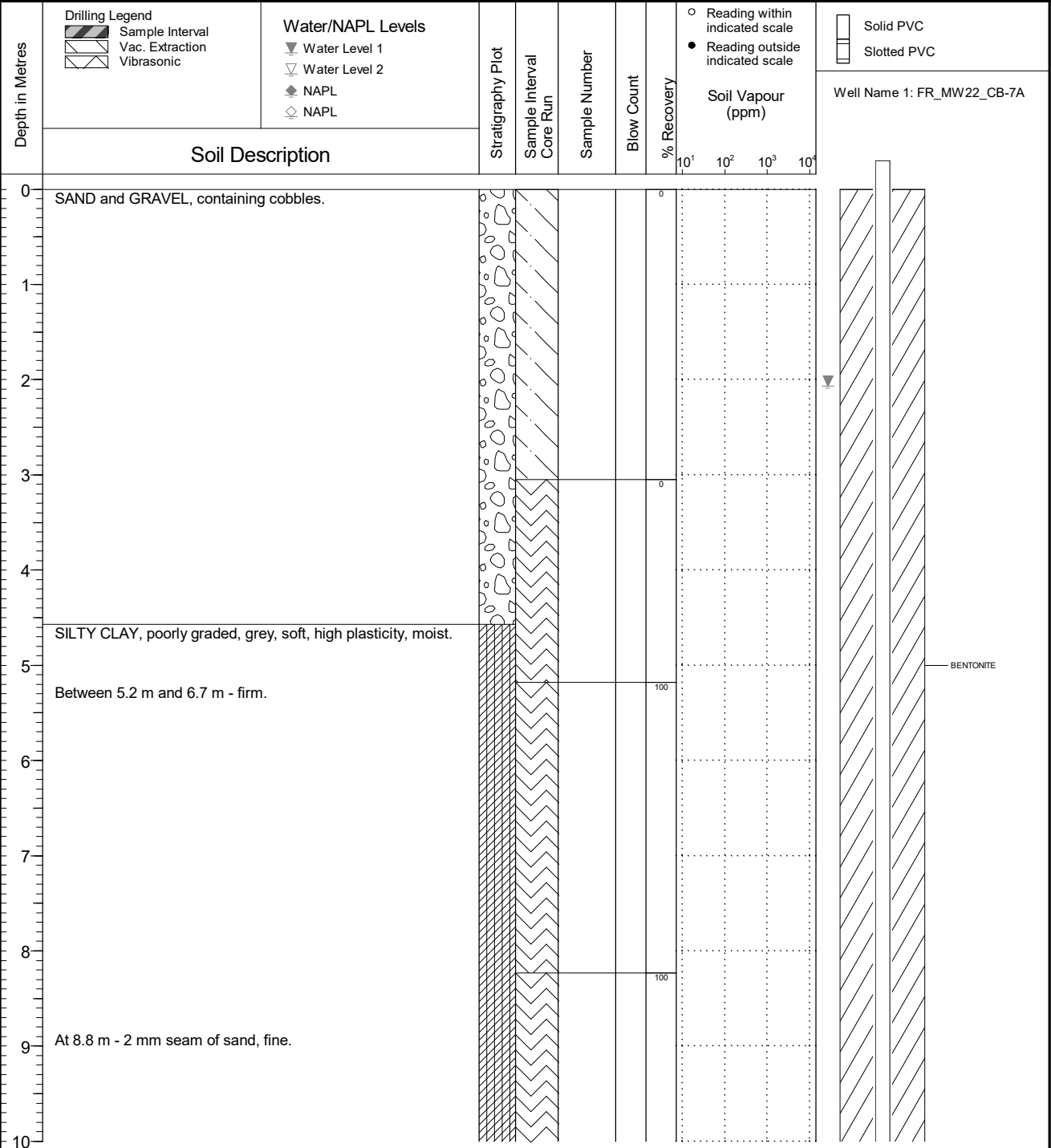


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FINAL

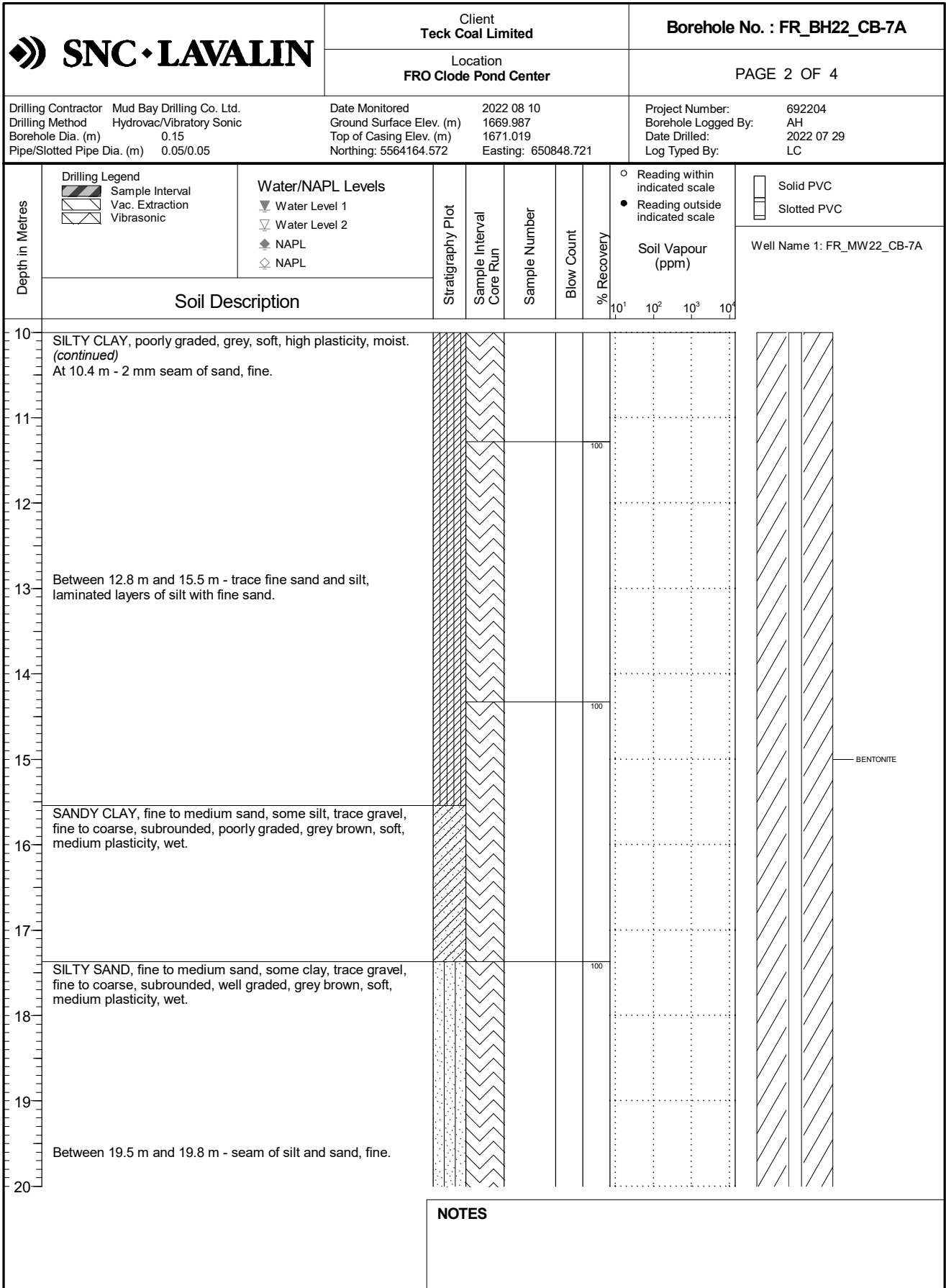
	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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NOTES

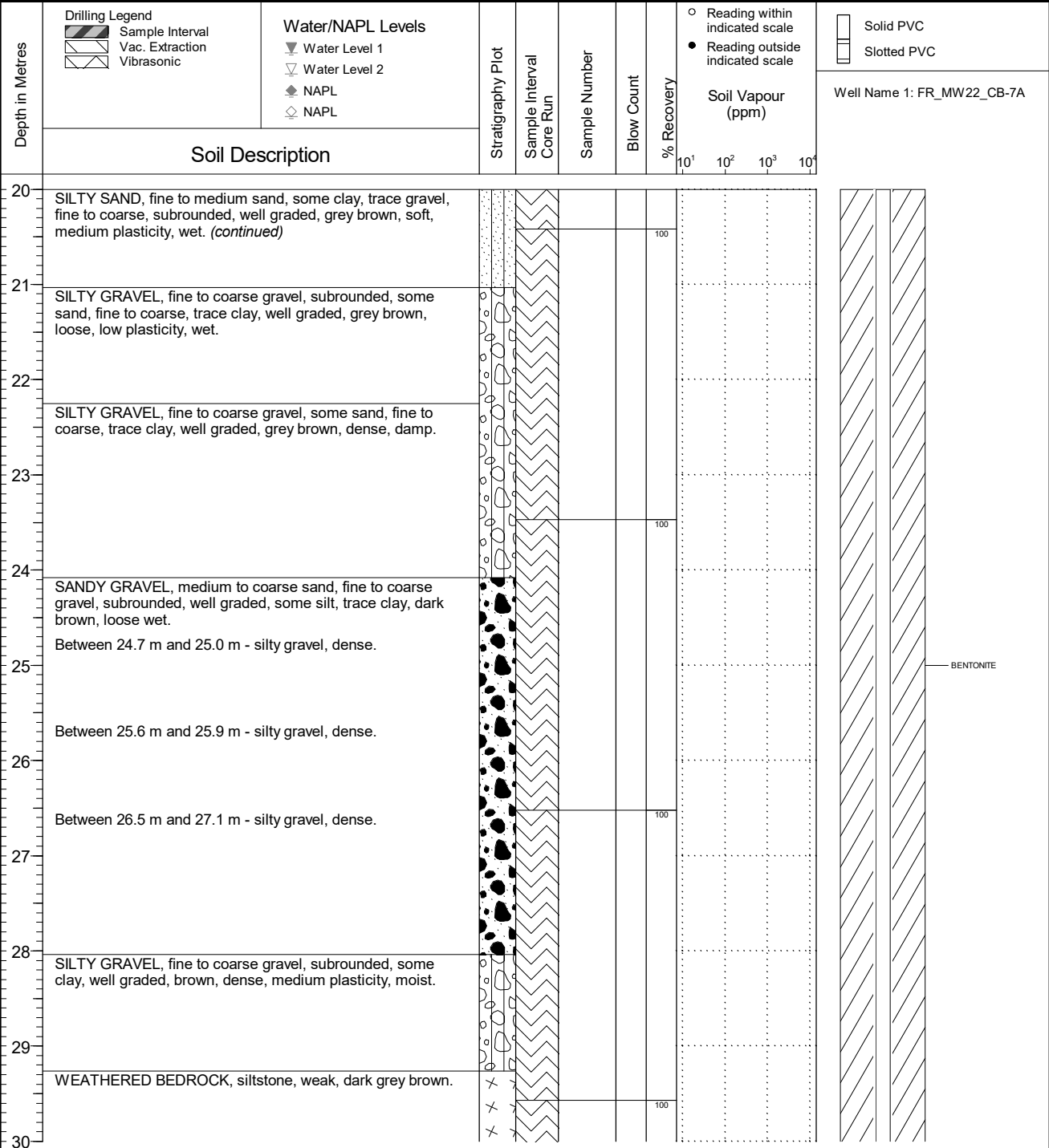
FINAL



FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 3 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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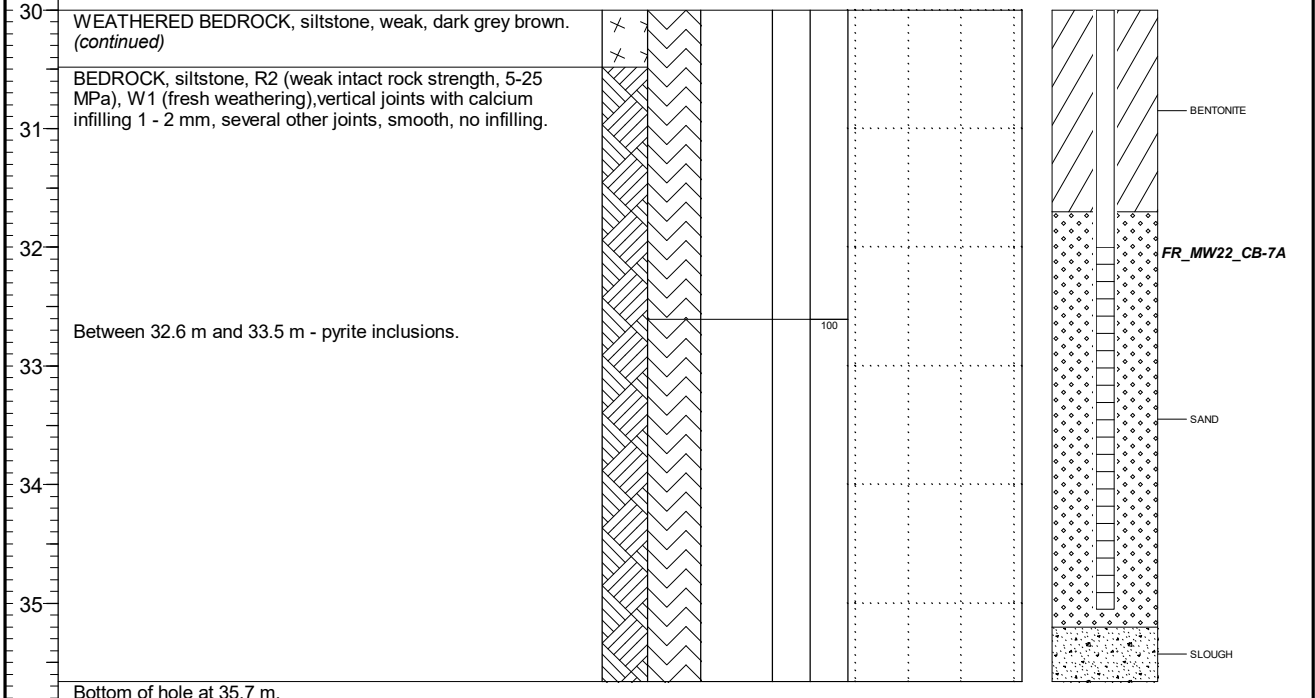
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 4 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_CB-7A
	Soil Description								



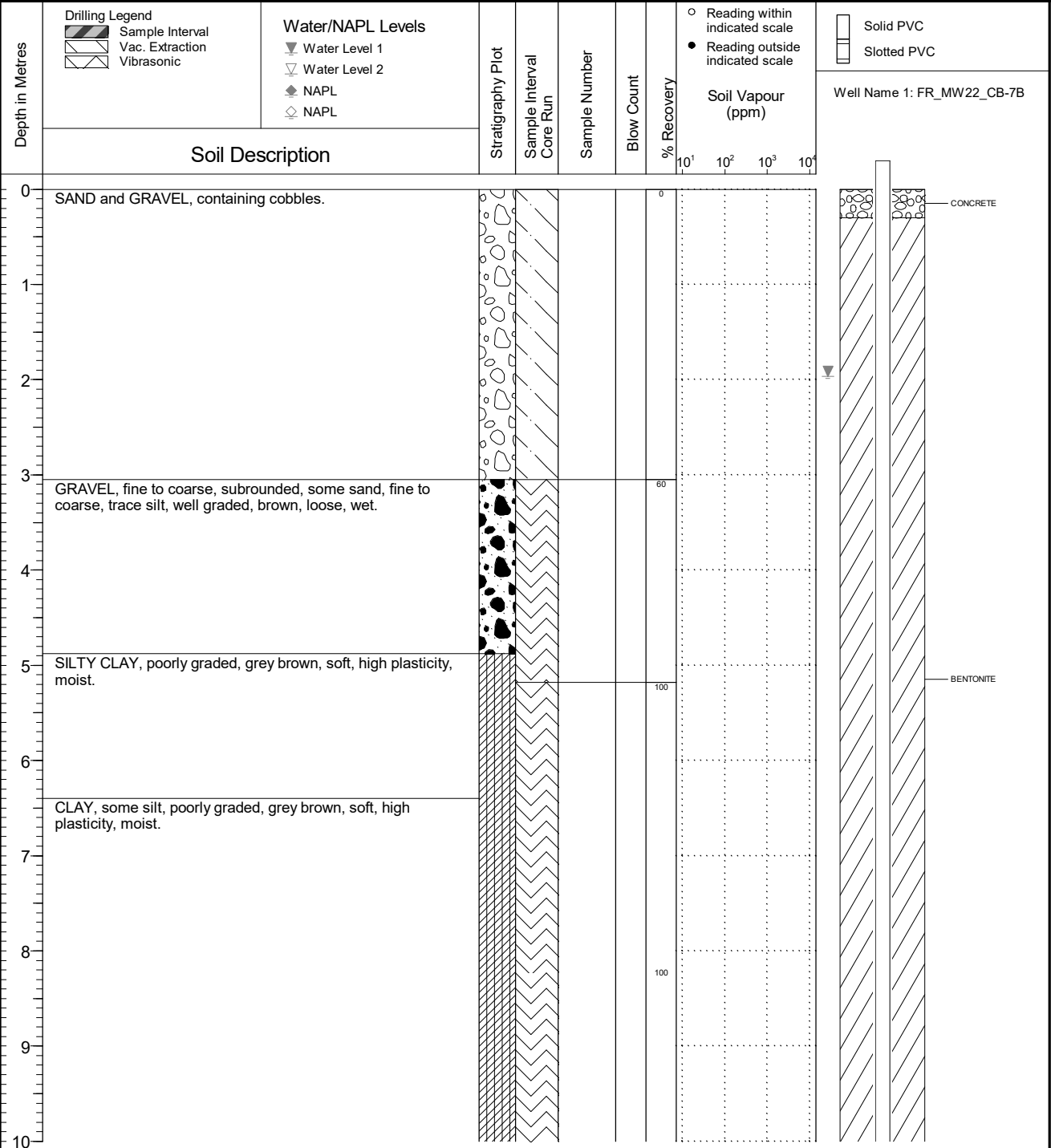
30	WEATHERED BEDROCK, siltstone, weak, dark grey brown. (continued)	
31	BEDROCK, siltstone, R2 (weak intact rock strength, 5-25 MPa), W1 (fresh weathering), vertical joints with calcium infilling 1 - 2 mm, several other joints, smooth, no infilling.	
32		
33	Between 32.6 m and 33.5 m - pyrite inclusions.	100
34		
35		
36	Bottom of hole at 35.7 m.	
37		
38		
39		
40		

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7B
	Location FRO Clode Pond Center	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.862 Top of Casing Elev. (m): 1670.816 Northing: 5564161.745 Easting: 650850.145	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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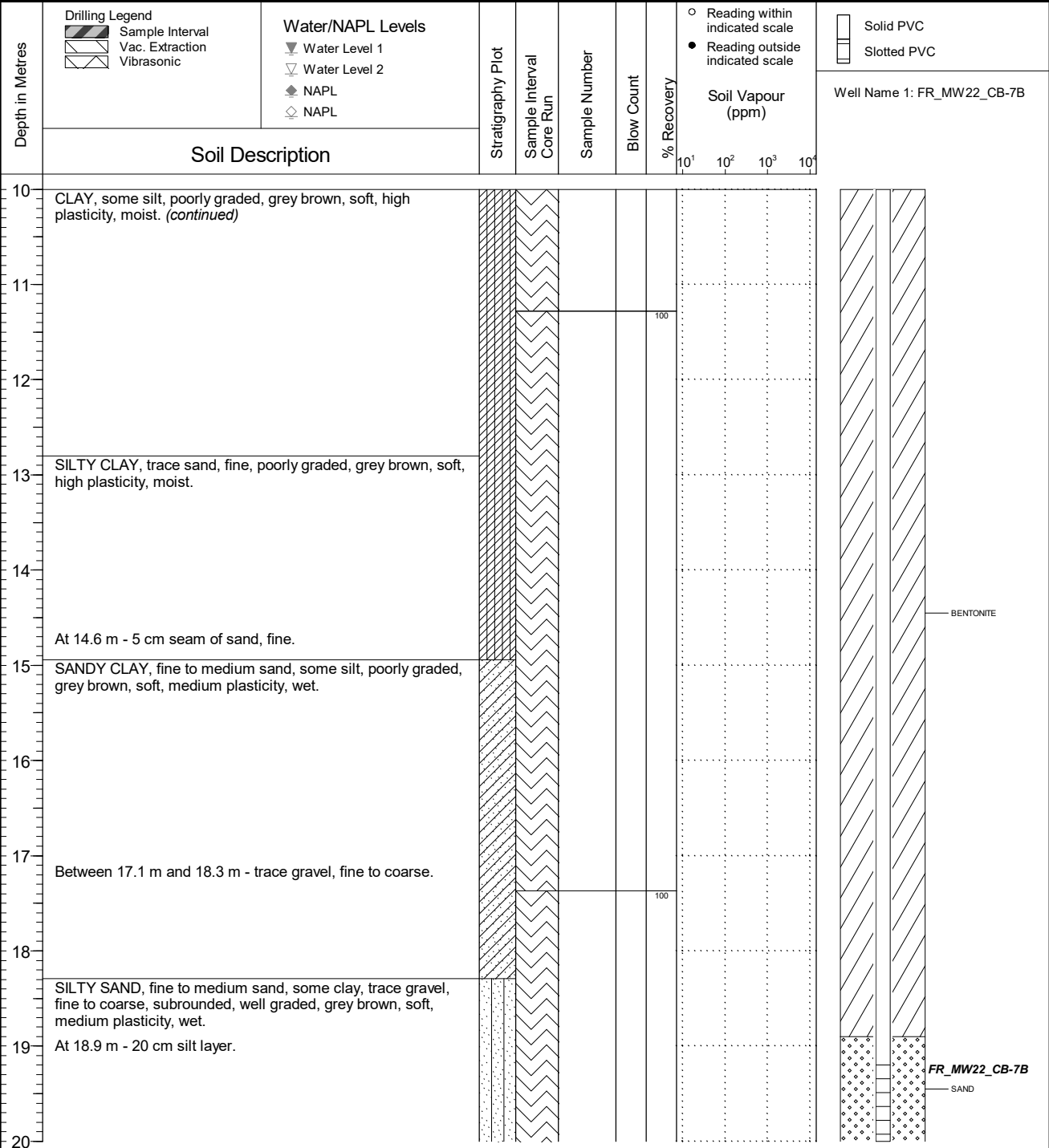


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7B
	Location FRO Clode Pond Center	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.862 Top of Casing Elev. (m): 1670.816 Northing: 5564161.745 Easting: 650850.145	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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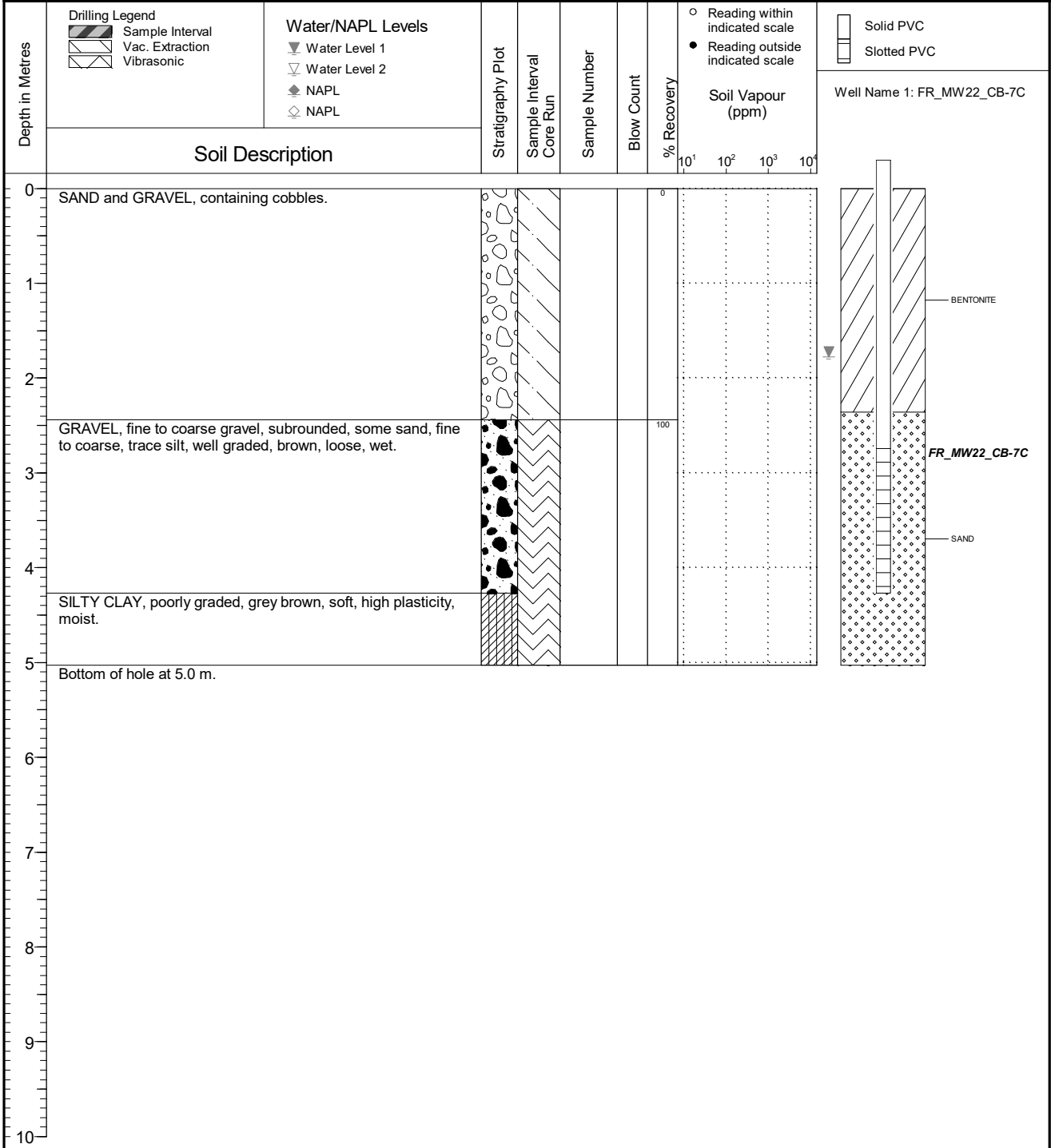
FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_CB-7B				
		Location FRO Clode Pond Center		PAGE 3 OF 3				
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.862 Top of Casing Elev. (m): 1670.816 Northing: 5564161.745 Easting: 650850.145		Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC				
Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_CB-7B
	Soil Description							
20	SILTY GRAVEL, fine to coarse gravel, subrounded, some sand, fine to coarse, trace clay, well graded, grey brown, loose, low plasticity, wet.							FR_MW22_CB-7B SAND BENTONITE
21	At 21.0 m - dense.							
22	Bottom of hole at 21.8 m.							
23								
24								
25								
26								
27								
28								
29								
30								
NOTES								

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7C
	Location FRO Clode Pond Center	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.704 Top of Casing Elev. (m): 1670.664 Northing: 5564159.718 Easting: 650851.146	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 03 22 Log Typed By: LC
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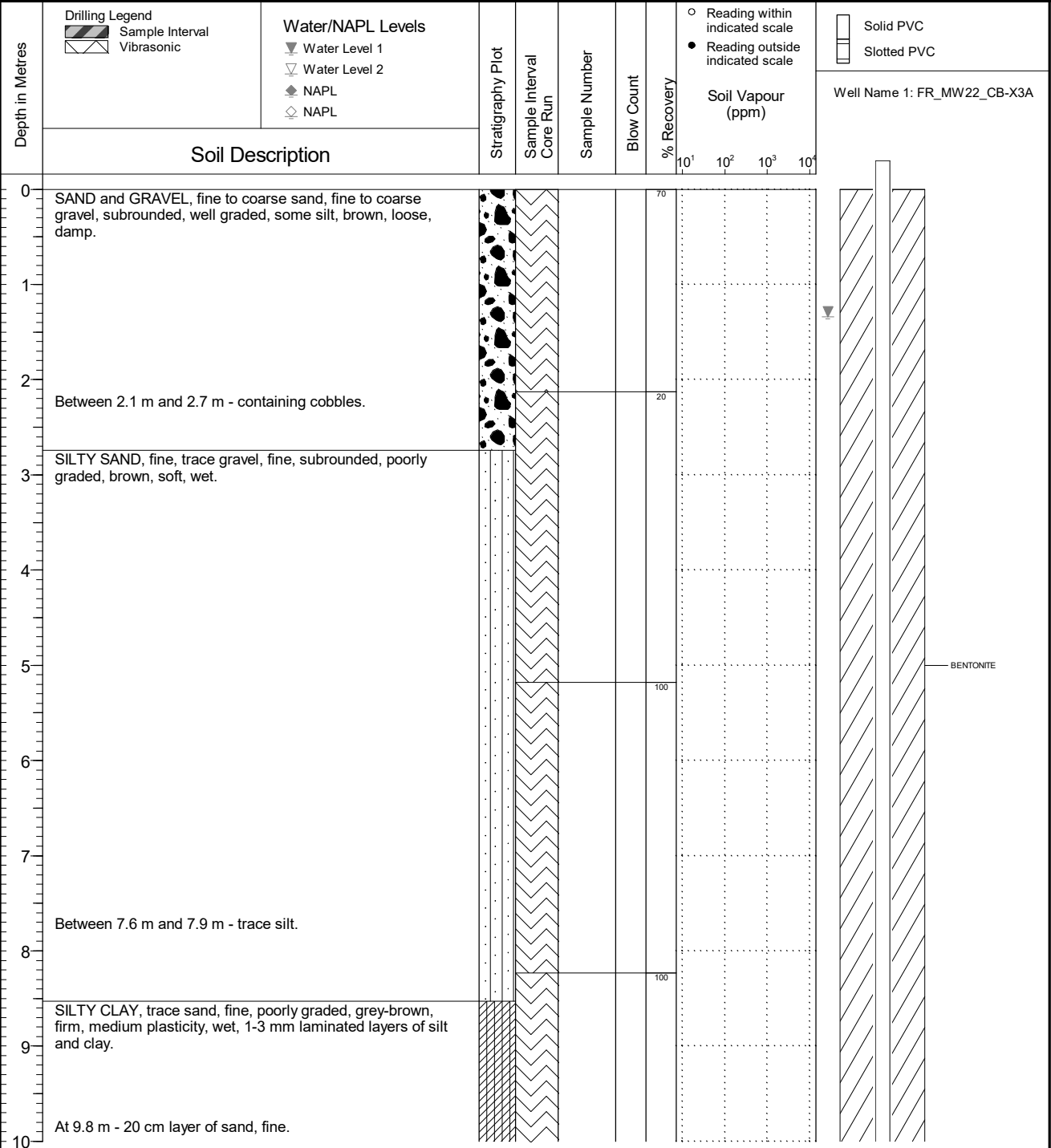


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3A
	Location FRO Clode Pond North	PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_CB-X3A				
		Location FRO Clode Pond North		PAGE 2 OF 4				
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085		Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC				
Depth in Metres	Drilling Legend Sample Interval Vibrasonic		Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL		○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴			
	Soil Description		Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Well Name 1: FR_MW22_CB-X3A Solid PVC Slotted PVC
10 11 12 13 14 15 16 17 18 19 20	SILTY CLAY, trace sand, fine, poorly graded, grey-brown, firm, medium plasticity, wet, 1-3 mm laminated layers of silt and clay. <i>(continued)</i> At 10.7 m - 30 cm layer of sand, fine. At 11.9 m - 10 cm layer of sand, fine. CLAY, some silt, trace sand, fine, poorly graded, grey-brown, firm, high plasticity, massive, moist. Between 13.7 m and 14.0 m - laminated silt and clay. Between 15.9 m and 17.4 m - no recovery, containing cobbles. SILTY CLAY, trace gravel, fine to coarse, subrounded, poorly graded, brown, firm, medium plasticity, moist.							
NOTES								

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_CB-X3A					
		Location FRO Clode Pond North		PAGE 3 OF 4					
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085		Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC					
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: FR_MW22_CB-X3A
	Soil Description								
20	SILTY GRAVEL, gravel, fine to coarse, subangular, well graded, some clay, trace sand, fine to coarse, dark brown, dense, wet, till-like. <i>(continued)</i>								
21	Between 21.0 m and 22.3 m - damp.								
22	SAND and GRAVEL, sand, fine to coarse, gravel, fine to coarse, subrounded, trace silt, well graded, loose, wet.								
23	SILTY GRAVEL, fine to coarse, subangular, trace clay, well graded, brown, dense, damp, till-like.								
24	Between 23.5 m and 24.1 m - silt, some clay, trace gravel, fine.								
25	Between 26.8 m and 27.4 m - sandy silt, fine sand, trace gravel, fine.								
26	GRAVELLY SILT, fine to coarse, well graded, subangular, trace sand, fine, dark brown, very dense, low plasticity, damp.								
27	Between 26.8 m and 27.4 m - sandy silt, fine sand, trace gravel, fine.								
28	GRAVELLY SILT, fine to coarse, well graded, subangular, trace sand, fine, dark brown, very dense, low plasticity, damp.								
29	Between 26.8 m and 27.4 m - sandy silt, fine sand, trace gravel, fine.								
30	GRAVELLY SILT, fine to coarse, well graded, subangular, trace sand, fine, dark brown, very dense, low plasticity, damp.								
30	GRAVELLY SILT, fine to coarse, well graded, subangular, trace sand, fine, dark brown, very dense, low plasticity, damp.								
NOTES									

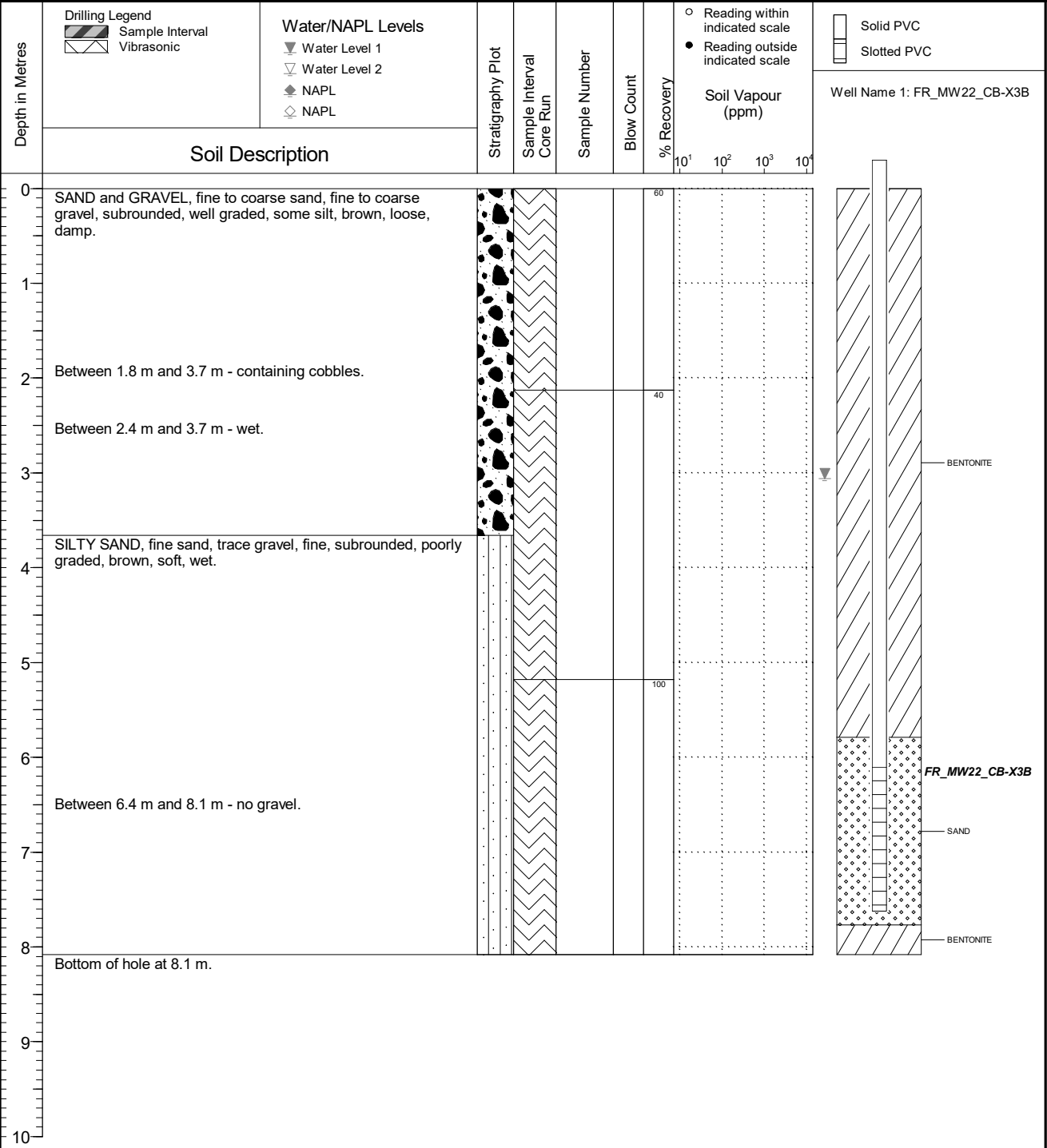
FINAL

		Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3A					
		Location FRO Clode Pond North		PAGE 4 OF 4				
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085		Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC				
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description							
30	GRAVELLY CLAY, fine to coarse, subangular, well graded, some silt, dark brown, dense, medium plasticity, moist. Between 31.4 m and 32.5 m - damp.							BENTONITE
31								
32	Bottom of hole at 32.5 m.							
33								
34								
35								
36								
37								
38								
39								
40								
NOTES								

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3B
	Location FRO Clode Pond North	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.956 Top of Casing Elev. (m): 1674.952 Northing: 5564529.526 Easting: 650939.705	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 31 Log Typed By: LC
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NOTES

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA1	
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021
Drilling Contractor: Mud Bay Drilling		Elevation: 1666.50	Coordinates:
Supervision: Teck FRO		Dip: -90 Azi: 0.00	N 5563844.62
Drilling Method: Sonic		Total Depth (m): 17	E 650785.49

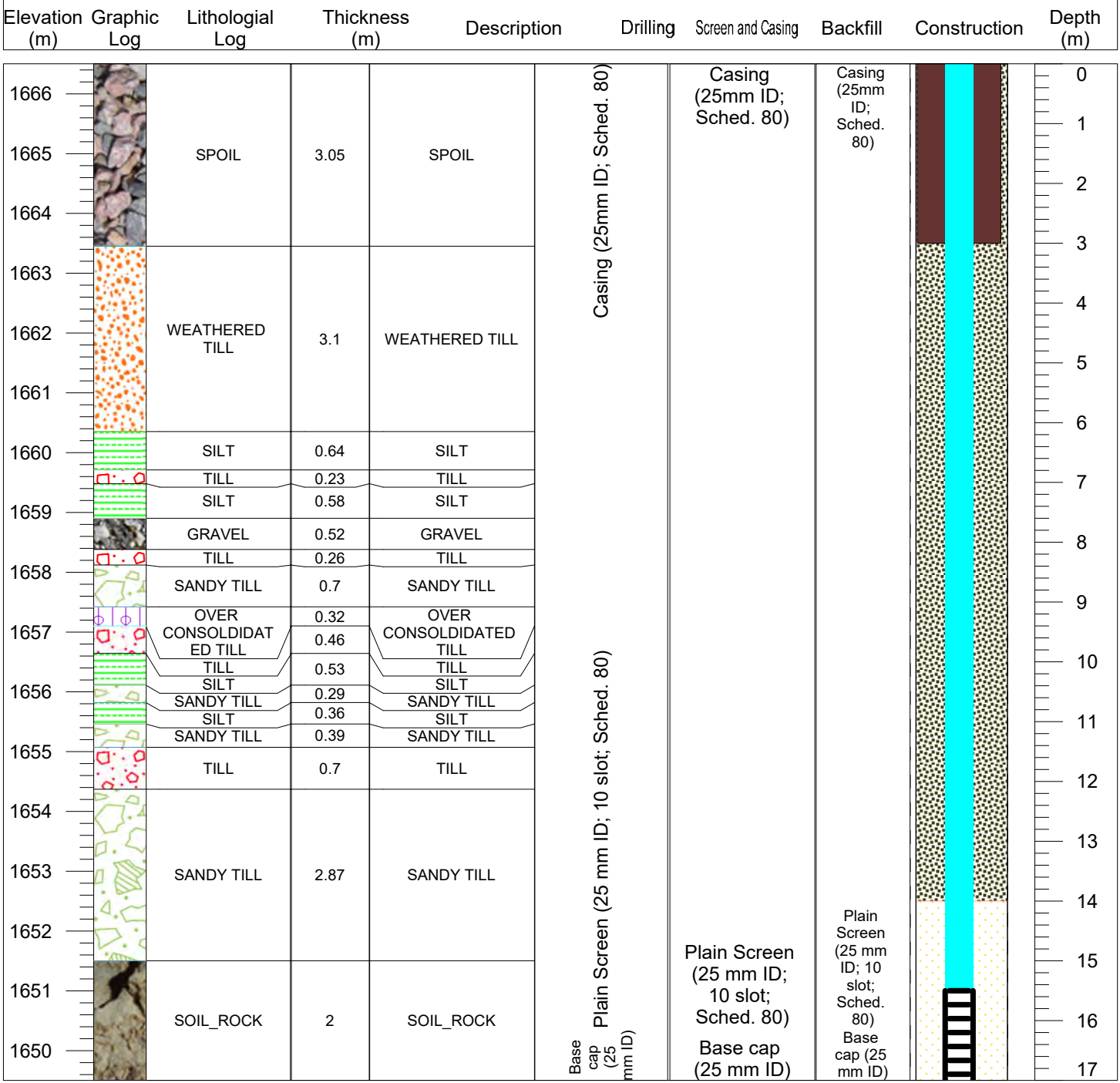


Figure No. C.3

O'Neil Hydro-Geotechnical Engineering Ltd.
 33-6299 144th Street
 Surrey, V3X 1A2
 Cell: +1 (604) 836 0300

Surface Casing	GRAVEL	SPOIL	Pack
Casing	SILT	SOIL_ROCK	WEATHERED TILL
Screen	TILL	Bentonite	OVER CONSOLIDATED TILL
Open Hole			SANDY TILL

Date : 6/3/2021 **Ref :** 30921

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA2	
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021
Drilling Contractor: Mud Bay Drilling		Elevation: 1664.76	Coordinates:
Supervision: Teck FRO		Dip: -90 Azi:0.00	N 5563846.65
Drilling Method: Sonic		Total Depth (m): 15.63	E 650853.14

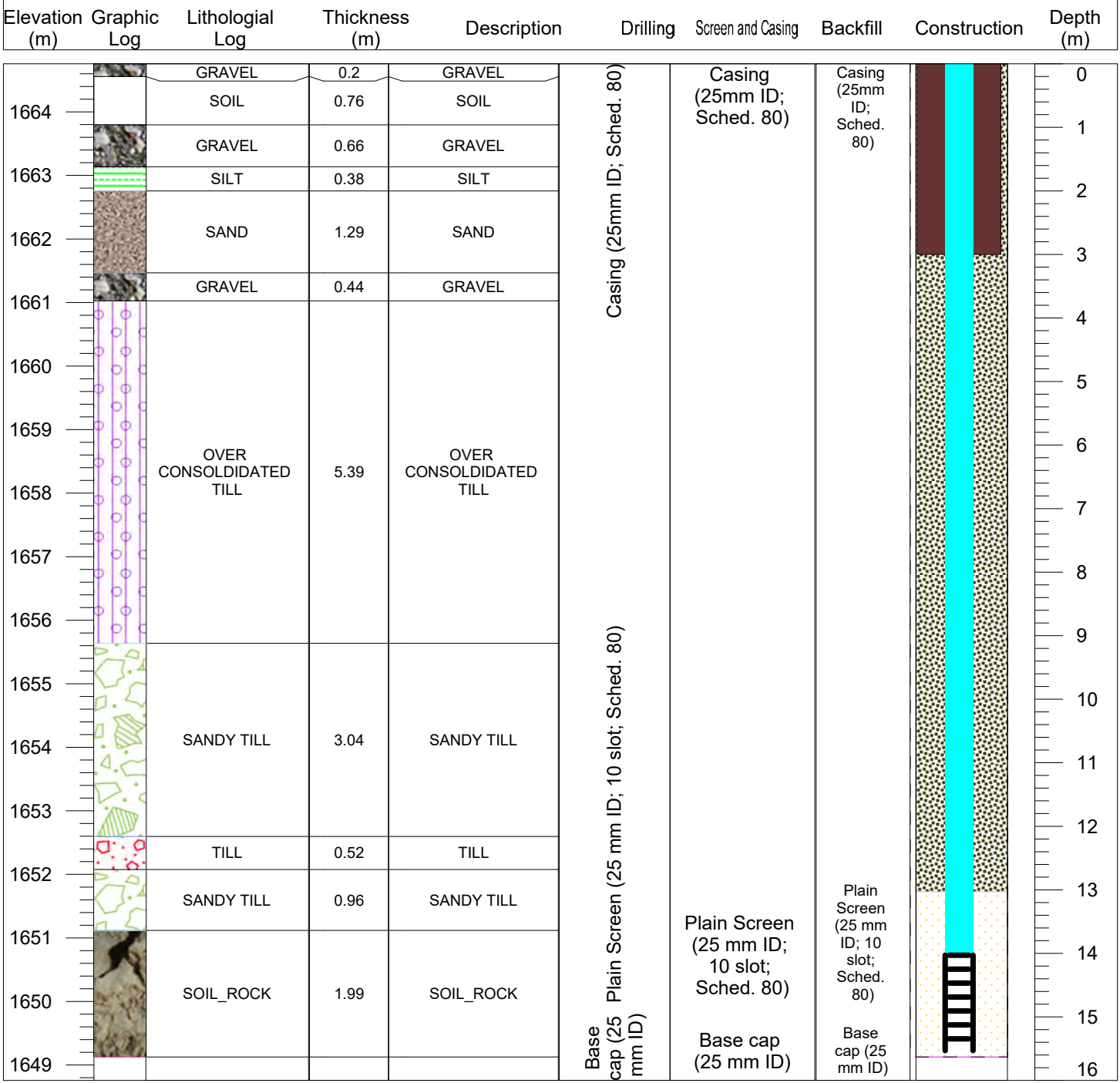


Figure No. C.4

Construction Key

- Surface Casing
- Casing
- Screen
- Open Hole

Lithological and Backfill Key

- GRAVEL
- SAND
- SILT
- TILL
- SOIL_ROCK
- Bentonite
- Pack
- OVER CONSOLIDATED TILL
- SANDY TILL

Date : 6/25/2021

Ref : 30921

O'Neill Hydro-Geotechnical Engineering Ltd.
 33-6299 144th Street
 Surrey, V3X 1A2
 Cell: +1 (604) 836 0300

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA3	
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021
Drilling Contractor: Mud Bay Drilling		Elevation: 1670.81	Coordinates:
Supervision: Teck FRO		Dip: -90 Azi:0.00	N 5563951.28
Drilling Method: Sonic		Total Depth (m): 14.35	E 650779.85
Elevation (m)	Graphic Log	Lithological Log	Thickness (m)
			Description
			Drilling
			Screen and Casing
			Backfill
			Construction
			Depth (m)

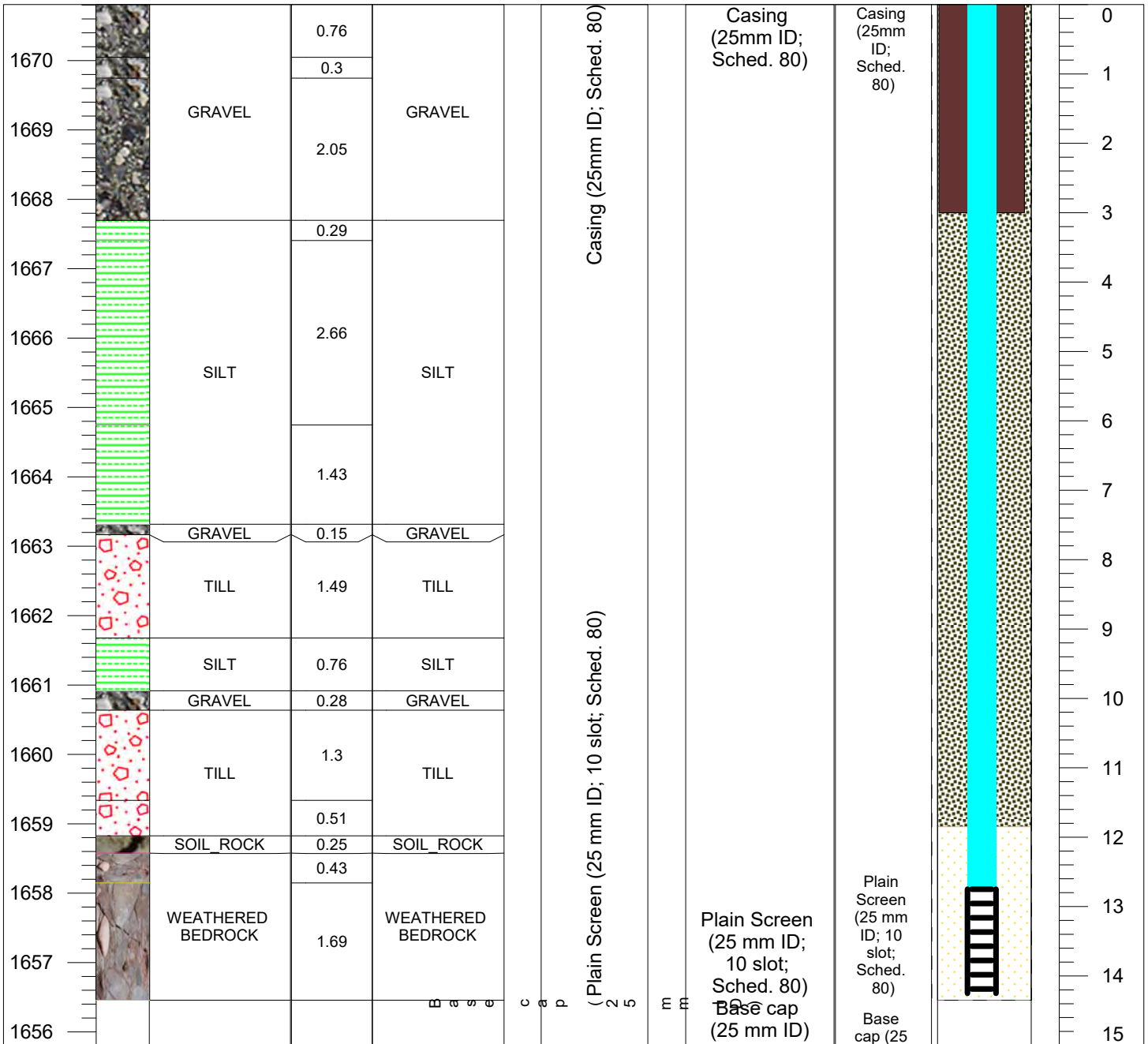


Figure No. C.5

O'Neill Hydro-Geotechnical Engineering Ltd.
 33-6299 144th Street
 Surrey, V3X 1A2
 Cell: +1 (604) 836 0300
 email: soneill2@telus.net

Lithological and Backfill Key

- Surface Casing
- Casing
- Screen
- Open Hole
- GRAVEL
- SILT
- TILL
- SOIL_ROCK
- Bentonite
- Pack
- WEATHERED BEDROCK

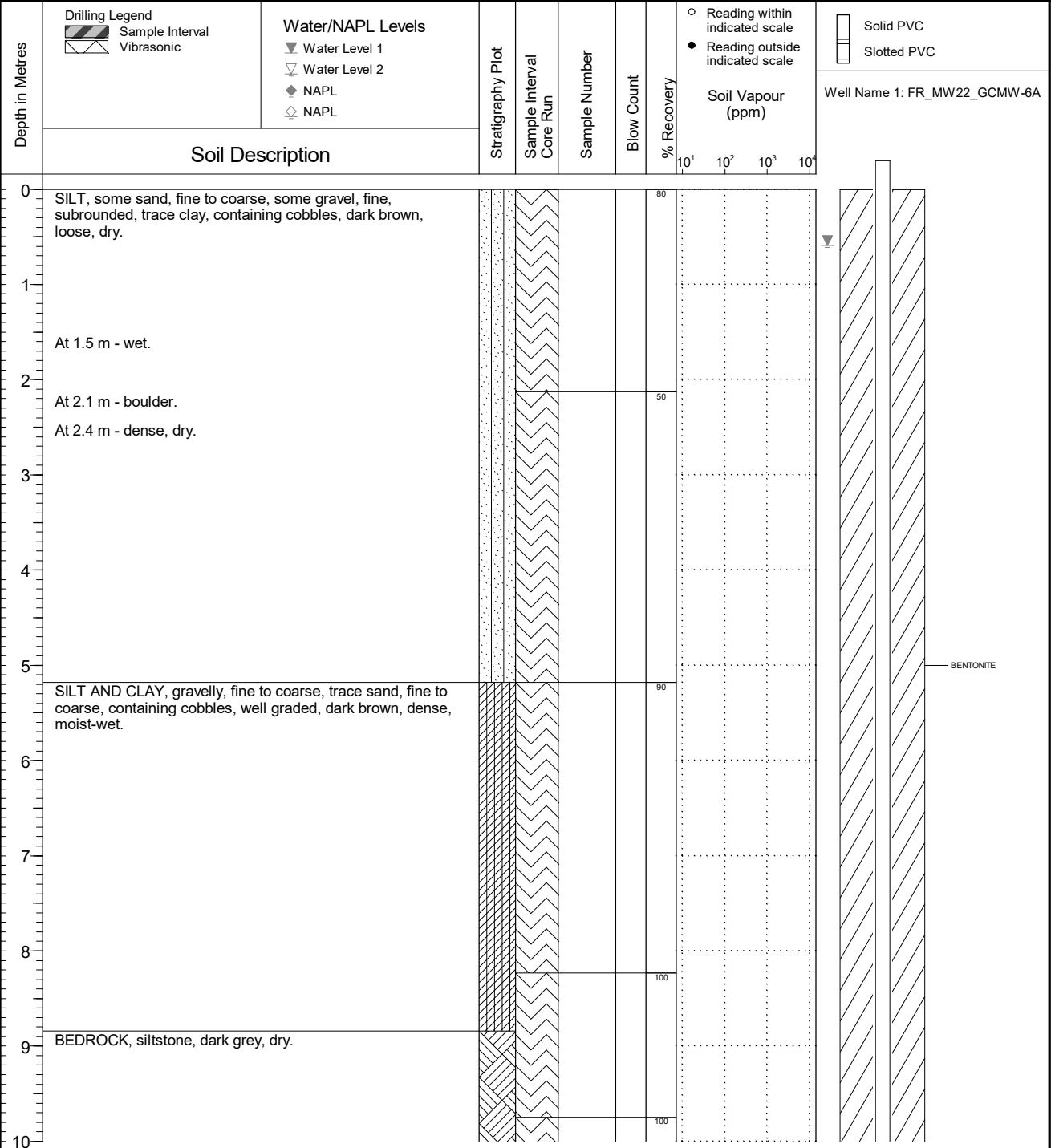
Date : 6/25/2021 **Ref :** 30921

Author : Shane O'Neill **Drawn By :** SON

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6A
	Location FRO Clode Pond South	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1665.982 Top of Casing Elev. (m): 1666.907 Northing: 5563917.490 Easting: 651033.313	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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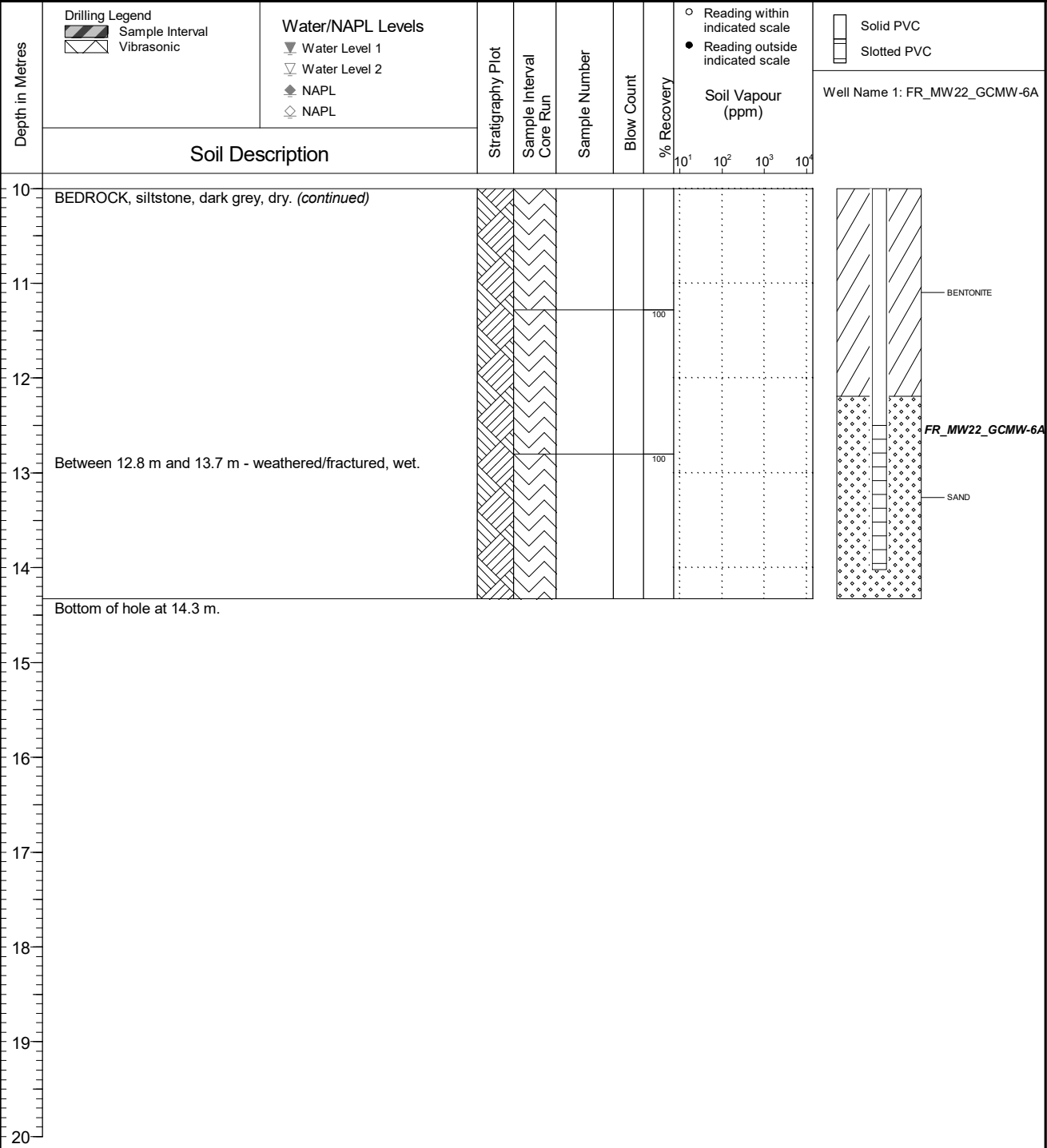


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6A
	Location FRO Clode Pond South	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1665.982 Top of Casing Elev. (m): 1666.907 Northing: 5563917.490 Easting: 651033.313	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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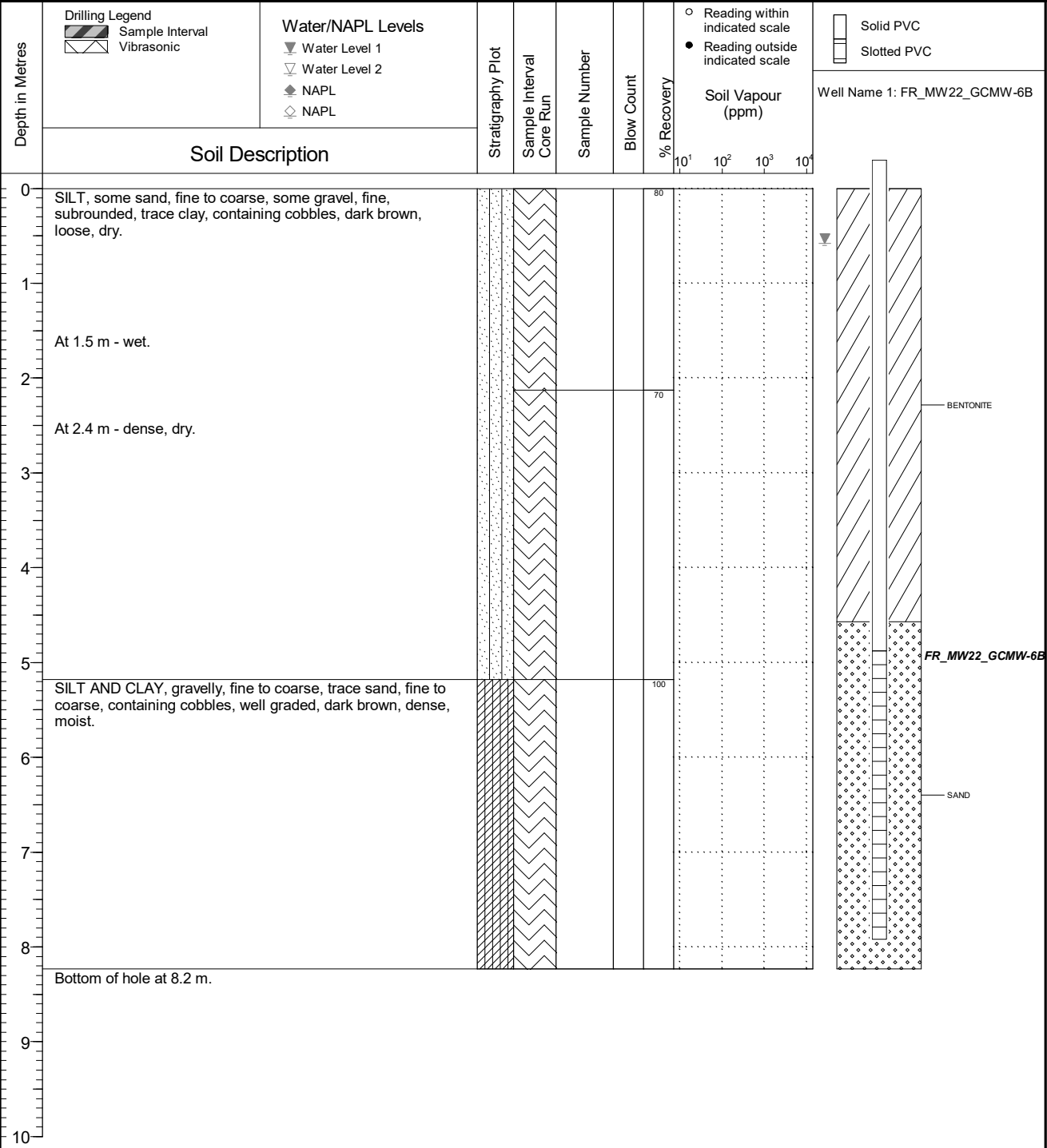


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6B
	Location FRO Clode Pond South	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1666.018 Top of Casing Elev. (m): 1666.937 Northing: 5563916.729 Easting: 651033.023	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR2A

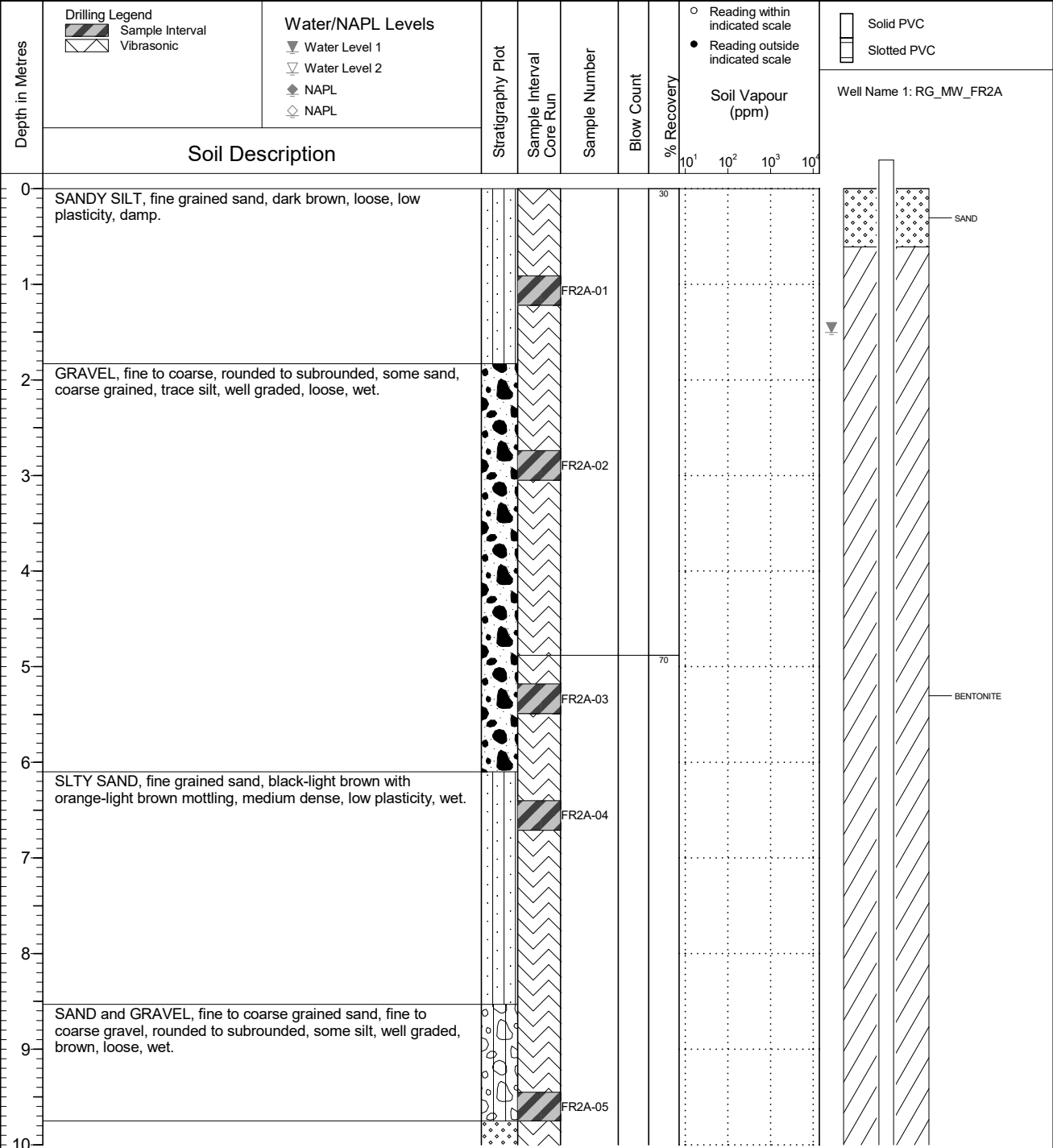
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1569.034
 Top of Casing Elev. (m): 1569.754
 Northing: 5556755.637 Easting: 653498.963

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 08 29
 Log Typed By: VL



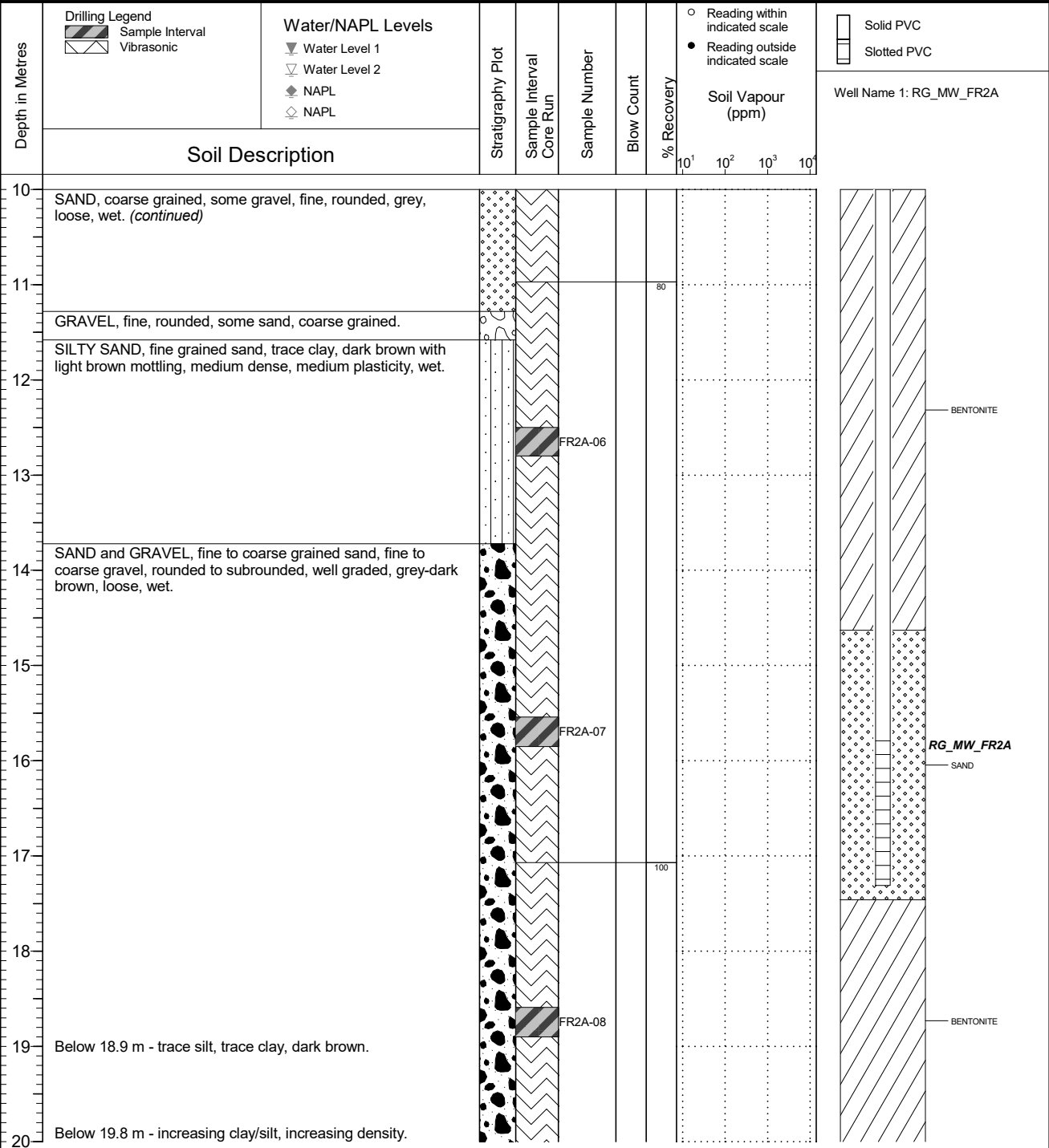
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR2A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.034 Top of Casing Elev. (m): 1569.754 Northing: 5556755.637 Easting: 653498.963	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 29 Log Typed By: VL
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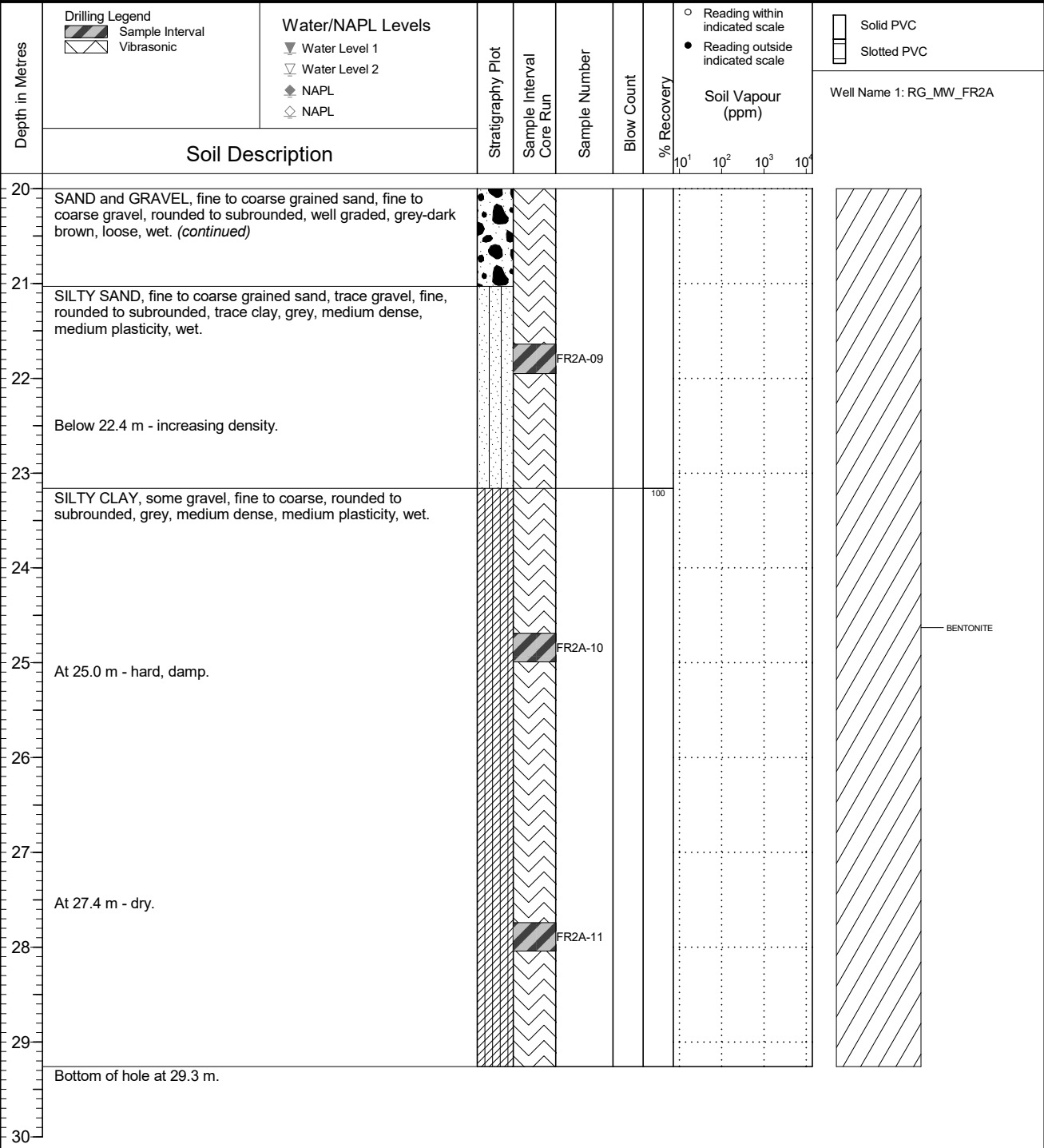
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR2A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.034 Top of Casing Elev. (m): 1569.754 Northing: 5556755.637 Easting: 653498.963	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 29 Log Typed By: VL
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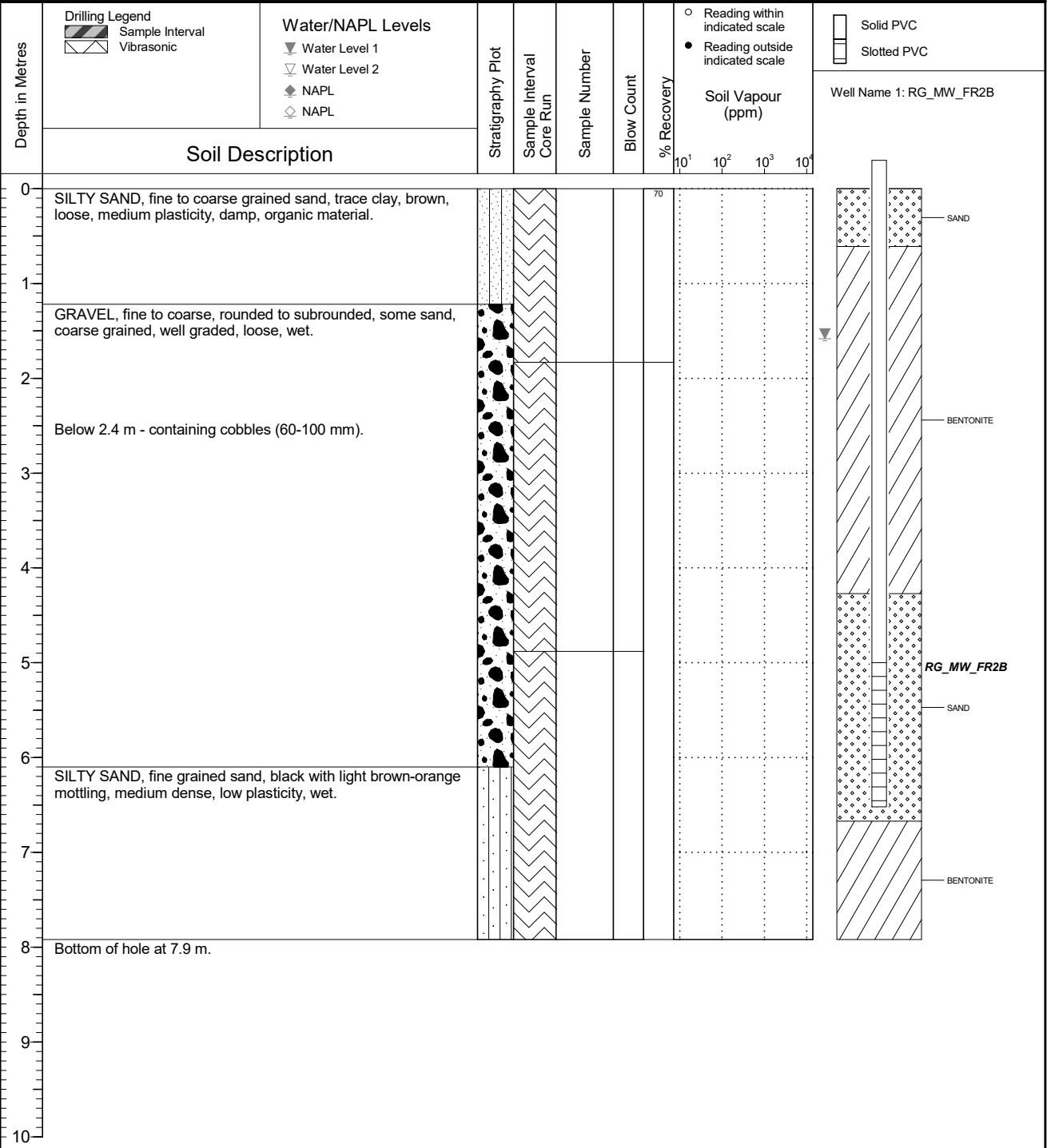


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR2B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.083 Top of Casing Elev. (m): 1569.693 Northing: 5556755.559 Easting: 653500.091	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 30 Log Typed By: VL
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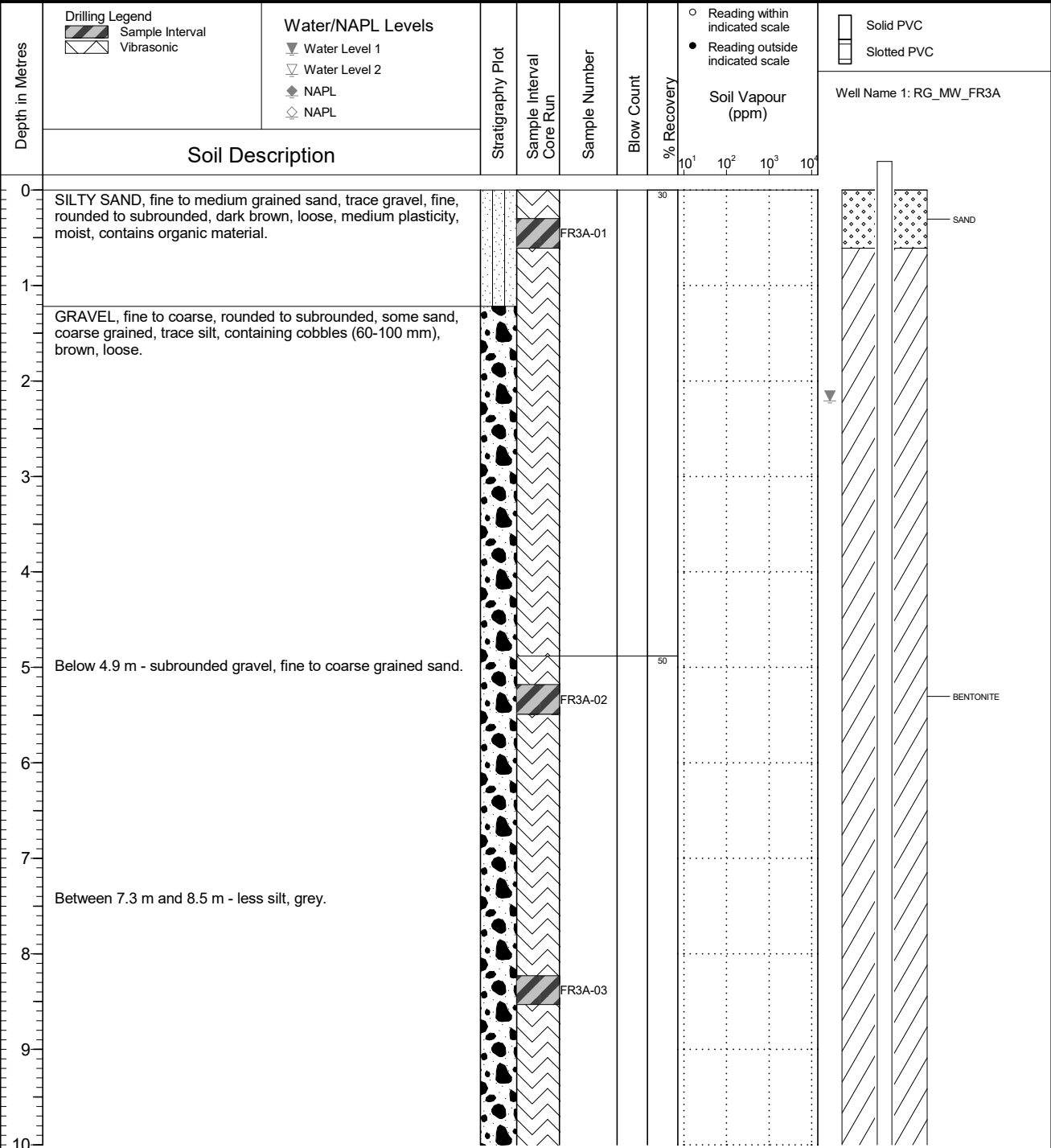


NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR3A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1570.402 Top of Casing Elev. (m): 1571.215 Northing: 5556777.203 Easting: 653233.950	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 31 Log Typed By: VL
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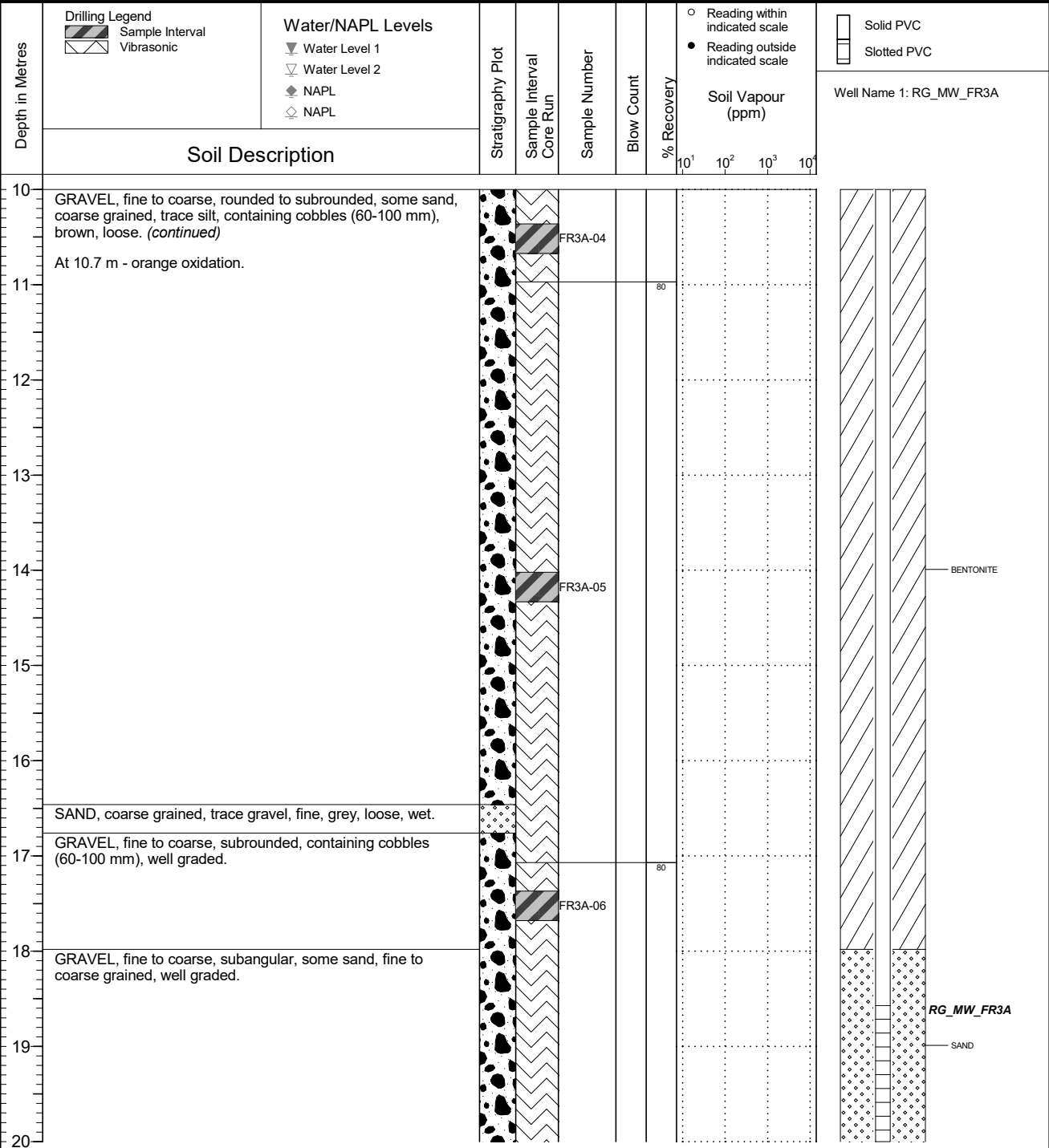


NOTES
 Bolded sample denotes sample analyzed.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR3A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1570.402 Top of Casing Elev. (m): 1571.215 Northing: 5556777.203 Easting: 653233.950	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 31 Log Typed By: VL
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NOTES
 Bolded sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR3A

Location
Regional Groundwater Monitoring

PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1570.402
 Top of Casing Elev. (m): 1571.215
 Northing: 5556777.203 Easting: 653233.950

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 08 31
 Log Typed By: VL

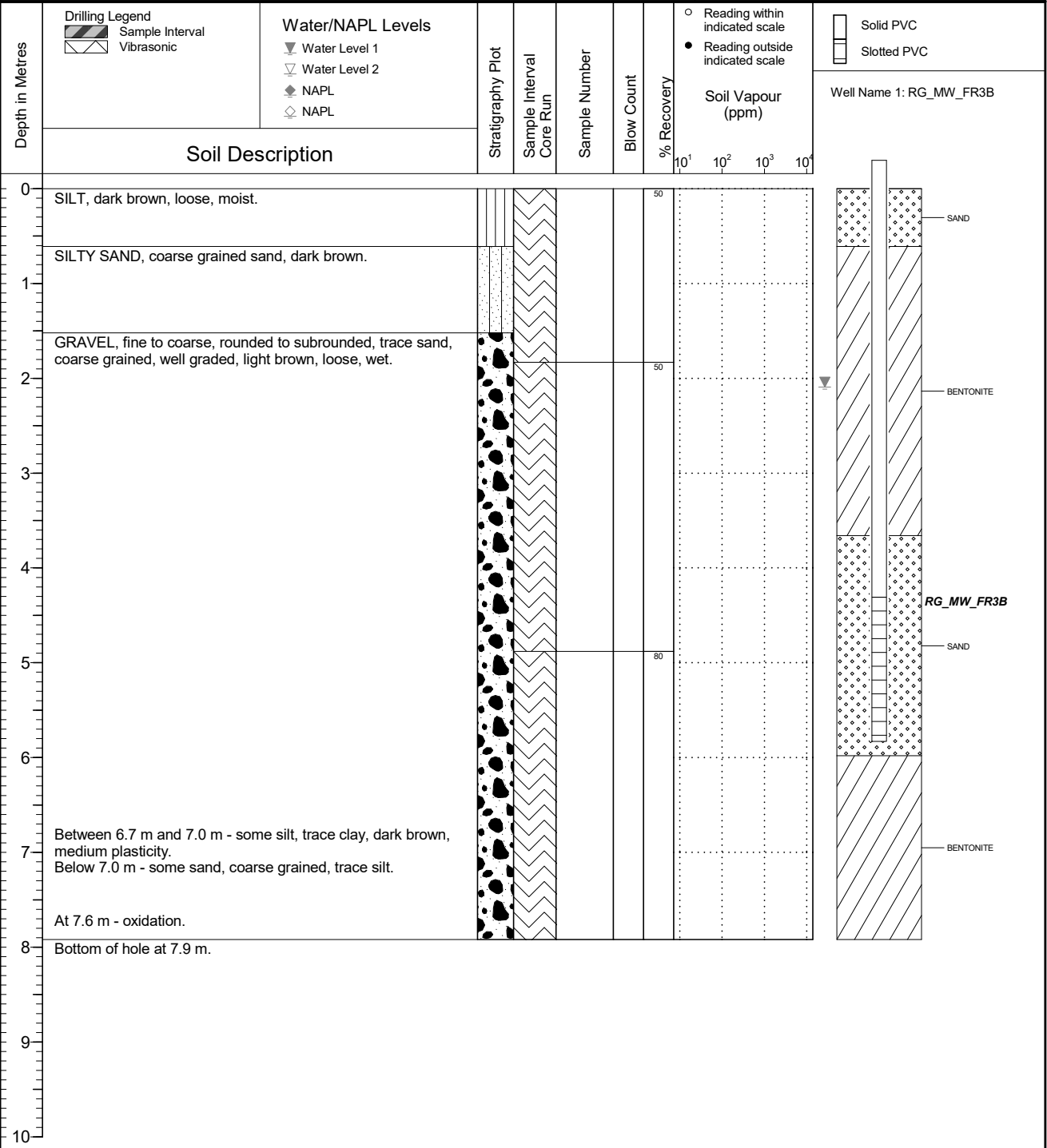
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: RG_MW_FR3A	
							10 ¹	10 ²	10 ³	10 ⁴		
20	GRAVEL, fine to coarse, subangular, some sand, fine to coarse grained, well graded. <i>(continued)</i>											
21	GRAVEL, fine to coarse, subangular, some silt, trace clay, well graded, dark brown, medium dense, medium plasticity, wet. Between 21.3 and 22.2 m - less silt, less clay, light brown.		FR3A-07									
22												
23	GRAVEL, fine to coarse, subangular, some silt, trace clay, well graded, dark brown, medium dense, medium plasticity, wet.											
24	CLAYEY GRAVEL, fine gravel, subrounded to subangular, some sand, coarse grained, brown, dense, wet.			FR3A-08		80						
25	BOULDER, 330 mm, siltstone, black.											
26	CLAYEY GRAVEL, fine to coarse gravel, subrounded and subangular, some sand, coarse grained, dark brown, dense, medium plasticity, damp.											
27	GRAVELLY CLAY, fine gravel, subrounded to subangular, some sand, fine grained, dark brown, dense, moist. At 27.4 m - light brown.			FR3A-09								
28	At 28.3 m - dry.											
29	Bottom of hole at 29.3 m.											
30												

NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR3B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1570.406 Top of Casing Elev. (m): 1571.164 Northing: 5556778.224 Easting: 653233.805	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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NOTES

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR4A

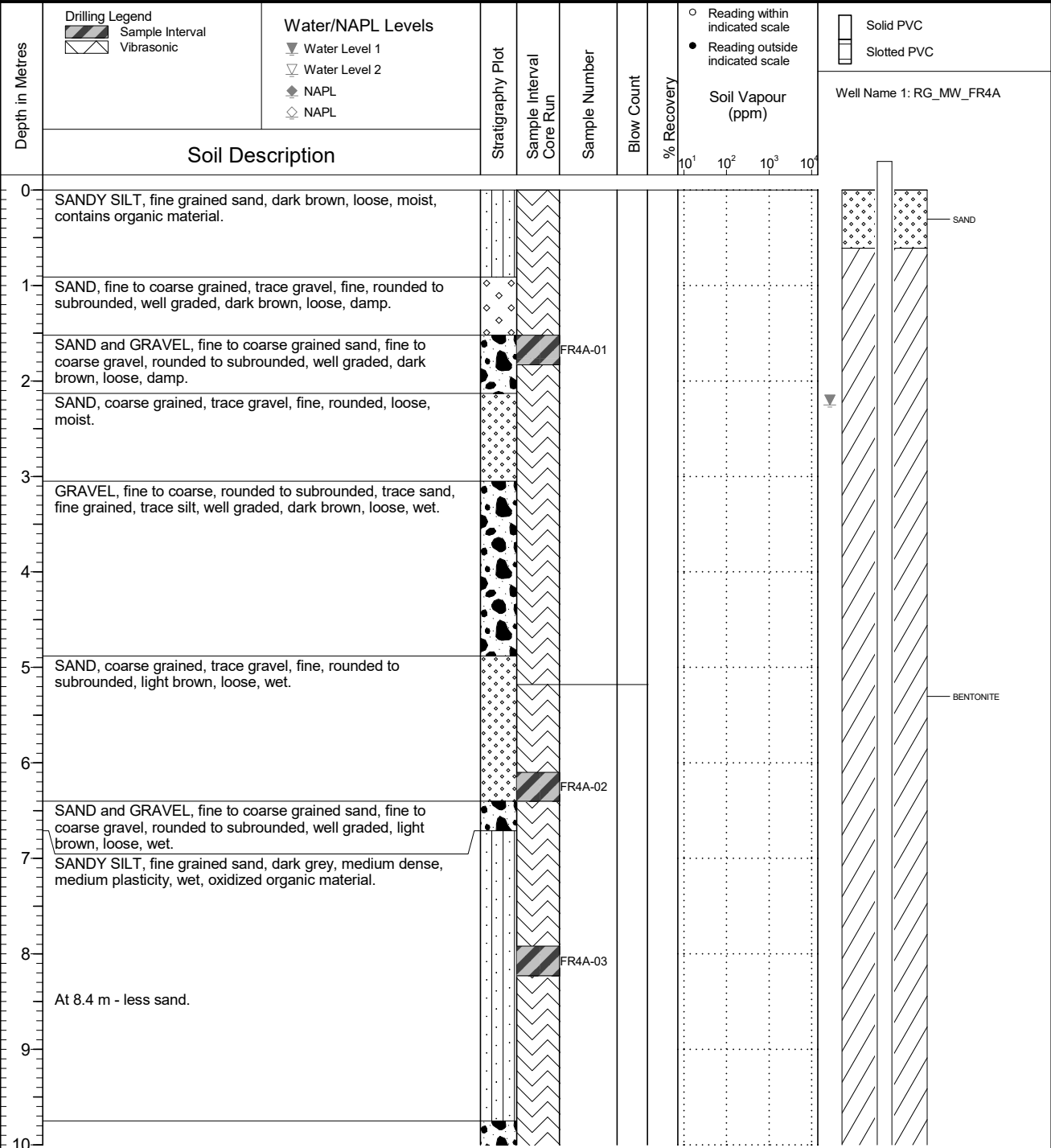
Location
Regional Groundwater Monitoring

PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1567.791
 Top of Casing Elev. (m): 1568.550
 Northing: 5556366.236 Easting: 653496.608

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 01
 Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR4A

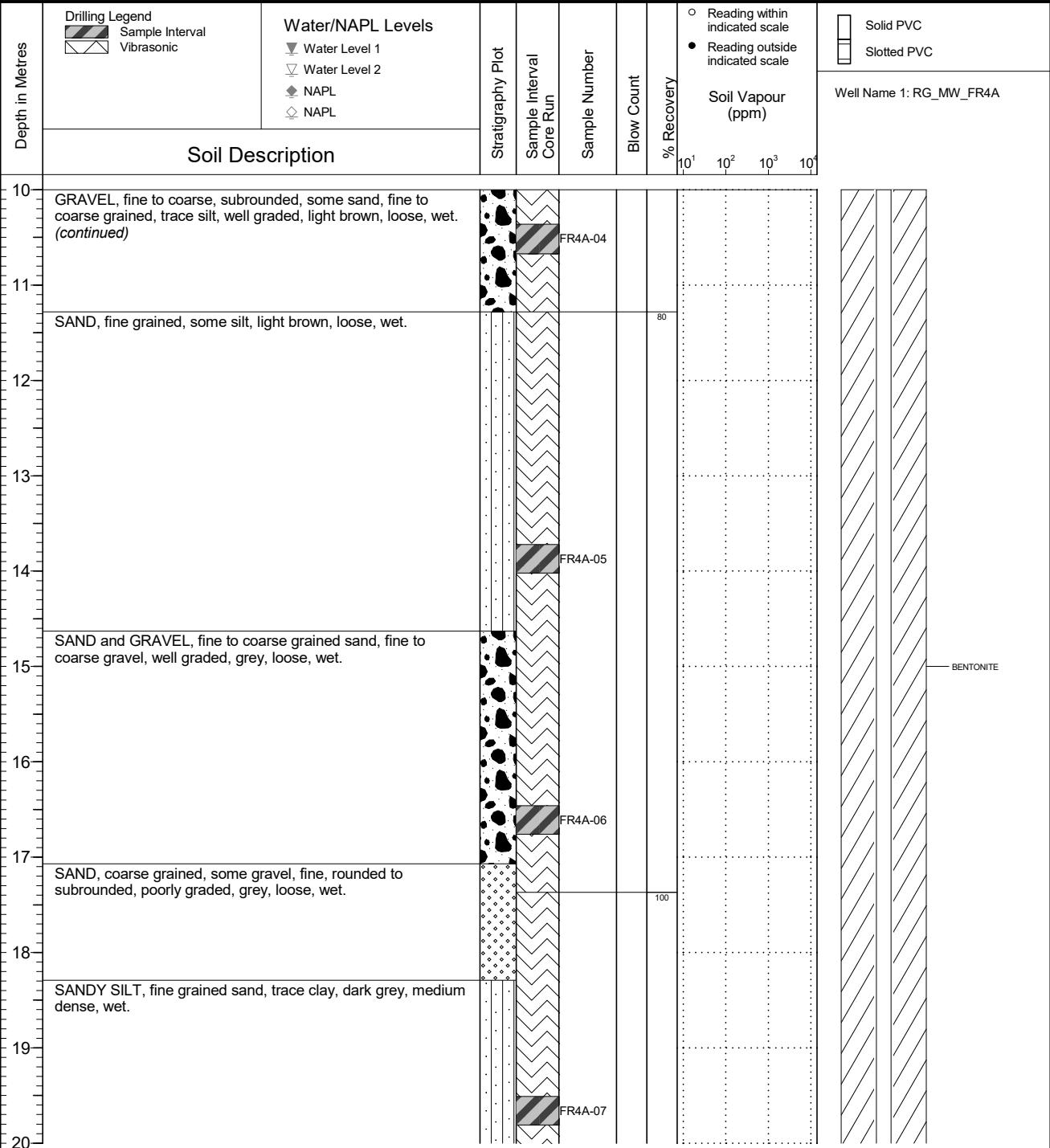
Location
Regional Groundwater Monitoring

PAGE 2 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1567.791
 Top of Casing Elev. (m): 1568.550
 Northing: 5556366.236 Easting: 653496.608

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 01
 Log Typed By: VL

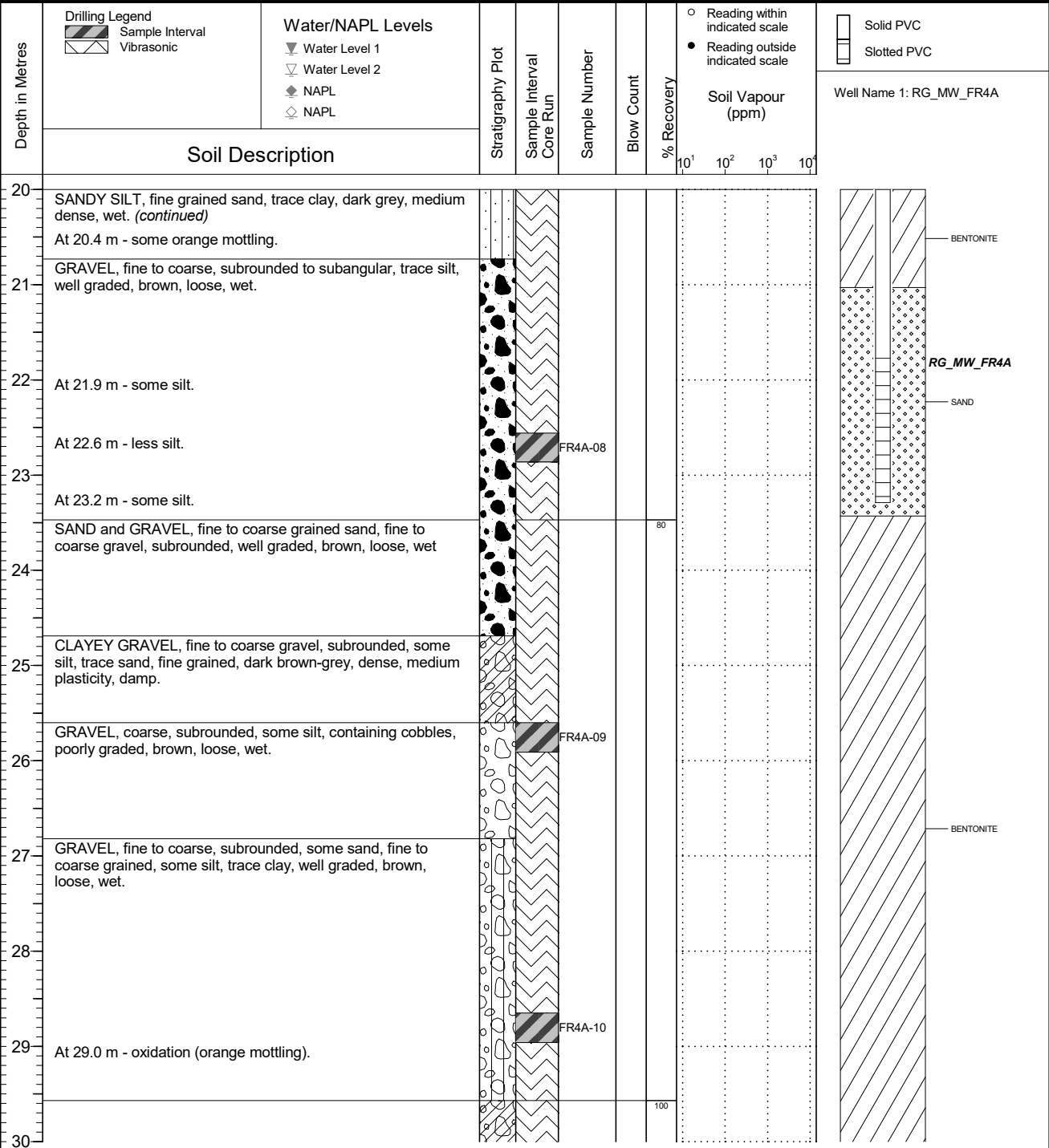


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR4A
	Location Regional Groundwater Monitoring	PAGE 3 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1567.791 Top of Casing Elev. (m): 1568.550 Northing: 5556366.236 Easting: 653496.608	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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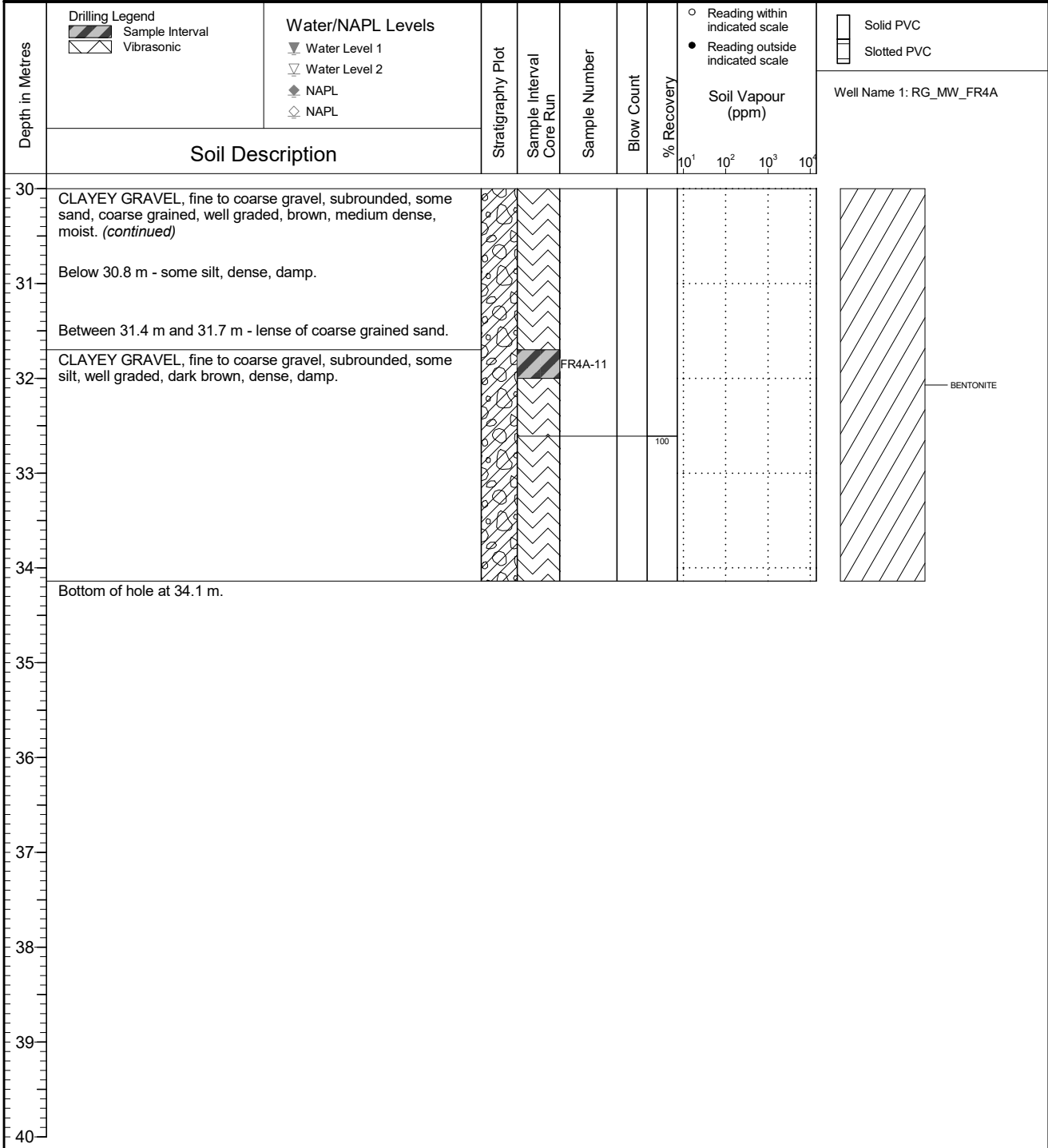


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR4A
	Location Regional Groundwater Monitoring	PAGE 4 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1567.791 Top of Casing Elev. (m): 1568.550 Northing: 5556366.236 Easting: 653496.608	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR4B

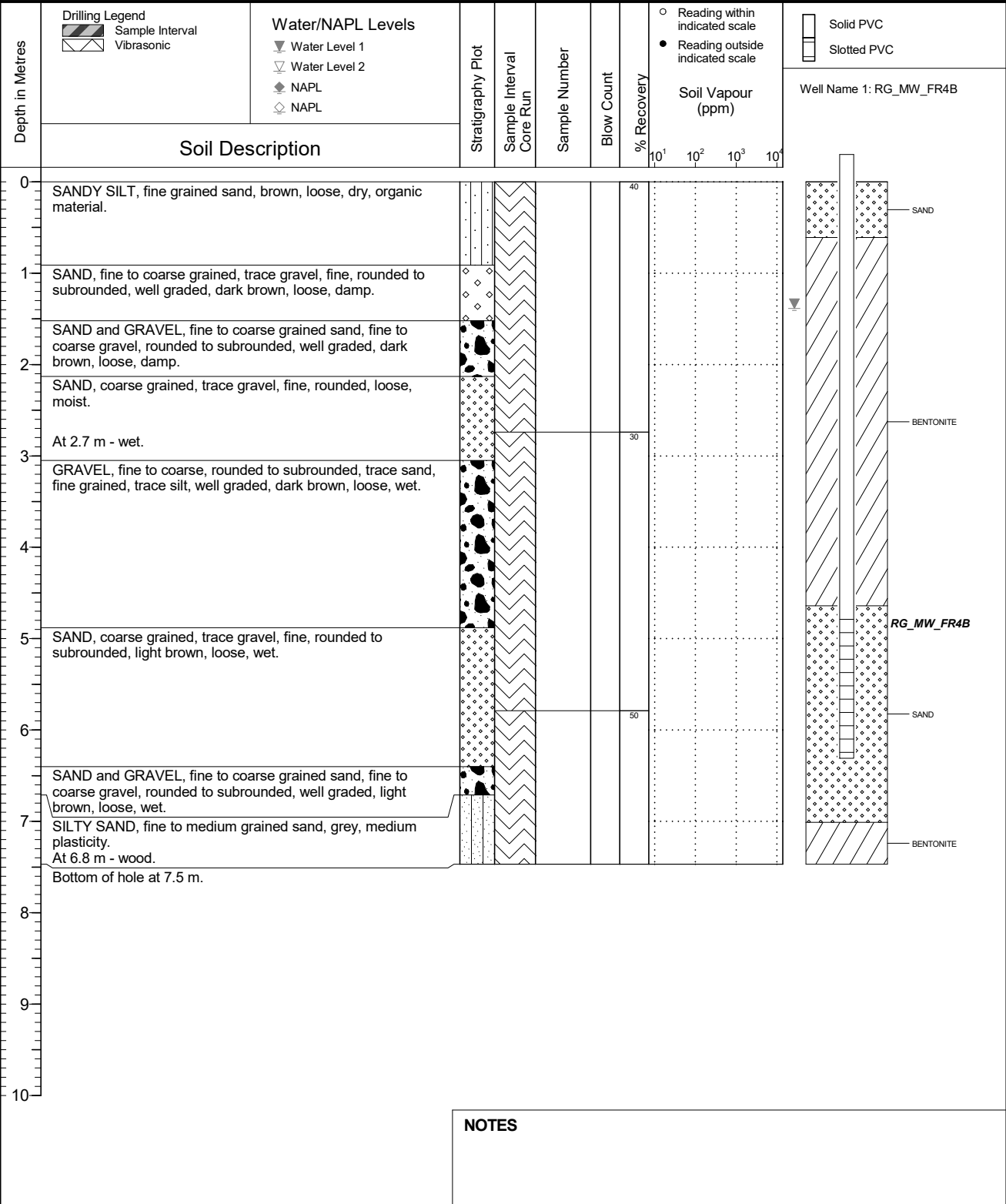
Location
Regional Groundwater Monitoring

PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1567.848
 Top of Casing Elev. (m): 1568.624
 Northing: 5556368.730 Easting: 653496.019

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 08
 Log Typed By: VL



QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5A

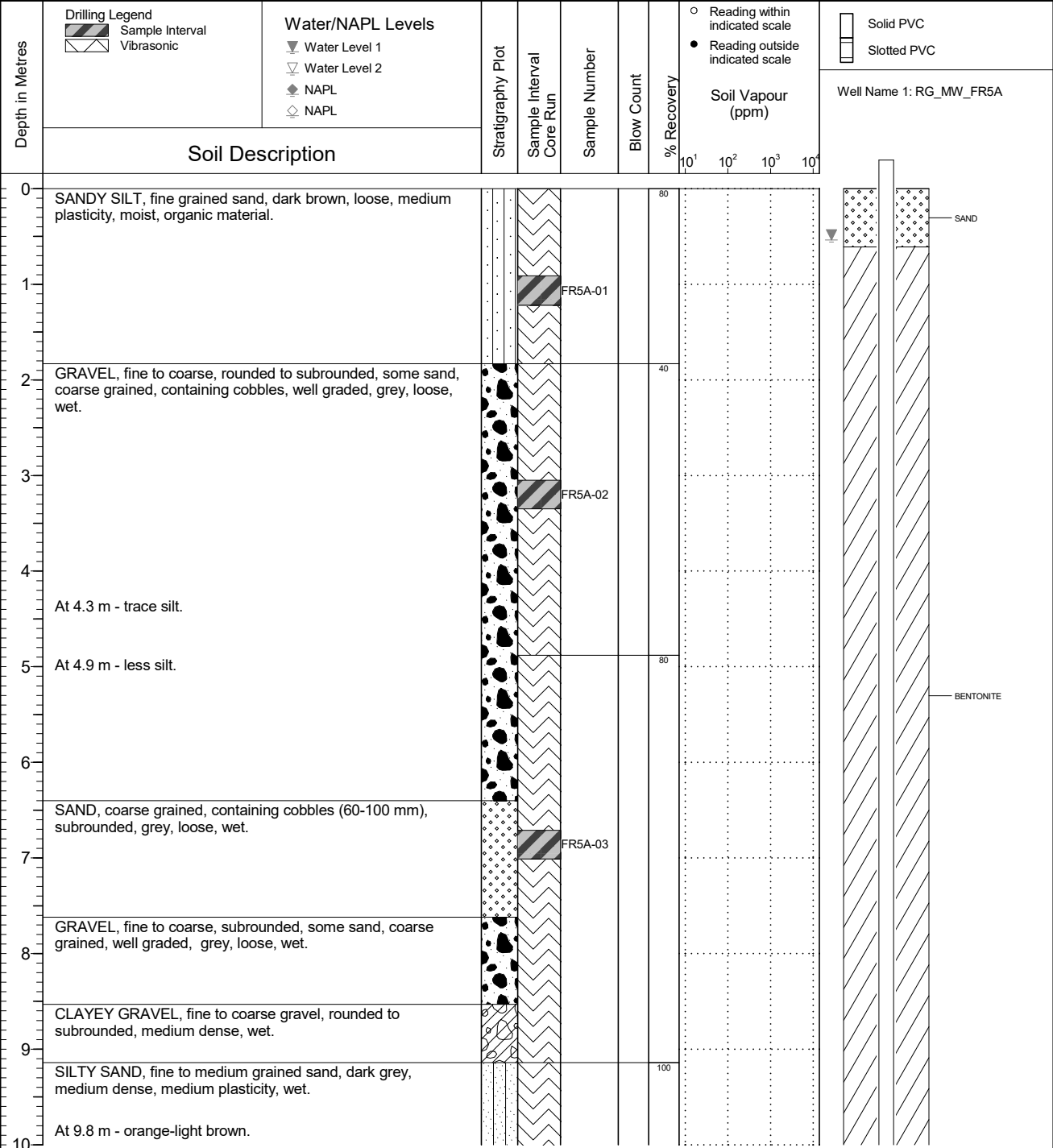
Location
Regional Groundwater Monitoring

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
 Drilling Method Vibratory Sonic
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2020 10 08
 Ground Surface Elev. (m) 1566.144
 Top of Casing Elev. (m) 1566.937
 Northing: 5556260.737 Easting: 653572.546

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5A

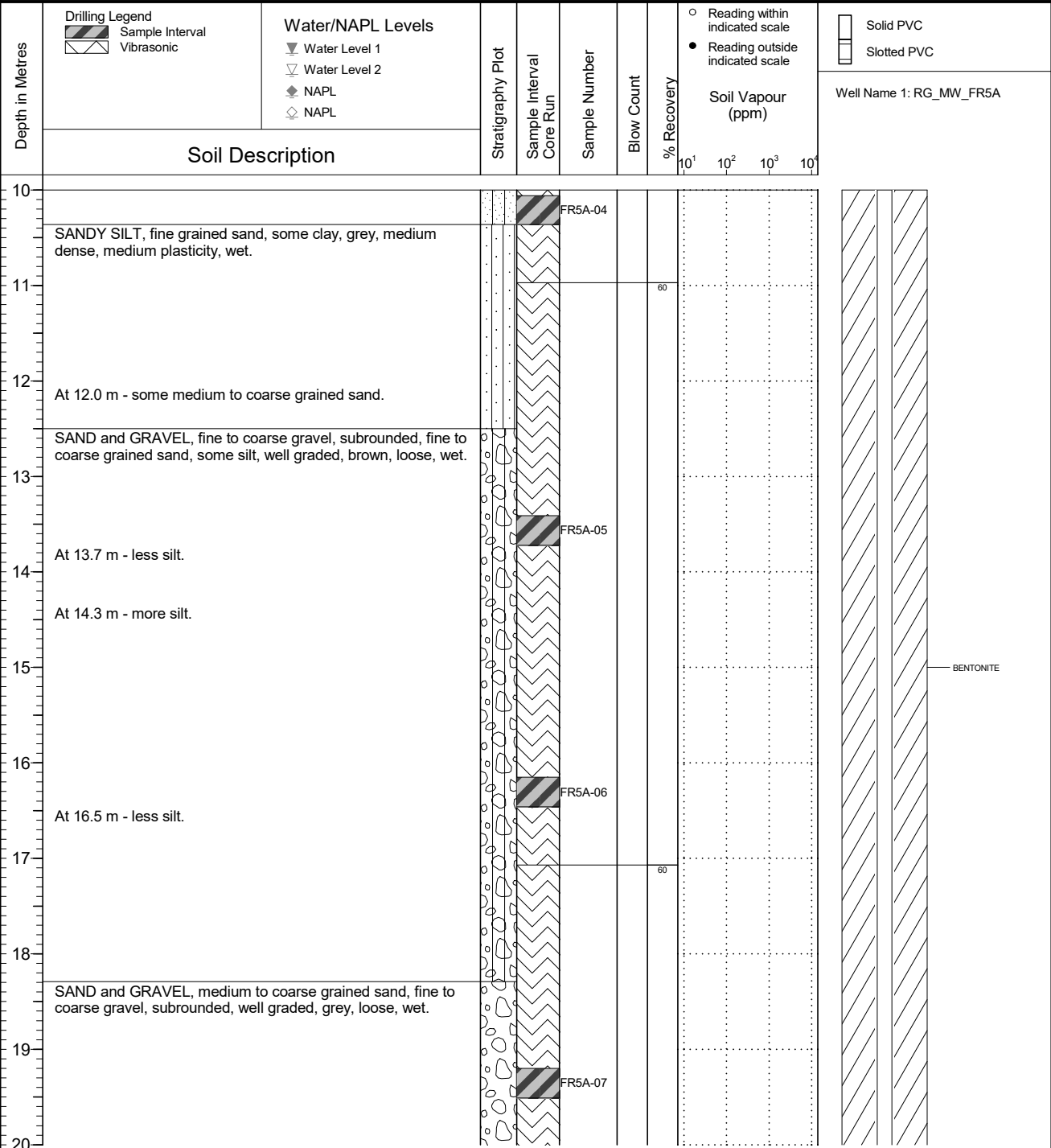
Location
Regional Groundwater Monitoring

PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1566.144
 Top of Casing Elev. (m): 1566.937
 Northing: 5556260.737
 Easting: 653572.546

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL

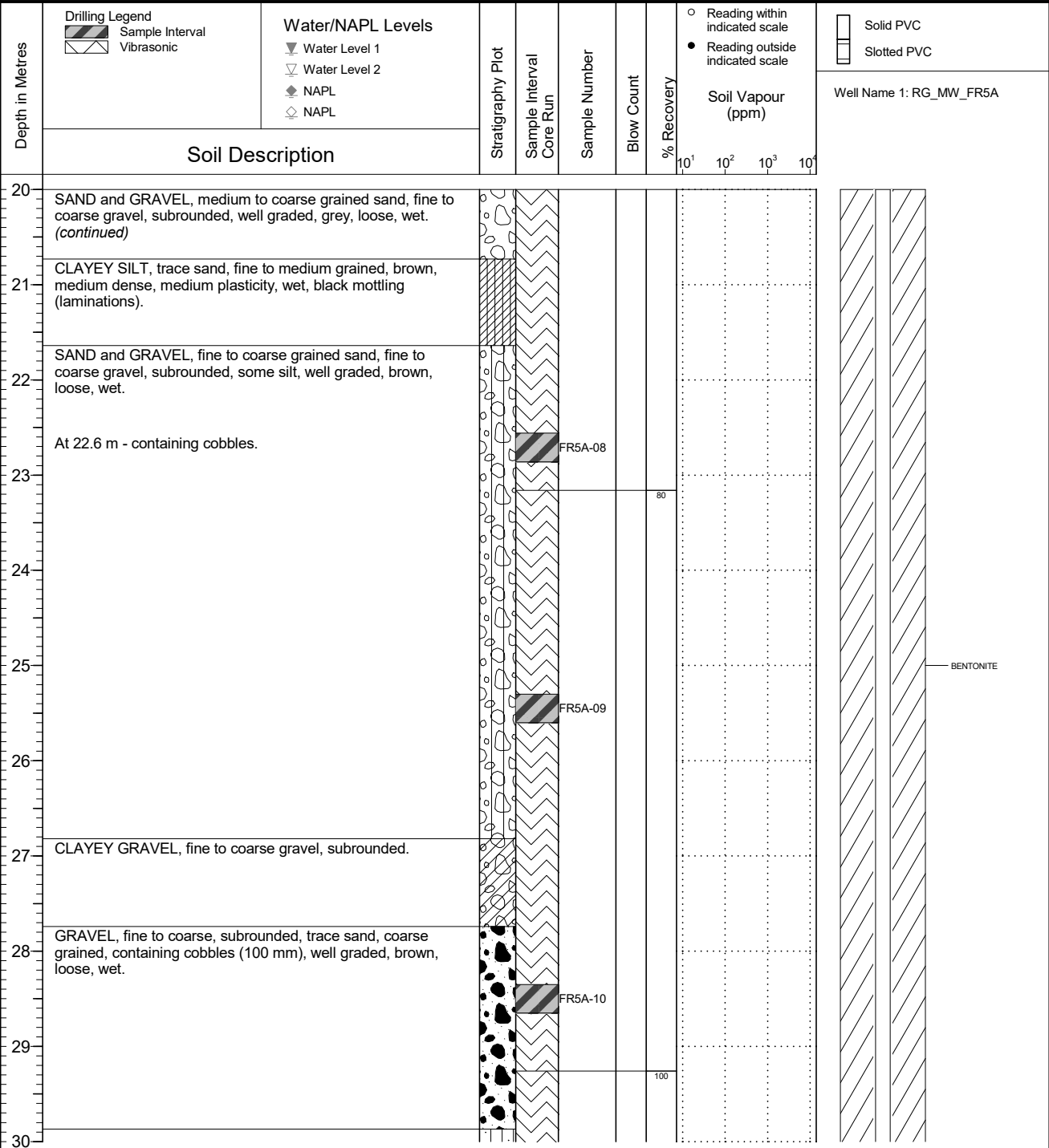


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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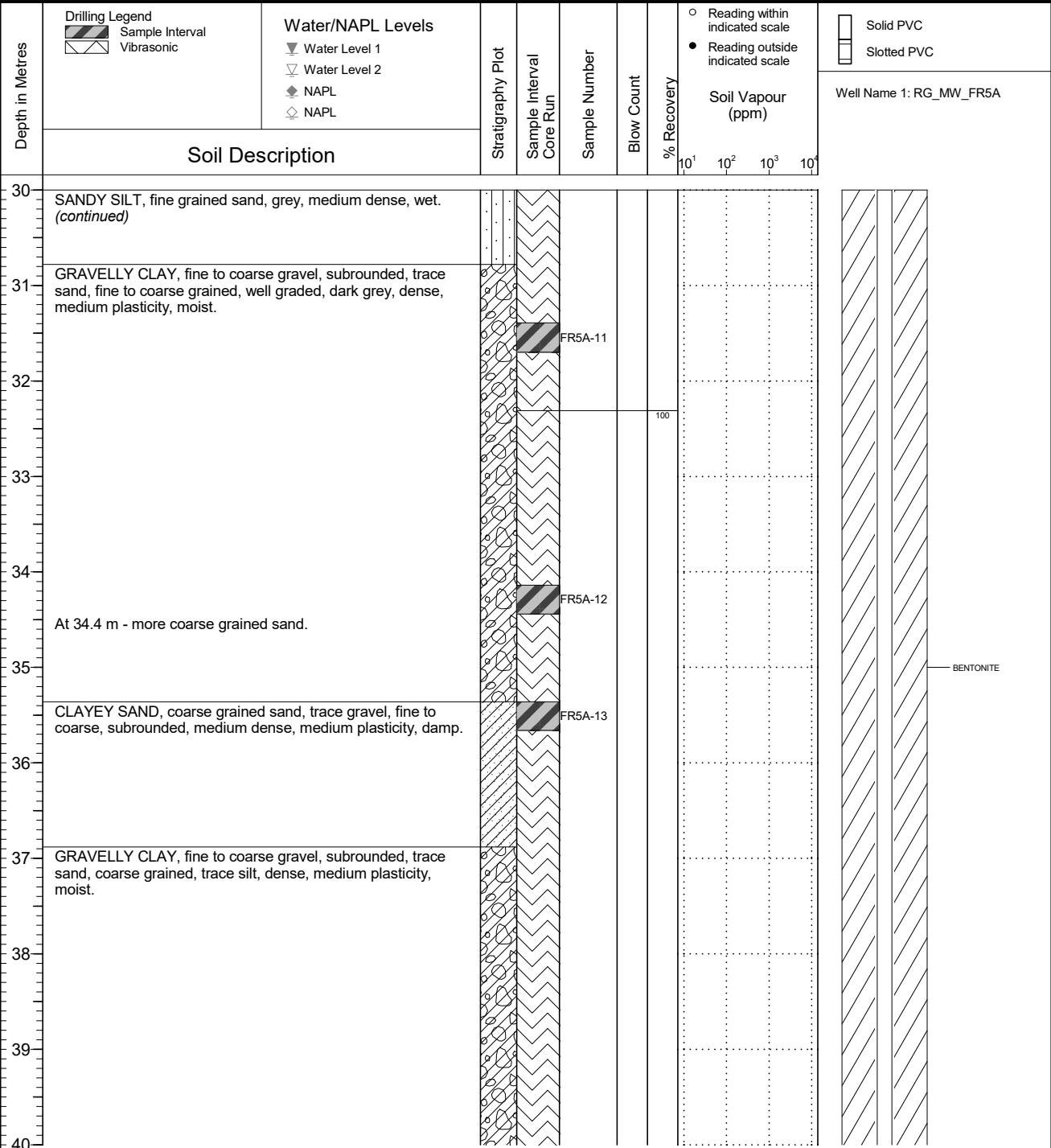


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 4 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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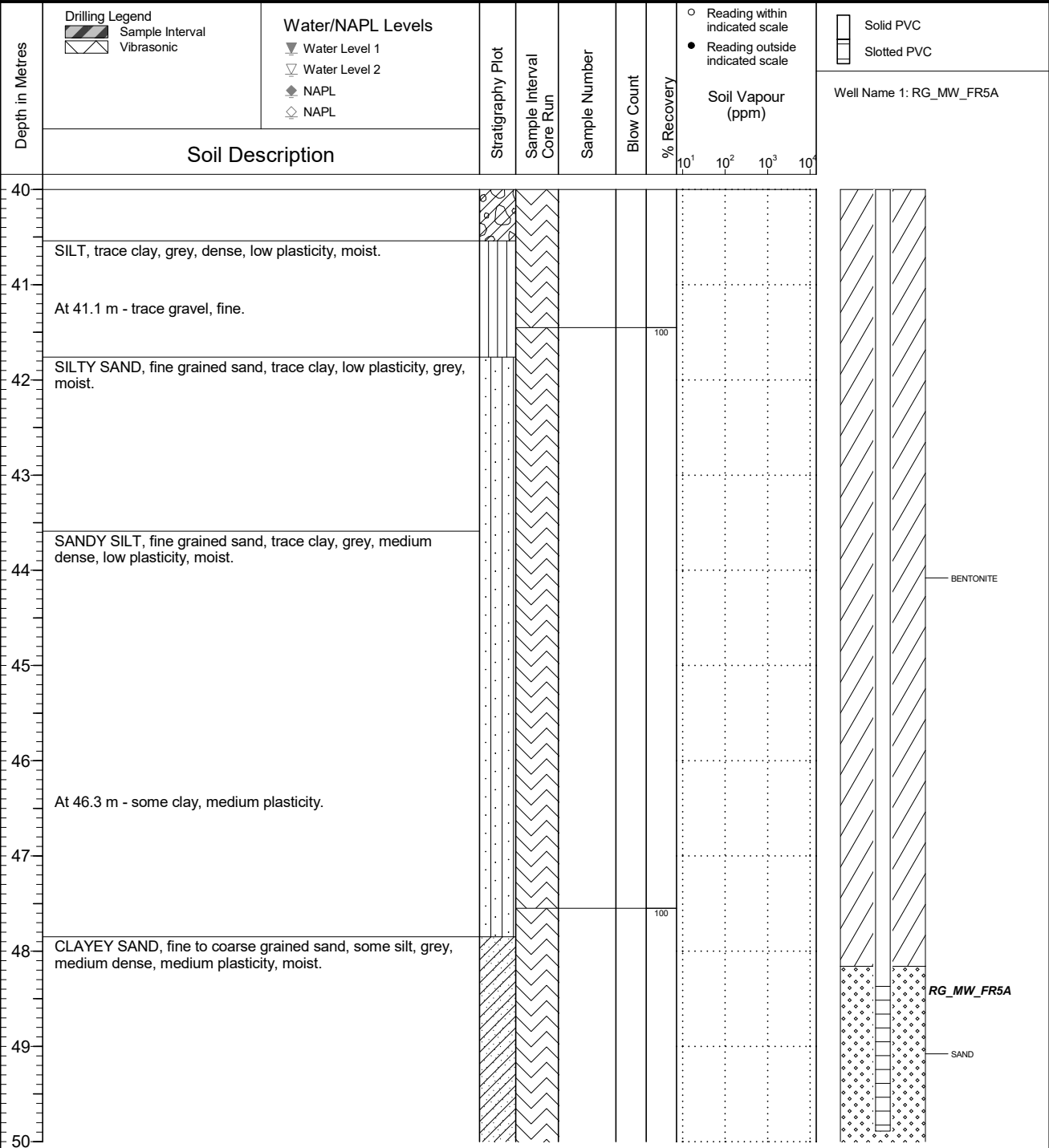
NOTES
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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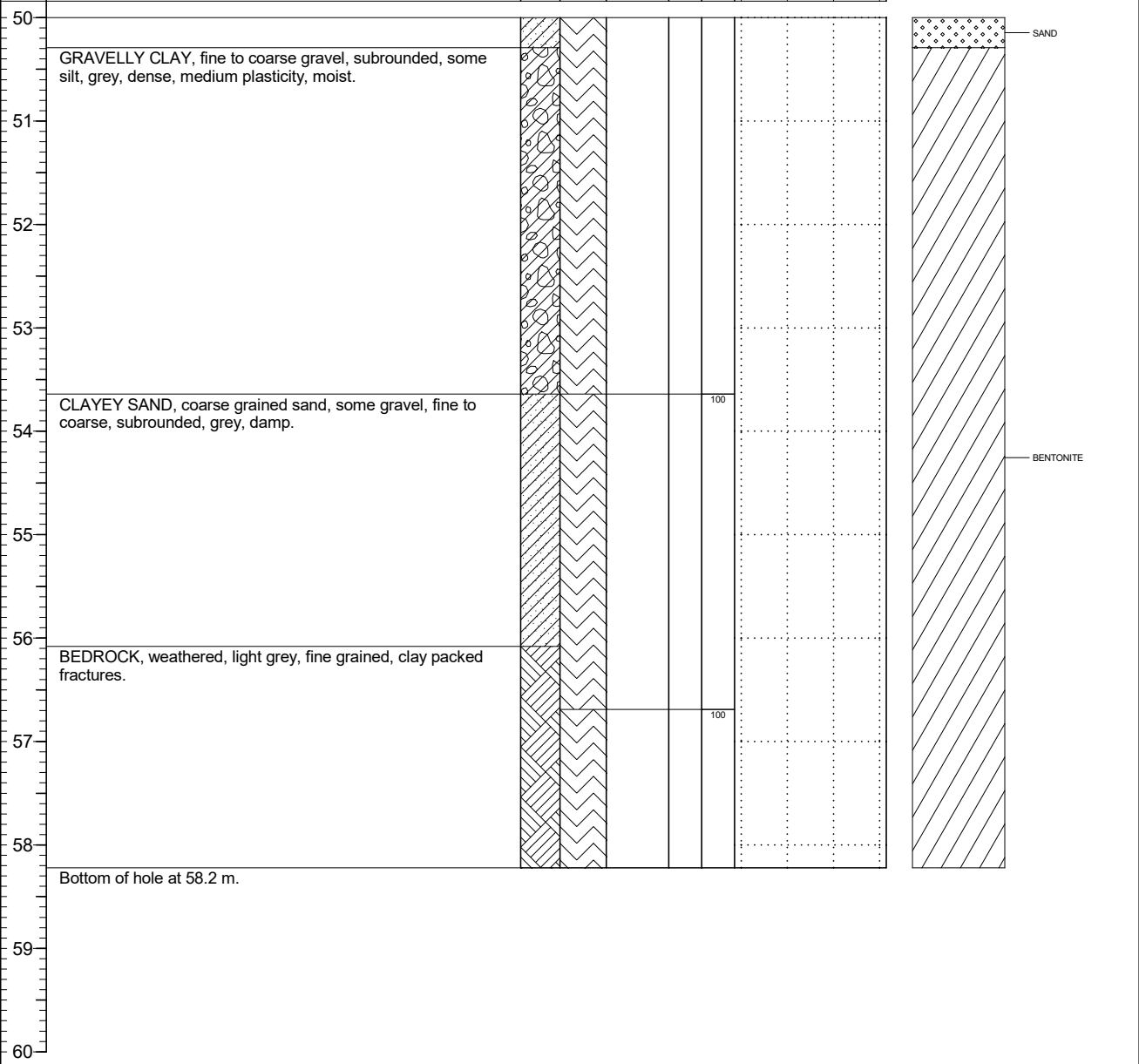
NOTES
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FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 6 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_FR5A
	Soil Description								



NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5B

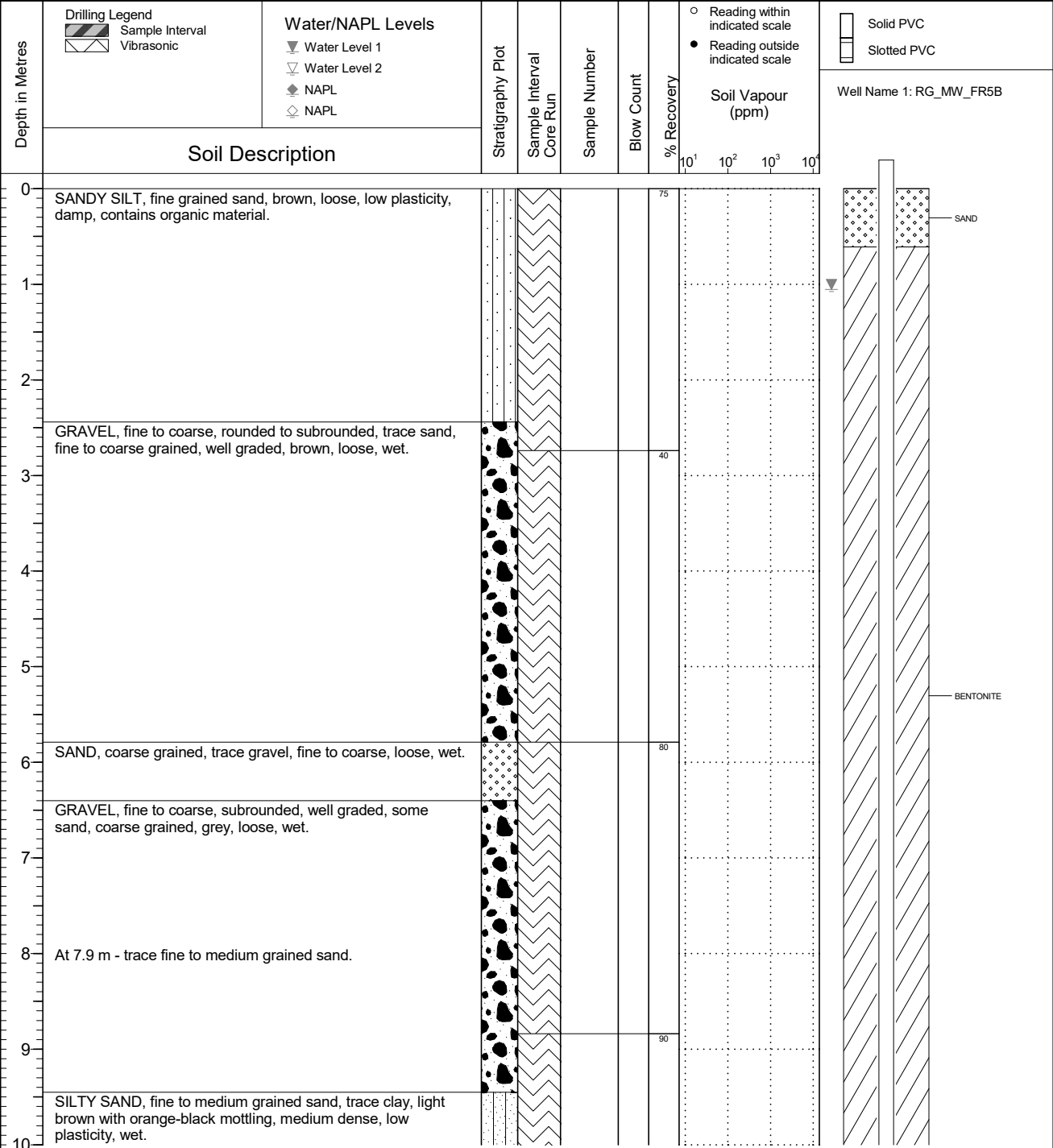
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1566.291
 Top of Casing Elev. (m): 1567.027
 Northing: 5556257.368 Easting: 653573.816

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL



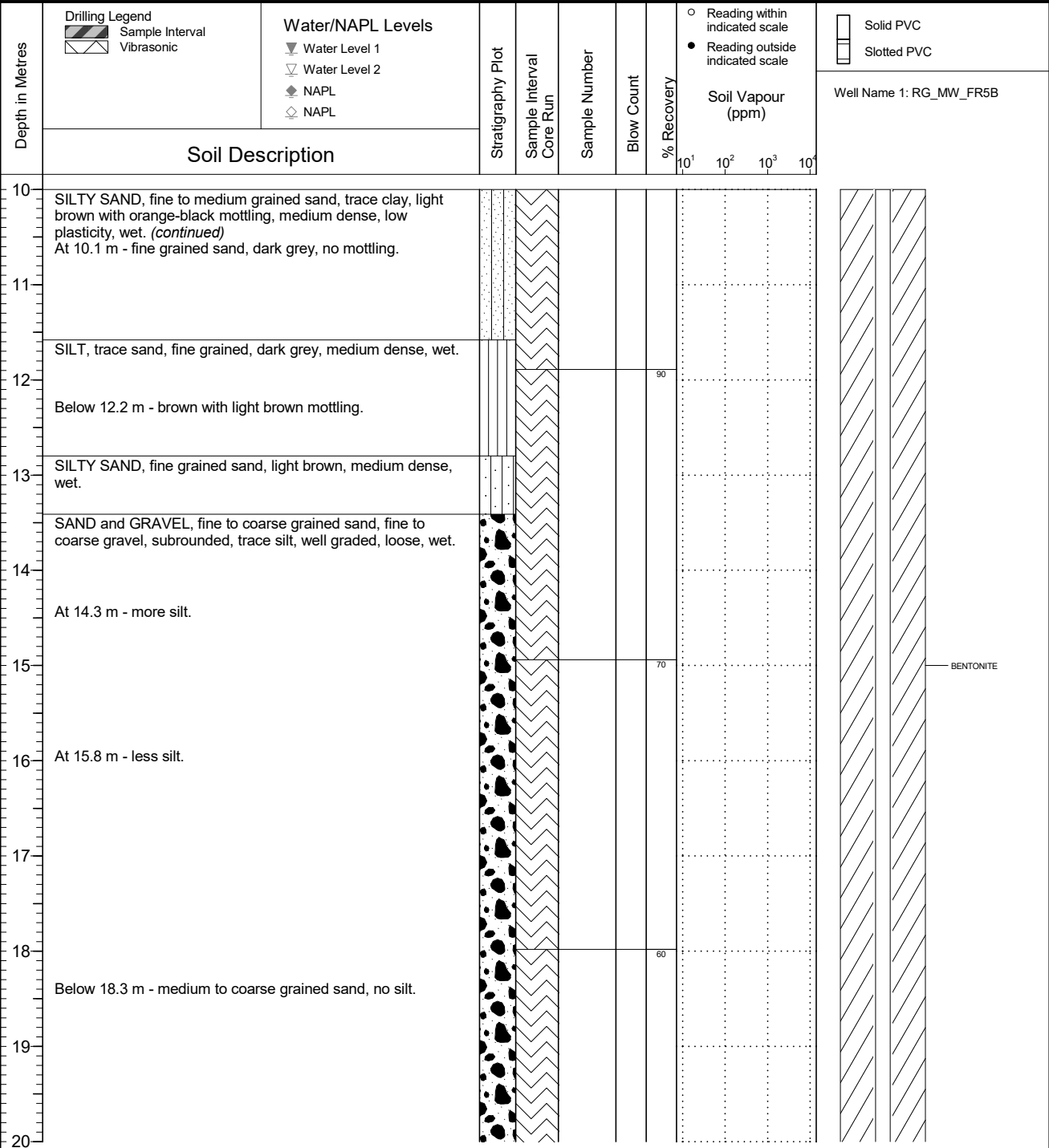
NOTES

QA/QC: LLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5B
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.291 Top of Casing Elev. (m): 1567.027 Northing: 5556257.368 Easting: 653573.816	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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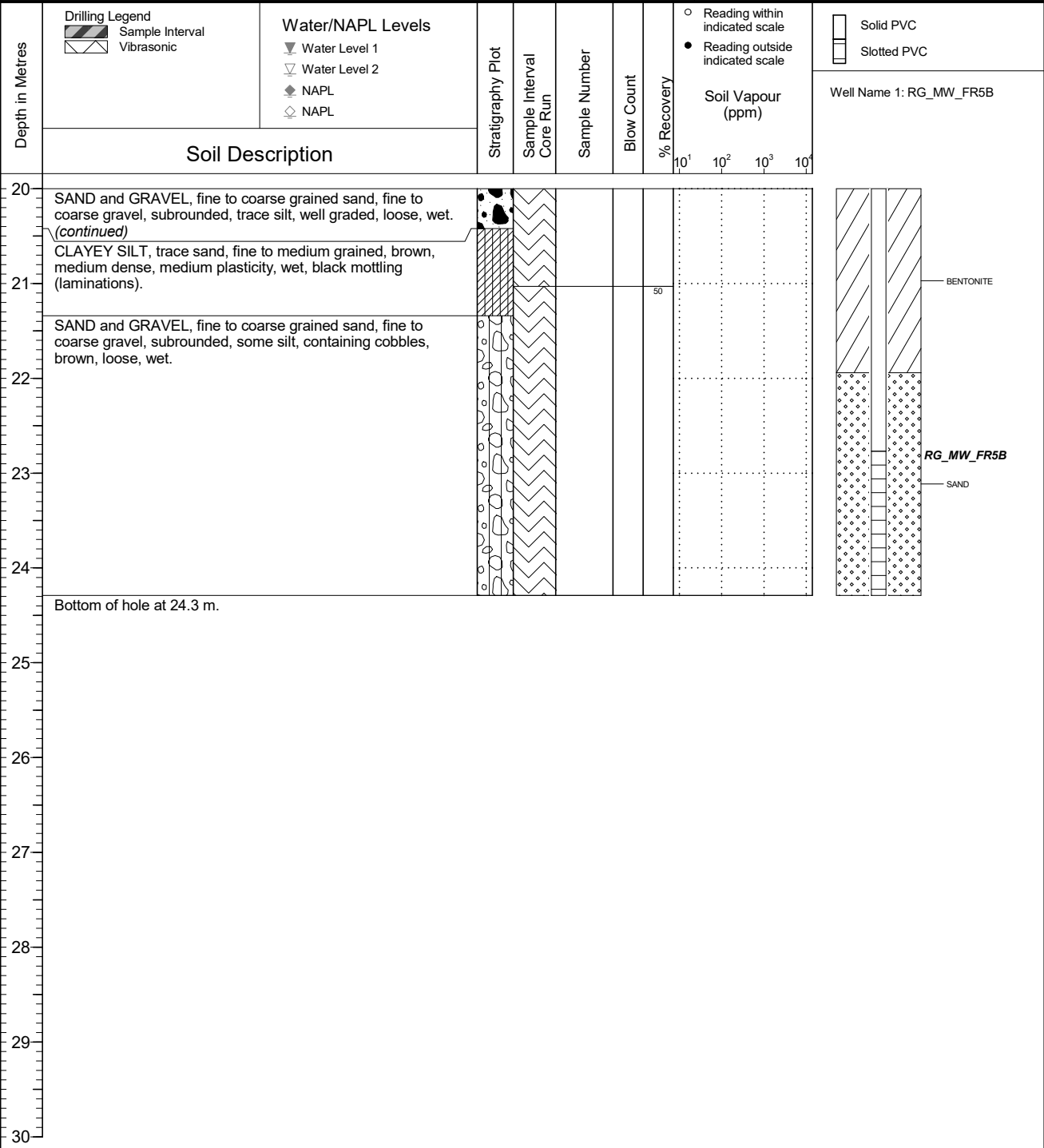


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5B
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.291 Top of Casing Elev. (m): 1567.027 Northing: 5556257.368 Easting: 653573.816	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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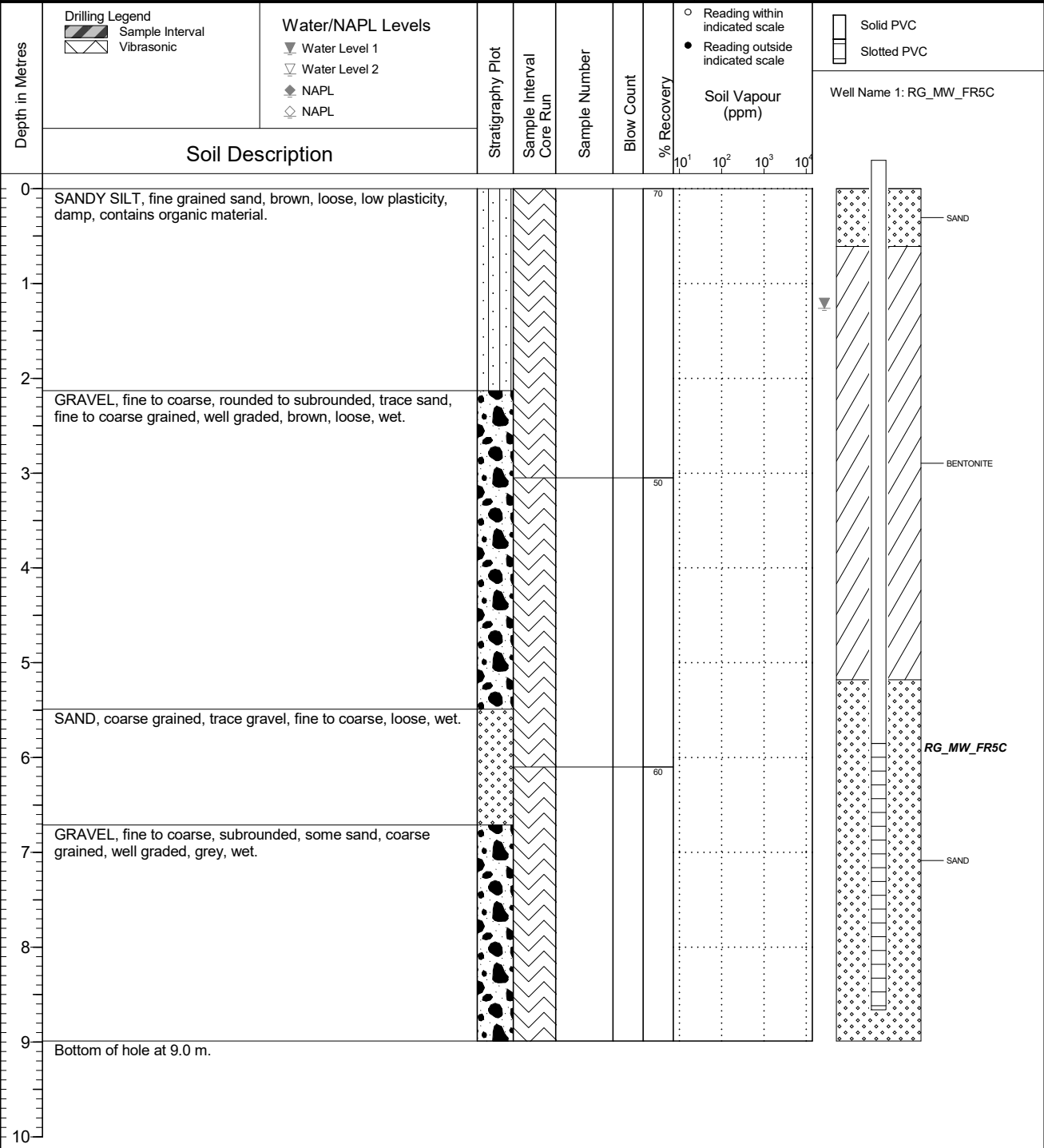


NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5C
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.10/0.10	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.118 Top of Casing Elev. (m): 1567.184 Northing: 5556259.086 Easting: 653570.541	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 08 Log Typed By: VL
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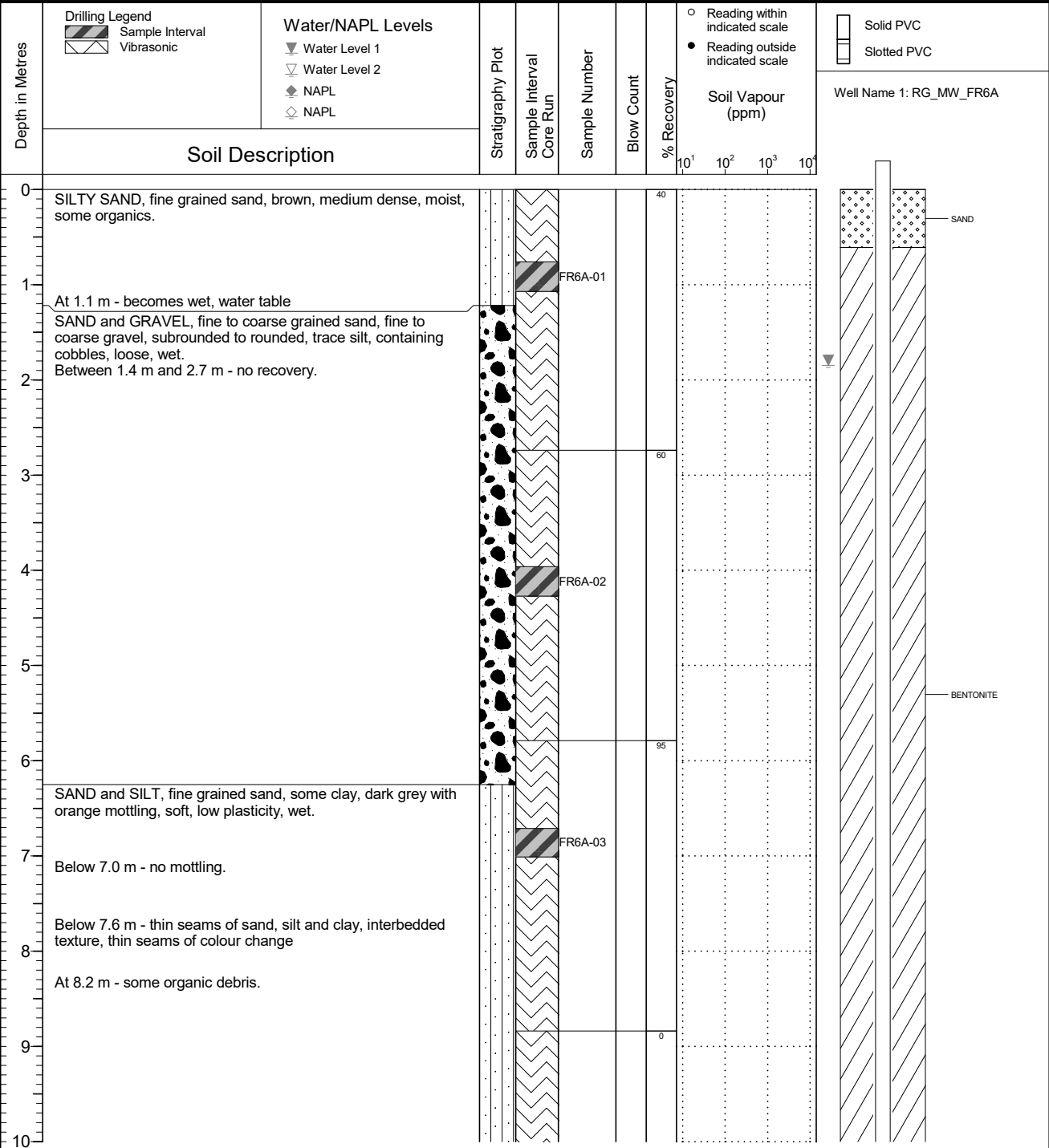


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FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR6A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.890 Top of Casing Elev. (m): 1566.012 Northing: 5556055.300 Easting: 653598.462	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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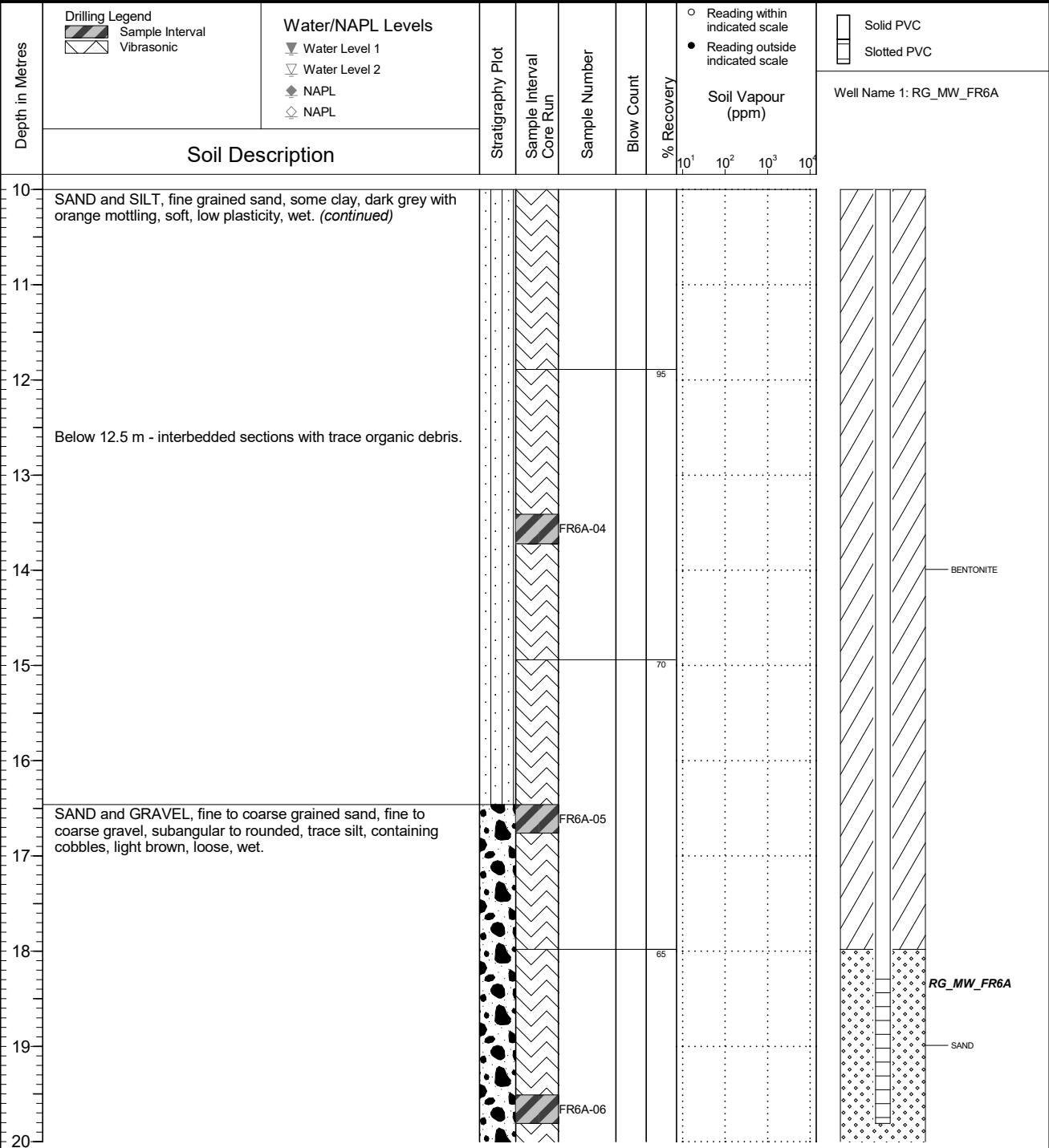


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR6A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.890 Top of Casing Elev. (m): 1566.012 Northing: 5556055.300 Easting: 653598.462	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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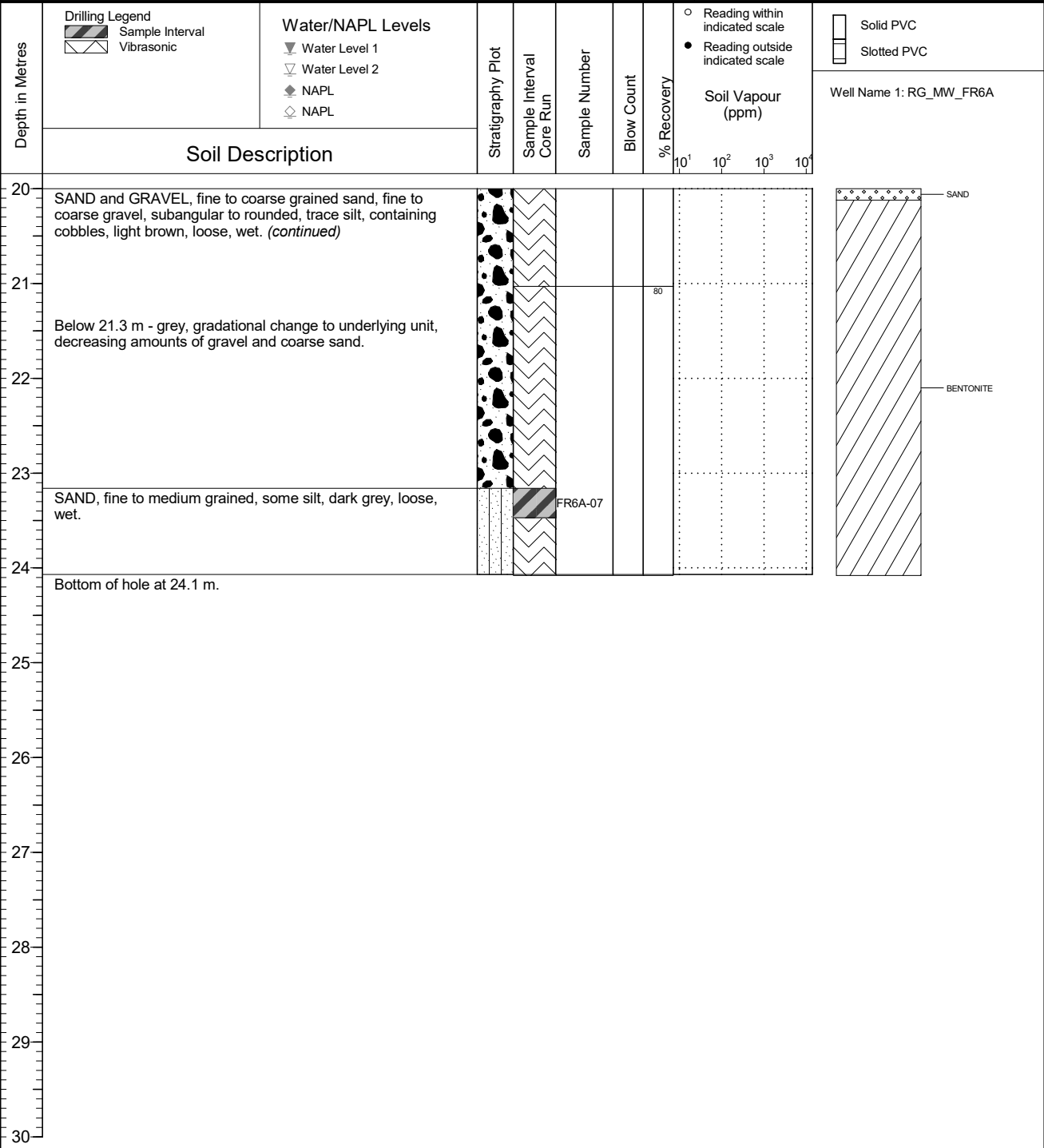


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR6A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.890 Top of Casing Elev. (m): 1566.012 Northing: 5556055.300 Easting: 653598.462	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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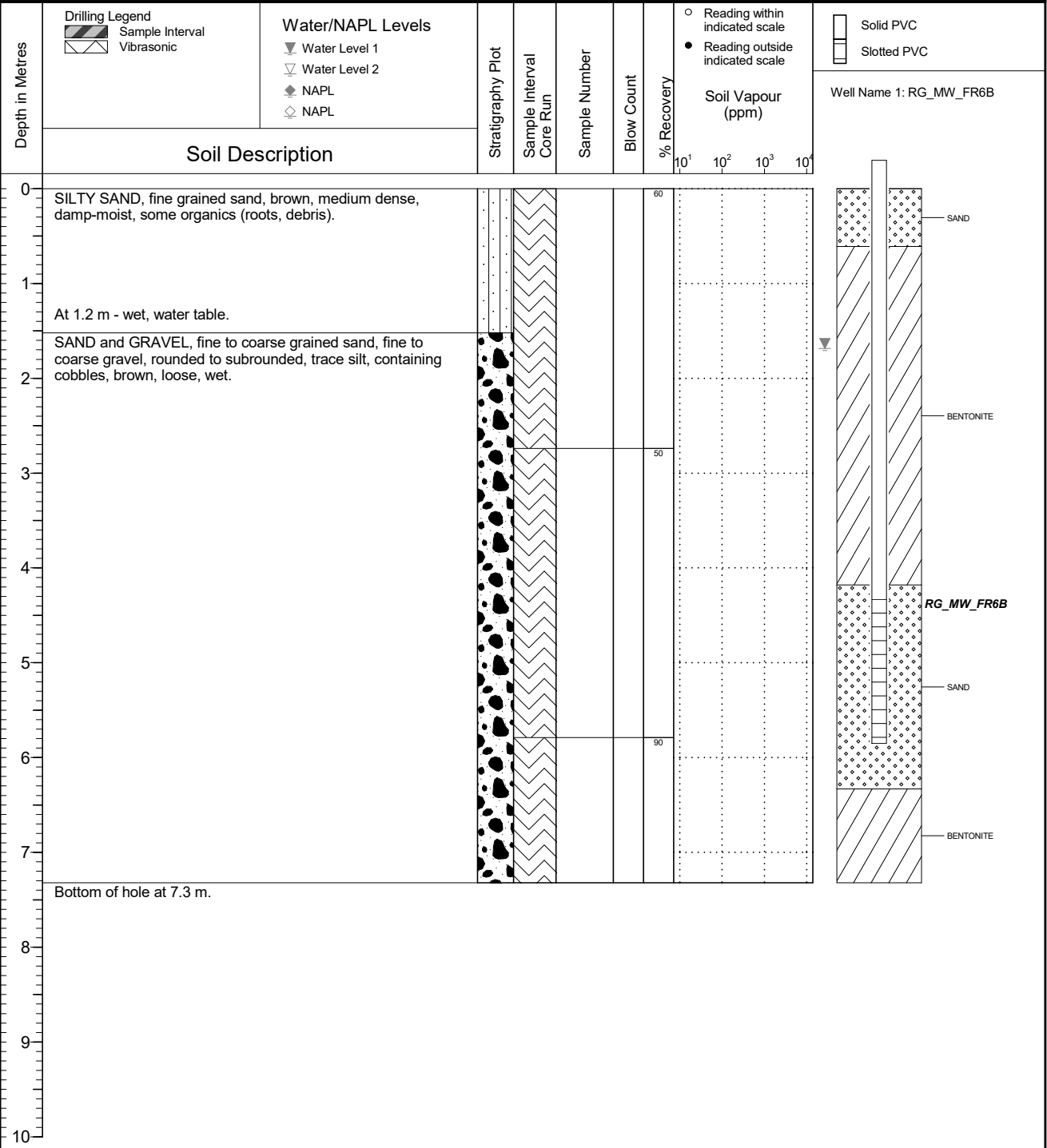
NOTES
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR6B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.886 Top of Casing Elev. (m): 1566.047 Northing: 5556055.582 Easting: 653596.404	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR7A

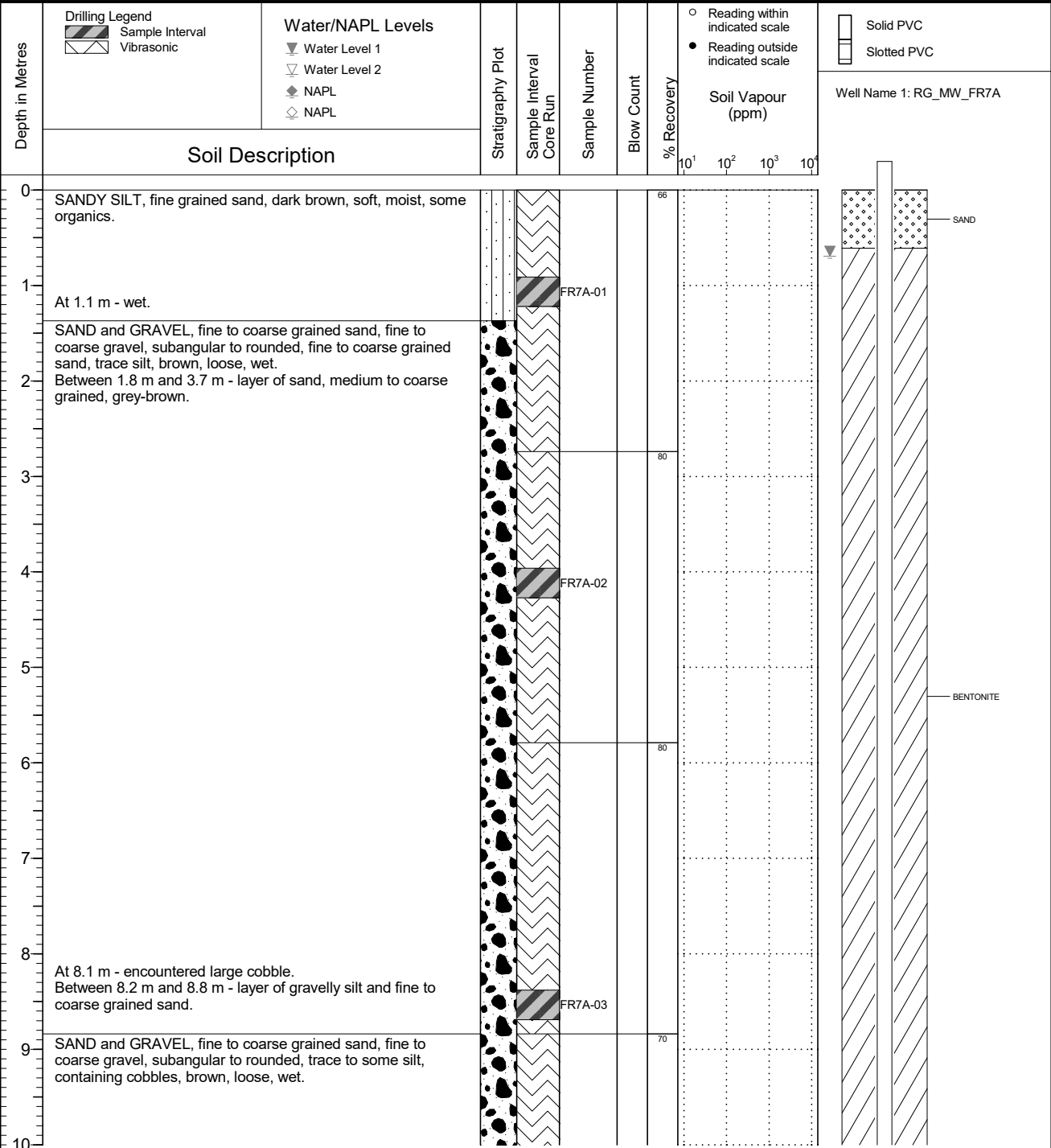
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1561.889
 Top of Casing Elev. (m): 1562.972
 Northing: 5555487.319 Easting: 653634.836

Project Number: 631283
 Borehole Logged By: GG
 Date Drilled: 2020 09 10
 Log Typed By: VL



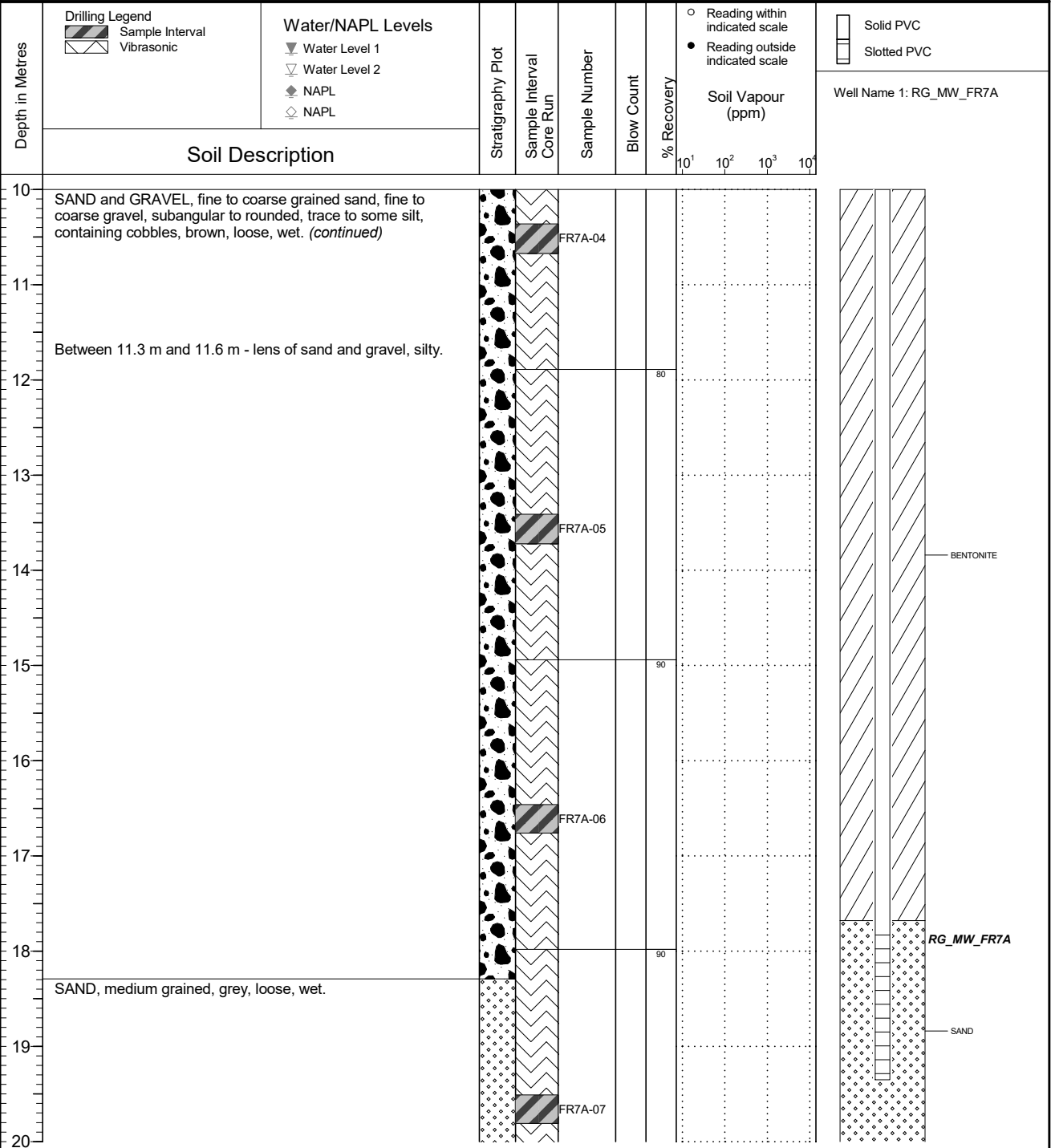
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR7A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.889 Top of Casing Elev. (m): 1562.972 Northing: 5555487.319 Easting: 653634.836	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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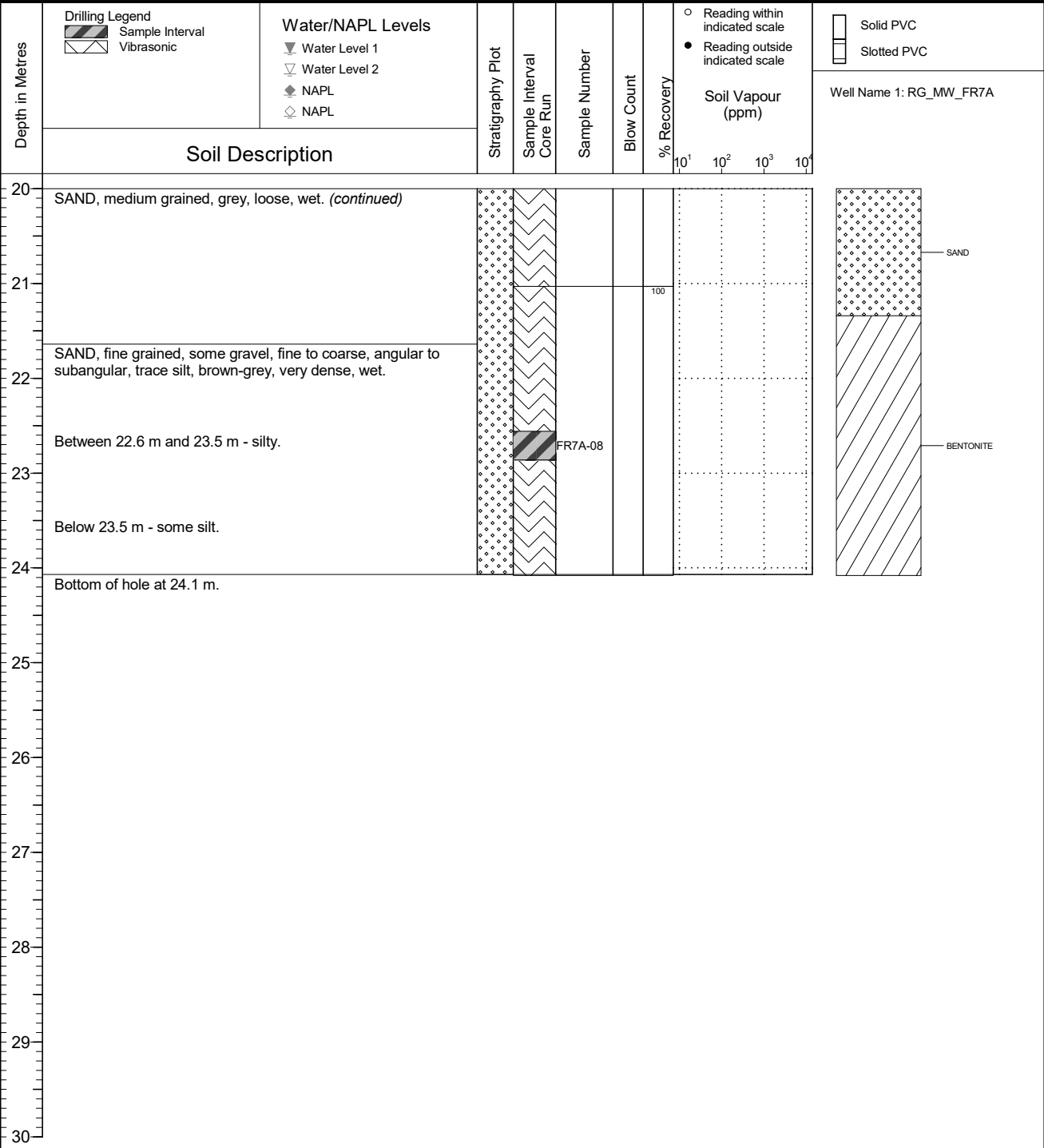
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR7A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.889 Top of Casing Elev. (m): 1562.972 Northing: 5555487.319 Easting: 653634.836	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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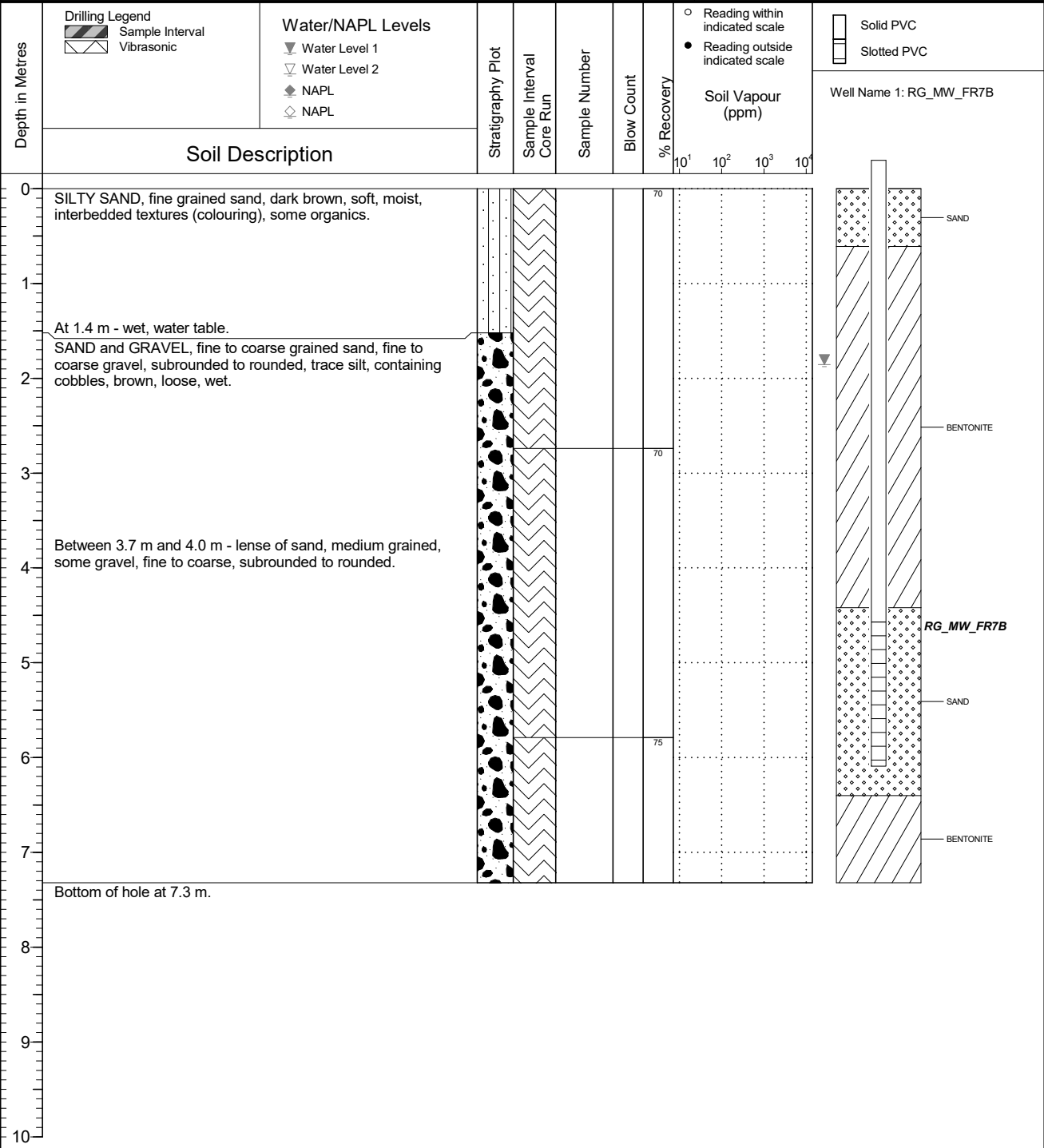
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR7B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.841 Top of Casing Elev. (m): 1562.856 Northing: 5555484.973 Easting: 653634.015	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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NOTES

RECORD OF FR MW20-01D

Note Elevations are in FRO DATUM **wood.**

Project Number: **VE52842** Drilling Coordinates: **652228.95 N, 5558243.47 E** Surface Elevation: **1599.05 m**
 Project Client: **Teck Coal** Drilling Method: **Diamond** Datum: **UTM NAD 83** Logged by: **B.Chernoff**
 Project Name: **FRO Swift Ponds Seepage** Location: **FRO Swift Pond** Dip (from Horiz.): **90°** Reviewed by: **D.Kennedy**
 Project Location: **Fording River Operations** Date Started: **Dec 10, 20** Date Completed: **Dec 11, 20** Drilled Depth: **12.4 m** Revision No.: **1, 1/21/21**

DEPTH (m)	ELEVATION (m)	LITHOLOGY PROFILE SOIL/ROCK DESCRIPTION	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
			20 40 60 80	20 40 60 80	20 40 60 80		
1	1598	Grey to brown clasts of boulders and cobbles. Sub-angular to sub-round clasts. Clasts consist of mudstone, siltstone and limey siltstone/shale.	9				HQ (96mm diameter) diamond core through overburden. 16/12/20 - After well install and development. Water level @ 2.58 mbgs HW Surface casing advanced to 5.9 mbgs.
2	1597						
3	1596						
4	1595						
5	1594						
6	1593	Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	60	60	25		
			94	74	32		
7	1592		100	90	80		
8	1591		100	89	74		
9	1590		95	58	0		
10	1589		100	77	64		
11	1588		97	87	87		
12	1587						
							End of Borehole @ 12.4 mbgs. 51mm diameter PVC monitoring well installed to 11 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 7.9 to 10.9 mbgs. 10/20 Filter sand from 7 to 11.2 mbgs. Time release bentonite tablets from 11.2 to 12.4 mbgs and from 0.0 to 7.0 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

Format: GALORE CREEK - 2011 SI PROGRAM File: FRO SWIFT POND 2.GPJ Date: 1/21/2021 6:36:36 PM

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RECORD OF FR MW20-01S



Project Number: VE52842 Drilling Coordinates: 652228.43 N, 5558245.26 E Surface Elevation: 1599.03 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 12, 20 Date Completed: Dec 12, 20 Drilled Depth: 5.7 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown clasts of boulders and cobbles. Sub-angular to sub-round clasts. Clasts consist of Mudstone, Siltstone and Limey Siltstone/Shale.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 2.23 mbgs
3	1596			10				HW Surface casing advanced to 5.7 mbgs.
4	1595							
5	1594							
			Interbedded dark and light grey bands of lithified silt and clay.	100	100	65		51mm diameter PVC monitoring well installed to 5.6 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 4 to 5.5 mbgs. 10/20 Filter sand from 3.5 to 5.65 mbgs. Time release bentonite tablets from 5.65 to 5.7 mbgs and from 0.0 to 3.5 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-02D



Project Number: VE52842 Drilling Coordinates: 652176.55 N, 5558372.53 E Surface Elevation: 1598.93 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 13, 20 Date Completed: Dec 14, 20 Drilled Depth: 15.7 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown cobbles and gravel. Trace clay and silt, some sand. Sub-round clasts composed of limestone/limey shale, mudstone, quartzite.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 4.08 mbgs
3	1596							HW Surface casing advanced to 6.7 mbgs.
4	1595							
5	1594							
6	1593							
7	1592		Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	80	0	0		
8	1591			100	32	30		
9	1590			100	98	94		
10	1589			100	64	43		
11	1588			100	90	83		
12	1587			90	77	65		
13	1586			98	95	82		
14	1585			100	80	65		
15	1584			100	76	65		
End of Borehole @ 15.7 mbgs. 51mm diameter PVC monitoring well installed to 15.6 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 12.6 to 15.6 mbgs. 10/20 Filter sand from 9.5 to 15.7 mbgs. Time release bentonite tablets from 0.0 to 9.5 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.								

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RECORD OF FR MW20-02S



Project Number: VE52842 Drilling Coordinates: 652175.93 N, 5558374.39 E Surface Elevation: 1598.94 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 14, 20 Date Completed: Dec 15, 20 Drilled Depth: 6.3 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	Graphic Plot	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown cobbles and gravel. Trace silt and clay, some sand. Sub-round clasts composed of limestone/limey shale, mudstone, quartzite.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 2.67 mbgs
3	1596							HW Surface casing advanced to 6.3 mbgs.
4	1595							
5	1594							
6	1593							
								End of Borehole @ 6.3 mbgs. 51mm diameter PVC monitoring well installed to 6.3 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 4.6 to 6.1 mbgs. 10/20 Filter sand from 3.8 to 6.3 mbgs. Time release bentonite tablets from 0.0 to 3.8 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-03D



Project Number: VE52842 Drilling Coordinates: 652186.64 N, 5558167.42 E Surface Elevation: 1600.71 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 15, 20 Date Completed: Dec 16, 20 Drilled Depth: 14 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE SOIL/ROCK DESCRIPTION	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
				Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1600		Brown to grey gravel and cobbles. Trace silt and some sand. Sub-round clasts composed of sandstone and siltstone.	9				HQ (96mm diameter) diamond core through overburden.
2	1599							
3	1598							17/12/20 - After well install and development. Water Level @ 2.03 mbgs.
4	1597							HW Surface casing advanced to 4.5 mbgs.
5	1596		Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	100	72	33		
6	1595			100	50	0		
7	1594			96	90	61		
8	1593			97	78	64		
9	1592			87.5	50	43		
10	1591			94	77	34		
11	1590			98	95	0		
12	1589			100	80	0		
13	1588			100	76	0		
14	1587			40	27	0		
				100	37	17		
				100	53	18		
								End of Borehole @ 14.0 mbgs. 51mm diameter PVC monitoring well installed to 14.0 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 10 to 13 mbgs. 10/20 Filter sand from 9.0 to 13.4 mbgs. Time release bentonite tablets from 0.0 to 9.0 mbgs and from 13.4 to 14.0 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-03S



Project Number: VE52842 Drilling Coordinates: 652187.38 N, 5558165.82 E Surface Elevation: 1600.70 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 17, 20 Date Completed: Dec 17, 20 Drilled Depth: 4.2 m Revision No.: 1, 1/21/21

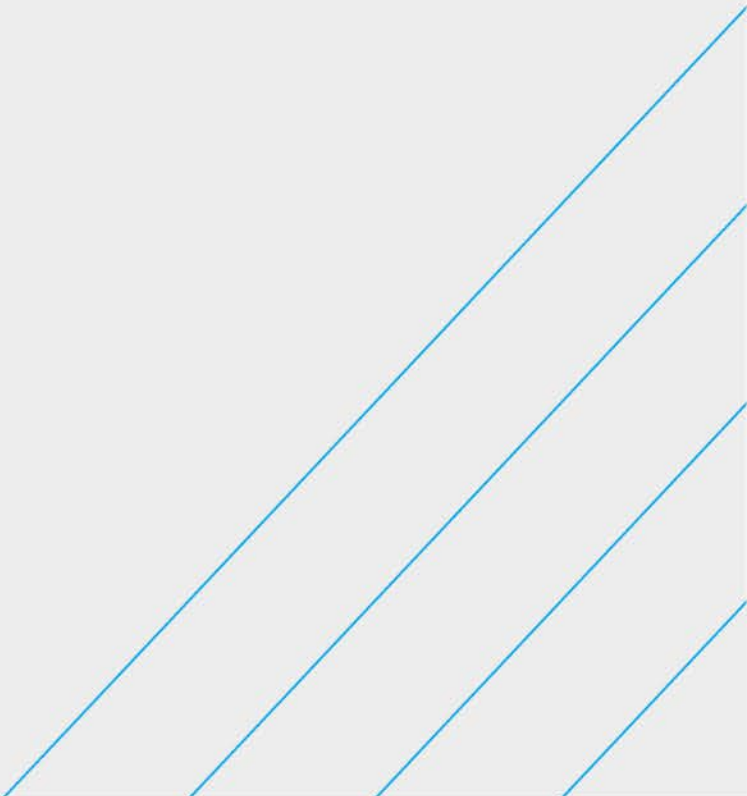
DEPTH (m)	ELEVATION (m)	Graphic Plot	LITHOLOGY PROFILE SOIL/ROCK DESCRIPTION	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
				Total Core Recovery (%) 20 40 60 80	Solid Core Recovery (%) 20 40 60 80	Rock Quality Designation (%) 20 40 60 80		
1 2 3 4	1600 1599 1598 1597		Brown to grey gravel and cobbles. Trace silt and clay, some sand Sub-round clasts comprised of sandstone and siltstone.	11				HQ (96mm diameter) diamond core through overburden. 16/12/20 - After well install and development. Water level @ 2.21 mbgs HW Surface casing advanced to 4.2 mbgs.
								End of Borehole @ 4.2mbgs. 51mm diameter PVC monitoring well installed to 4.2 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 2.5 to 4.0 mbgs. 10/20 Filter sand from 2.0 to 4.2 mbgs. Time release bentonite tablets from 0.0 to 2.0 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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Greenhills Operations Borehole Logs – Wells for Evaluation





Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

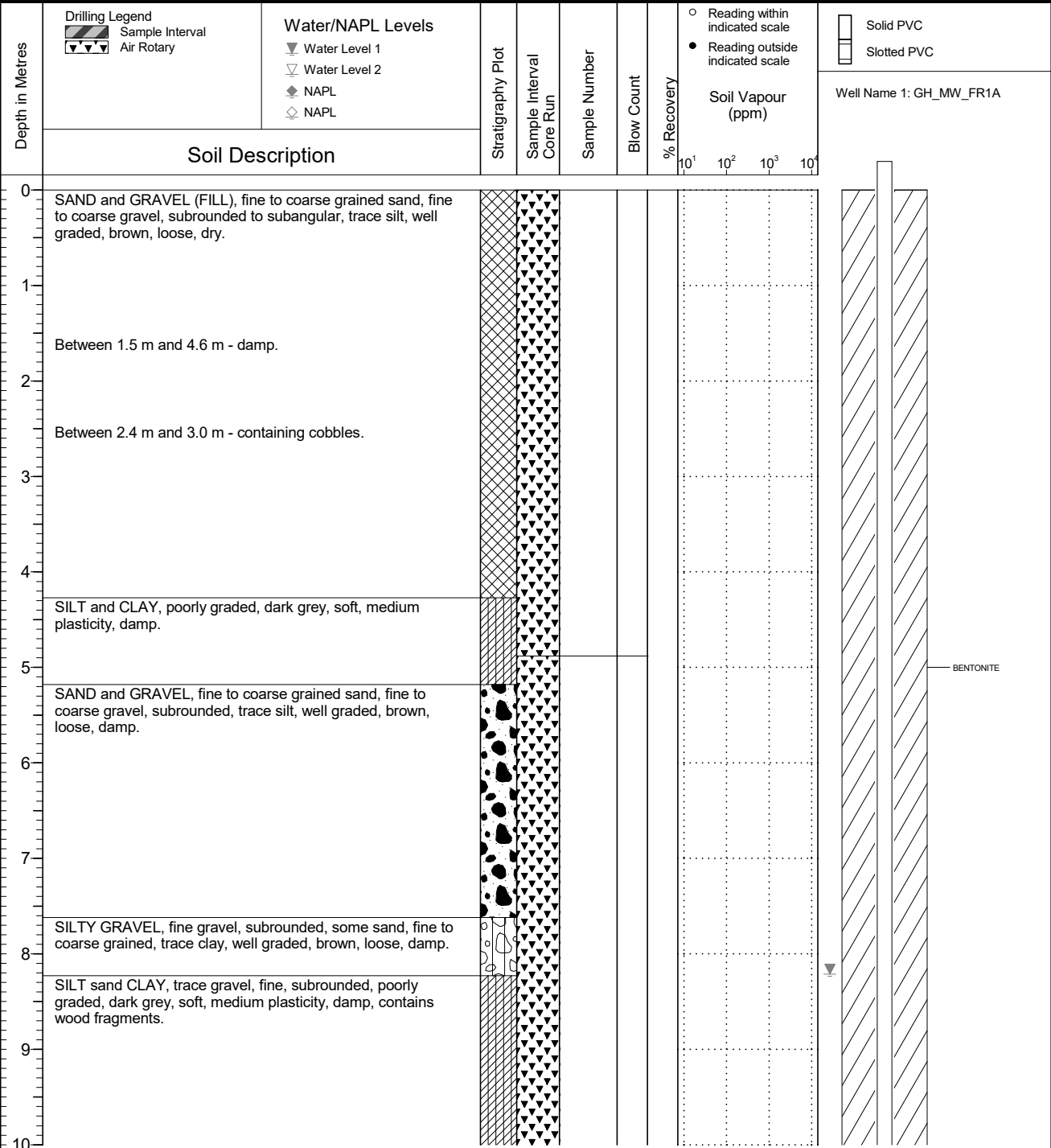
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

Location
Teck Coal Regional Groundwater

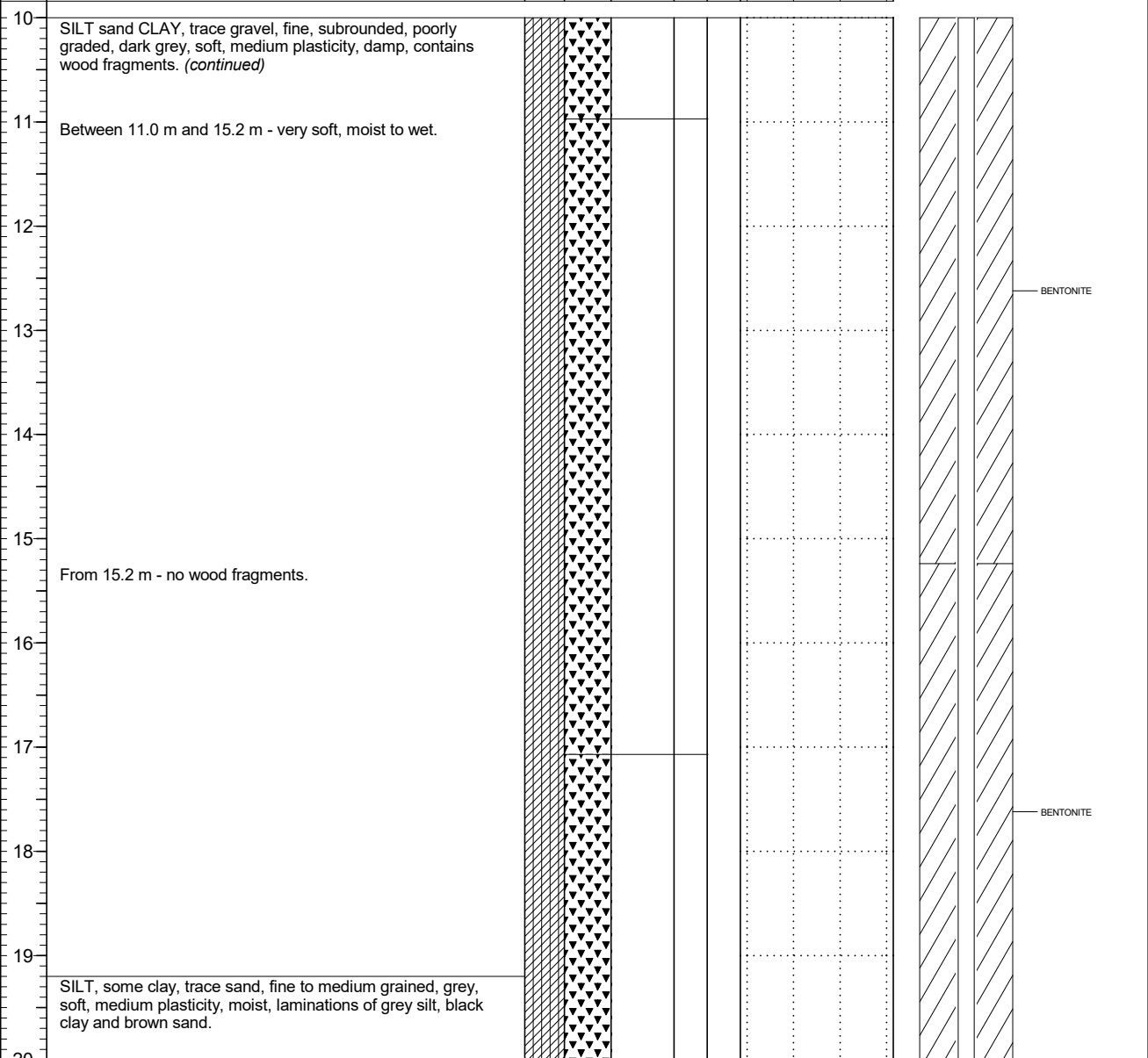
PAGE 2 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

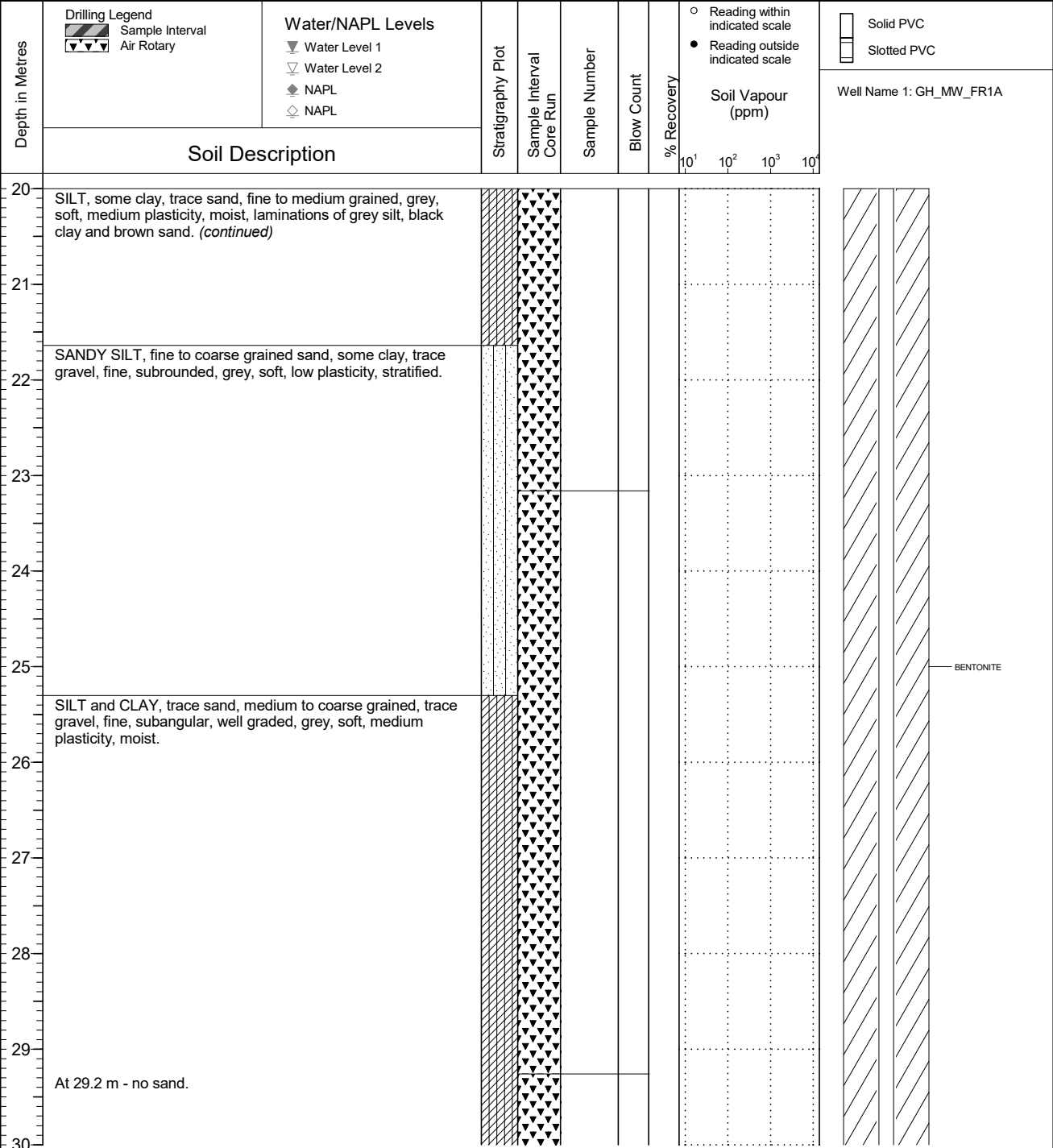
Location
Teck Coal Regional Groundwater

PAGE 3 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES

Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

Location
Teck Coal Regional Groundwater

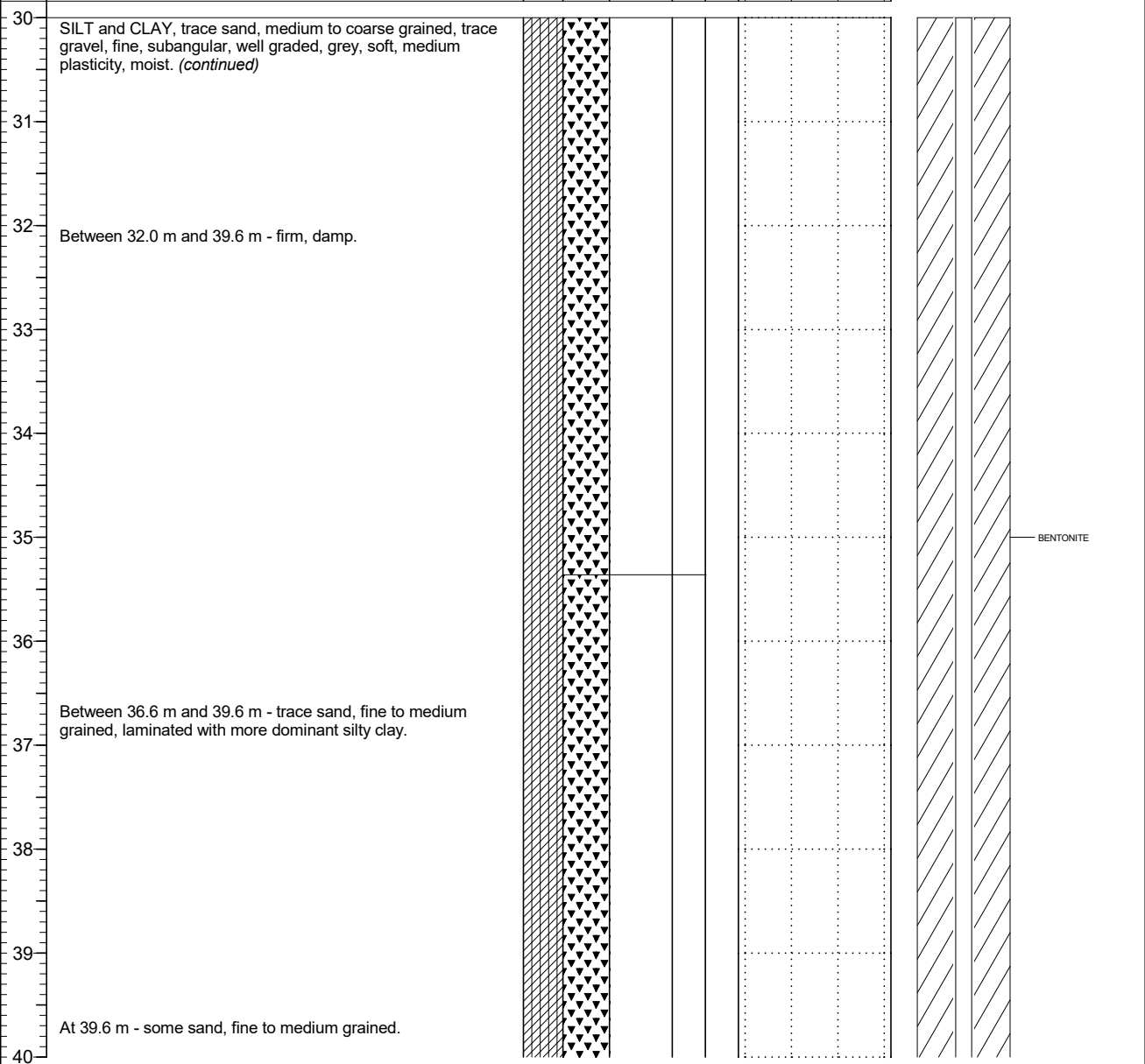
PAGE 4 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

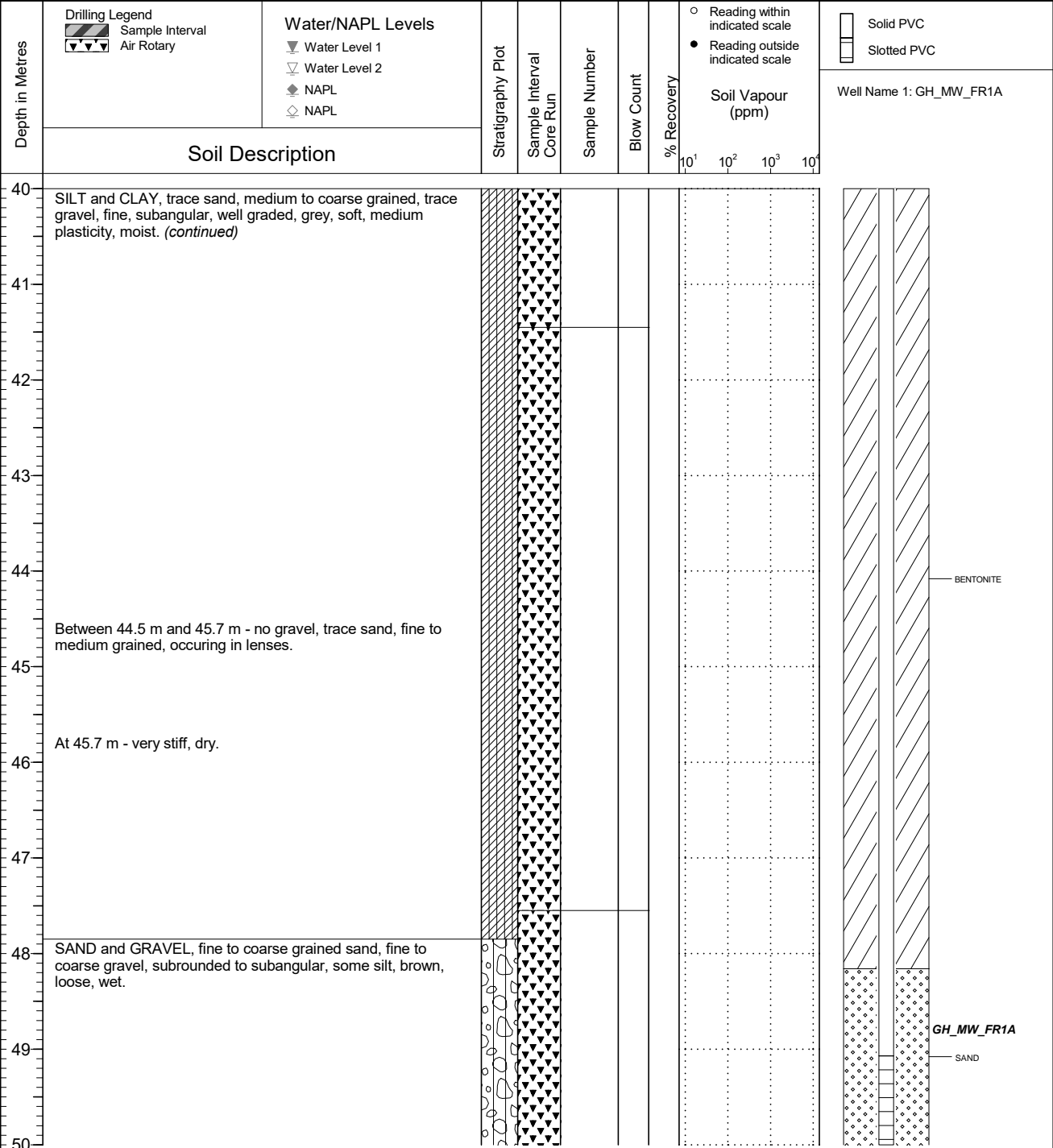
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

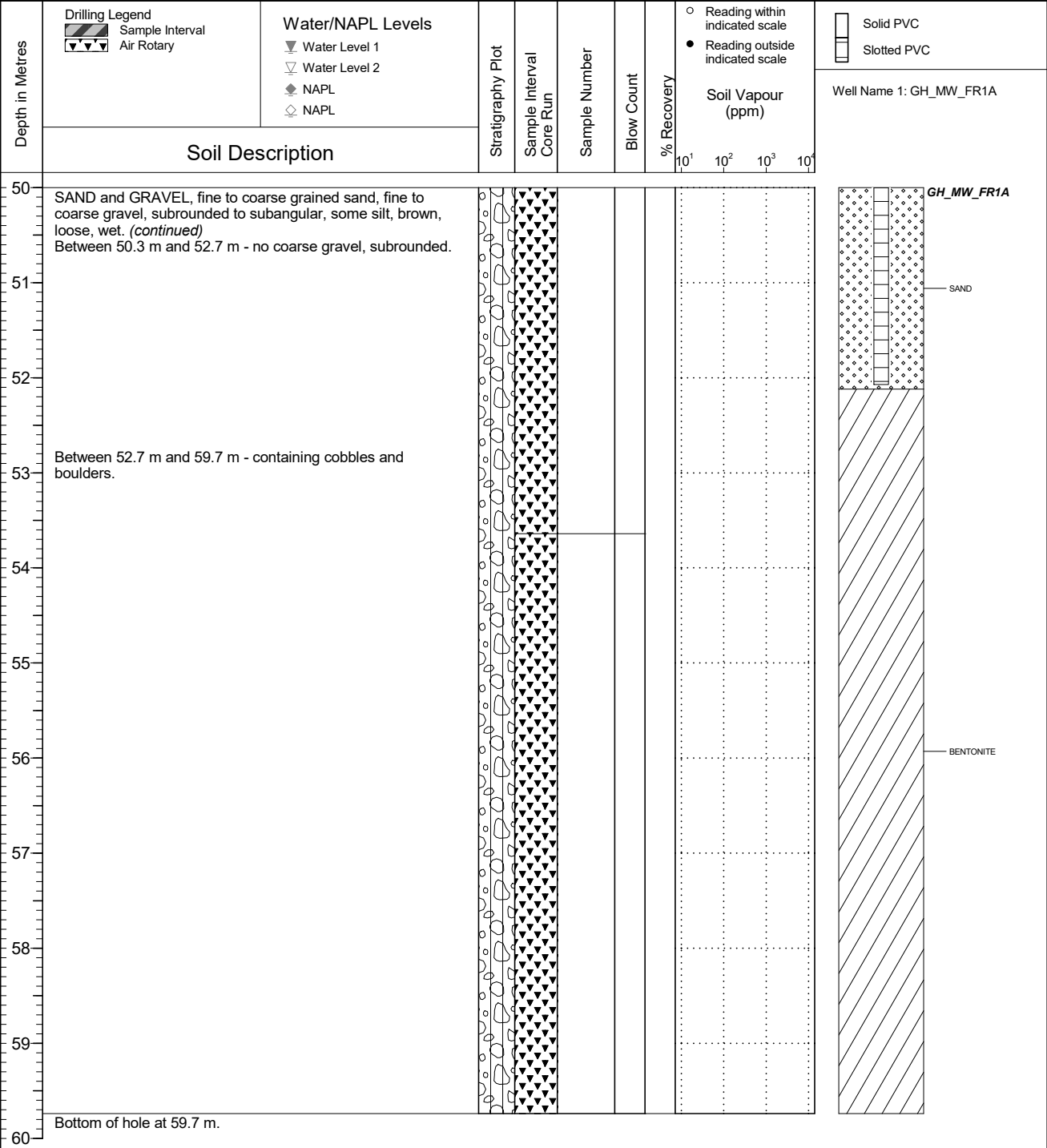
Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

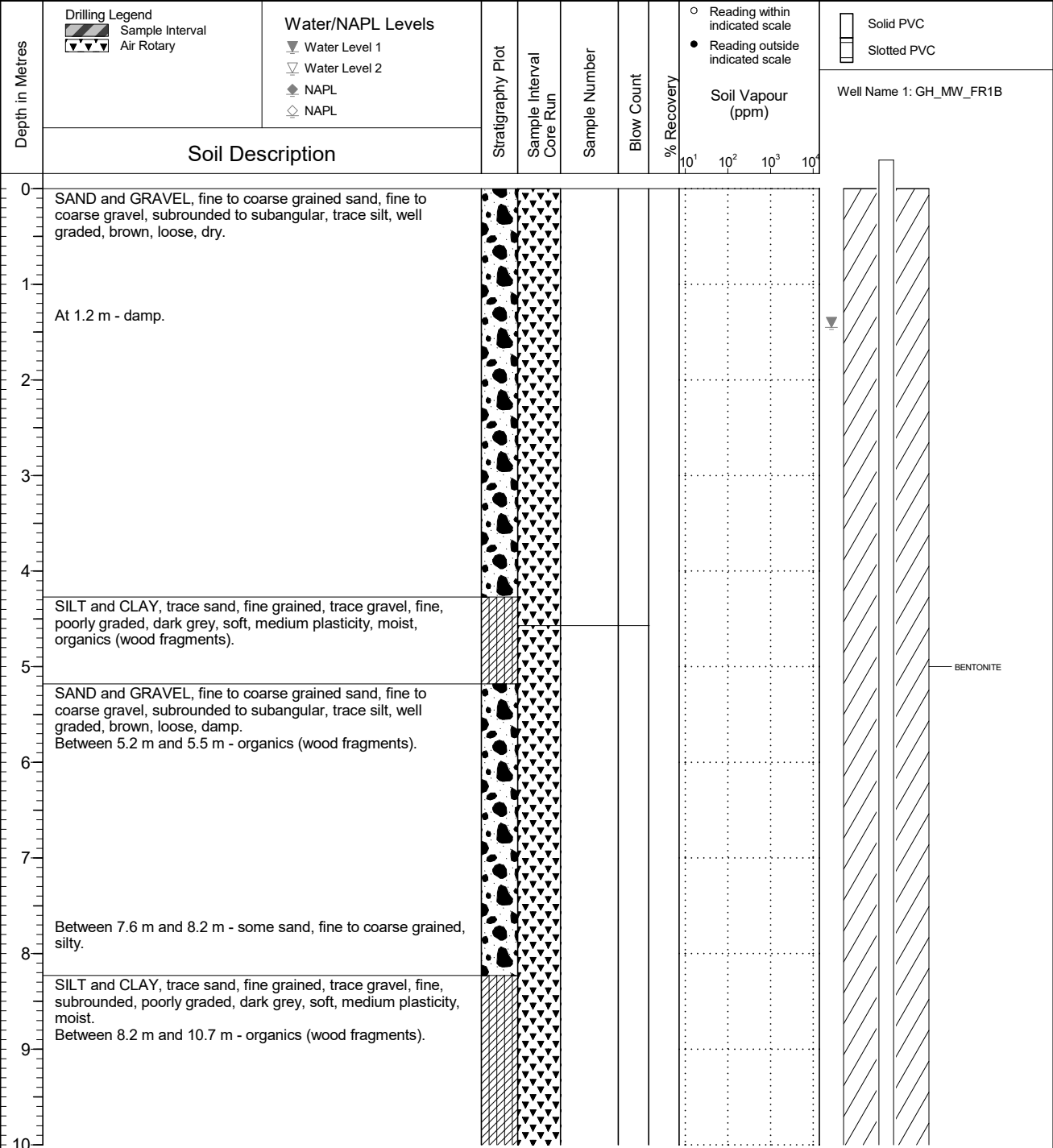
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1495.257
Top of Casing Elev. (m) 1496.116
Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 08
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

Location
Teck Coal Regional Groundwater

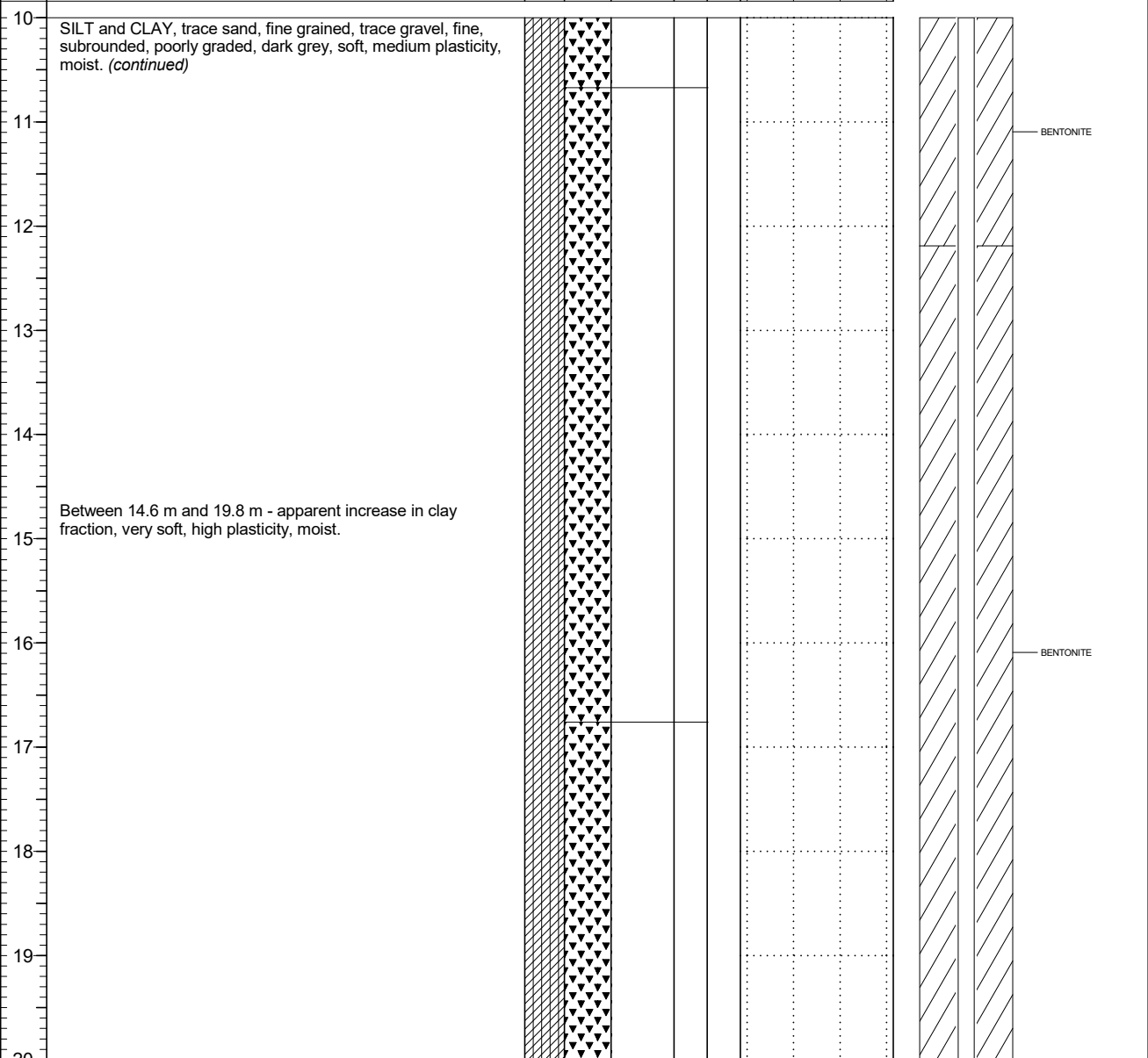
PAGE 2 OF 3

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
 Ground Surface Elev. (m) 1495.257
 Top of Casing Elev. (m) 1496.116
 Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 08
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1B



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

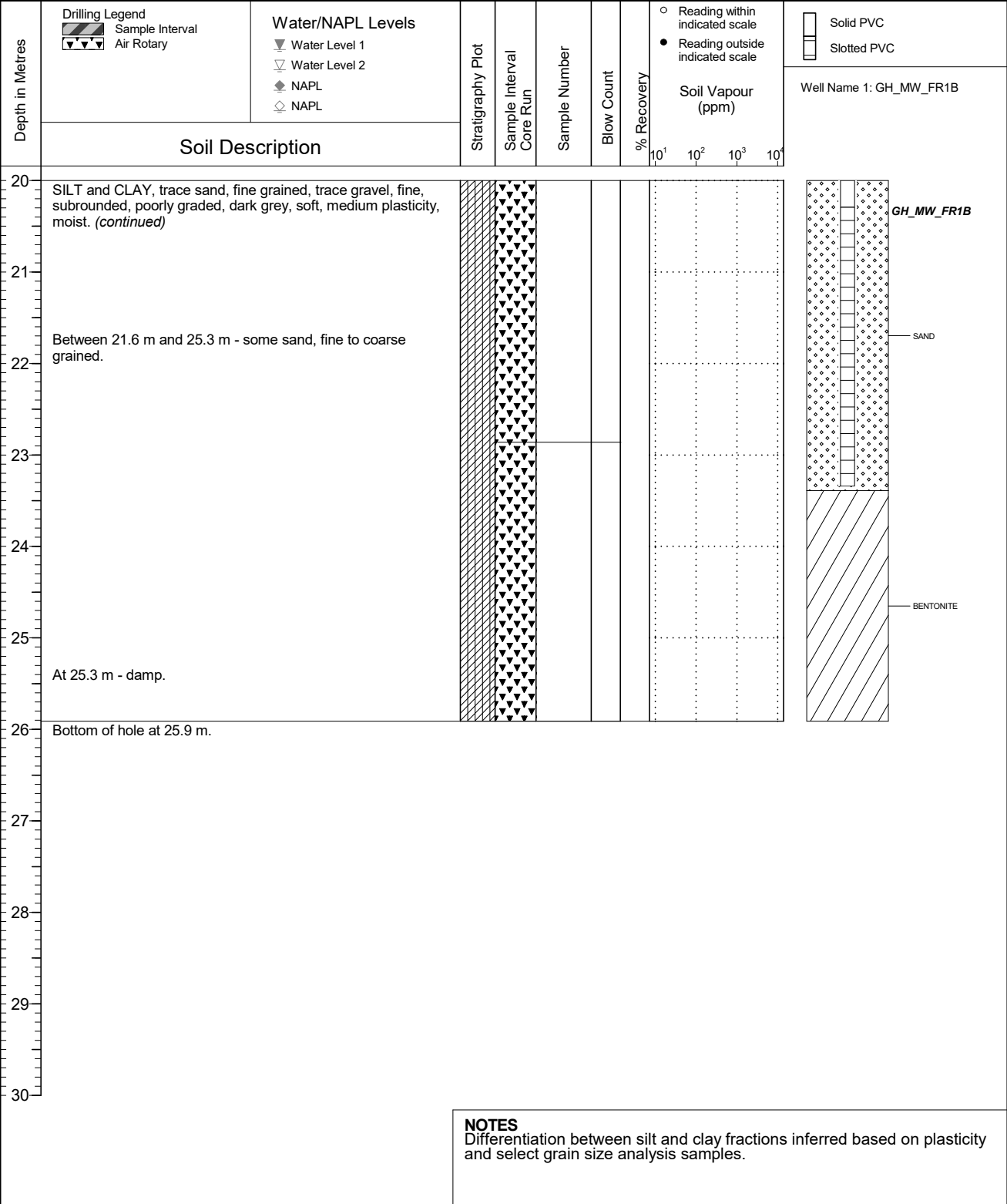
Location
Teck Coal Regional Groundwater

PAGE 3 OF 3

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1495.257
Top of Casing Elev. (m) 1496.116
Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 08
Log Typed By: VL





Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

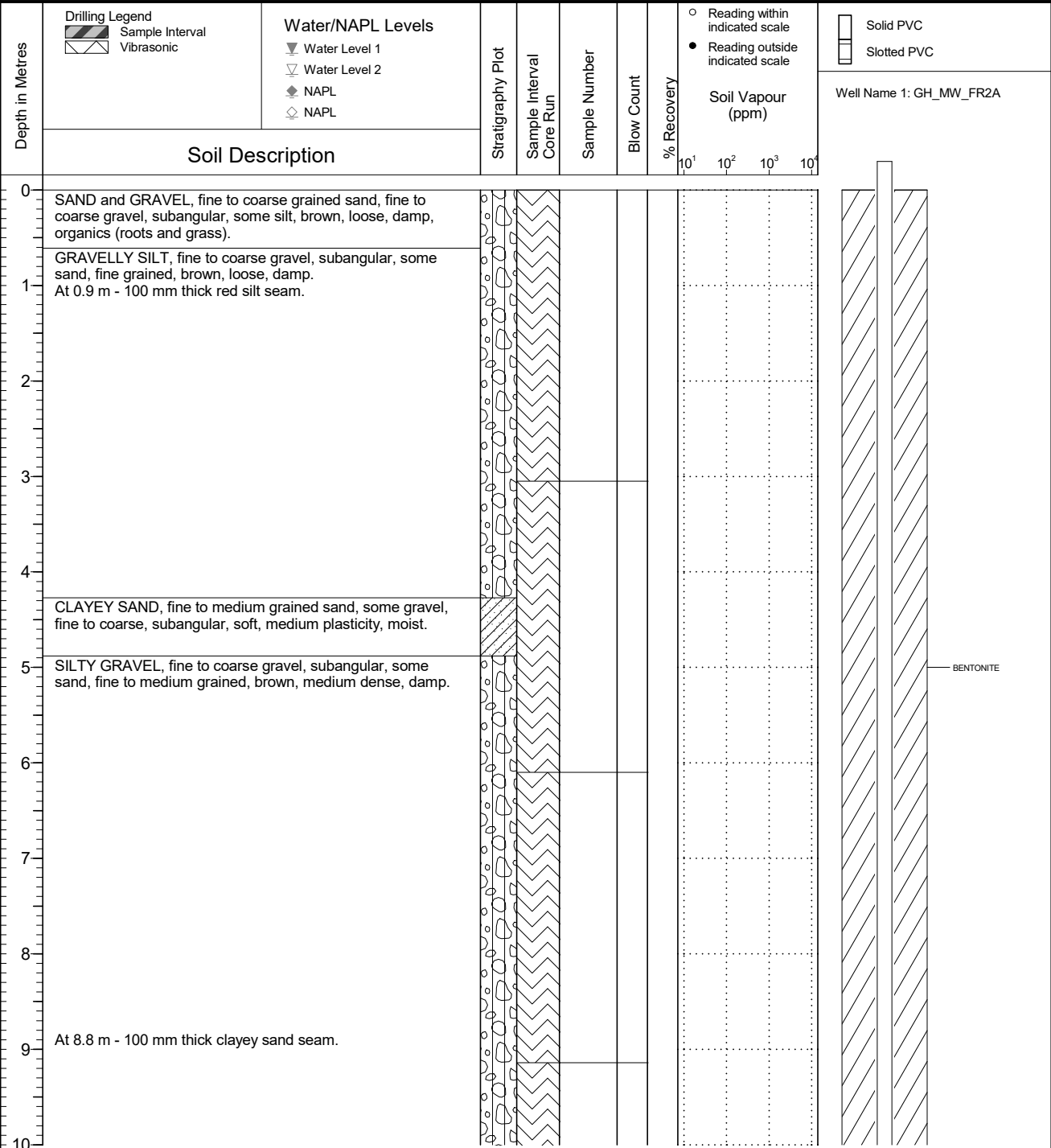
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

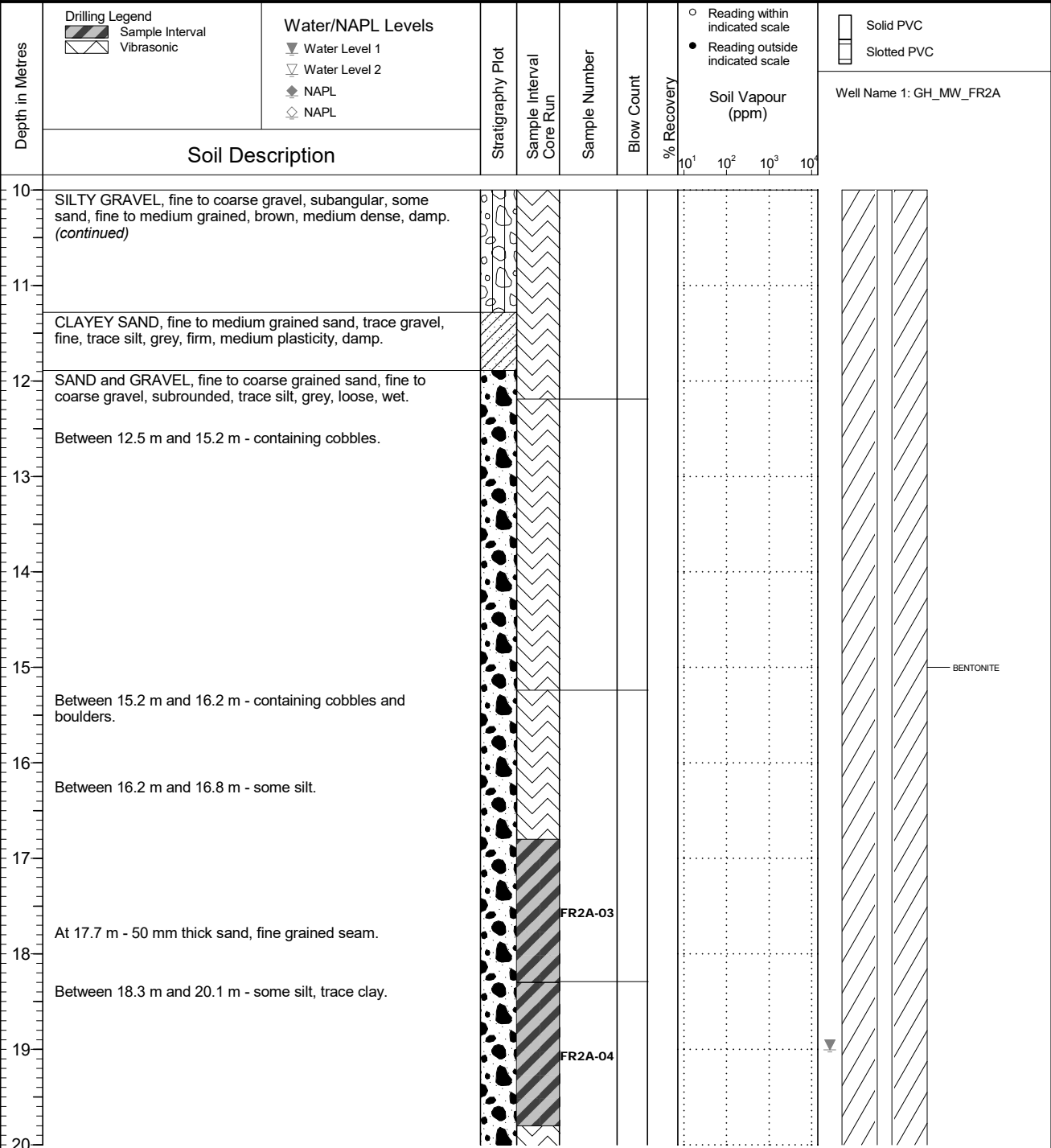
Location
Teck Coal Regional Groundwater

PAGE 2 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

Location
Teck Coal Regional Groundwater

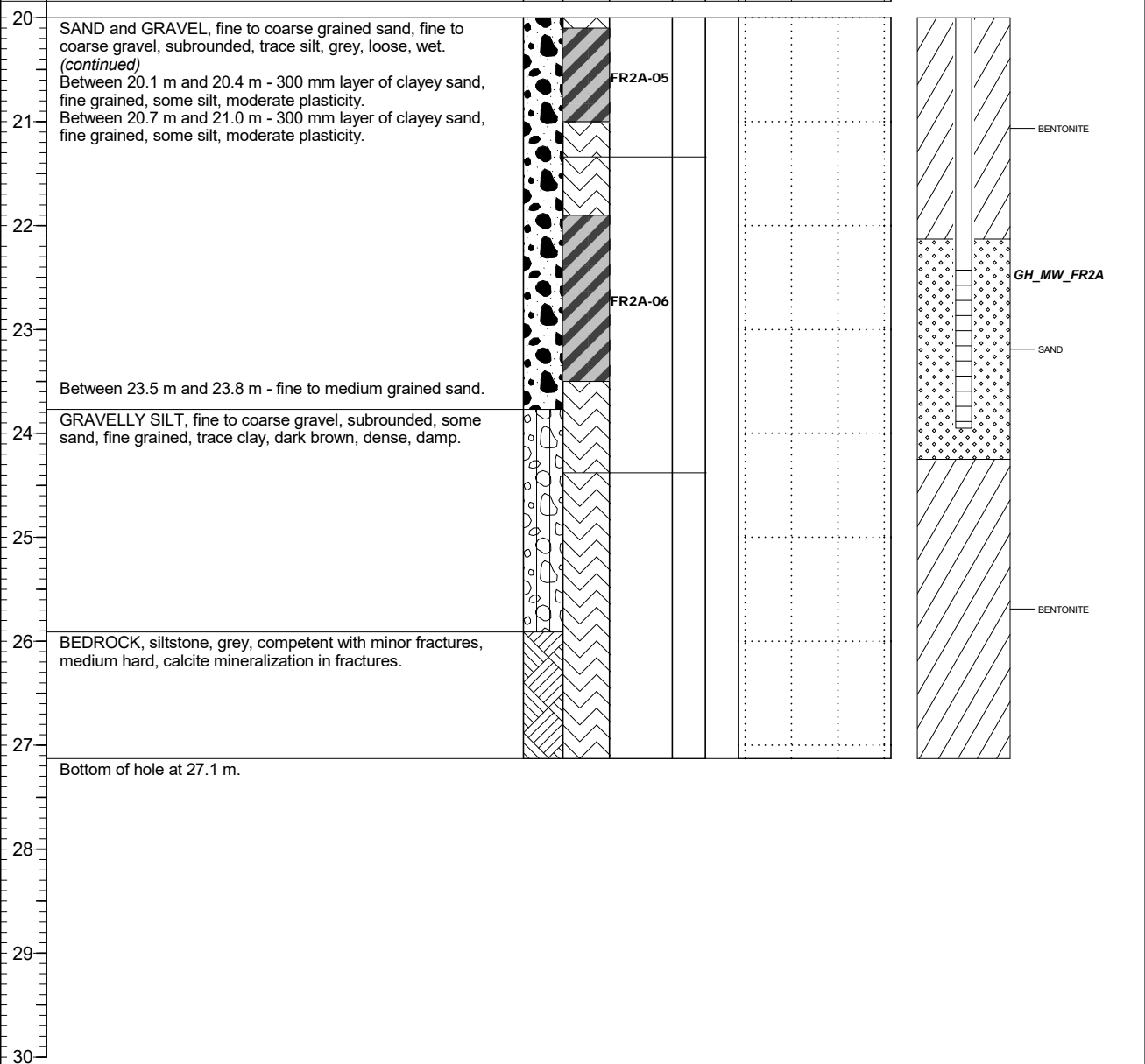
PAGE 3 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR2A



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2B

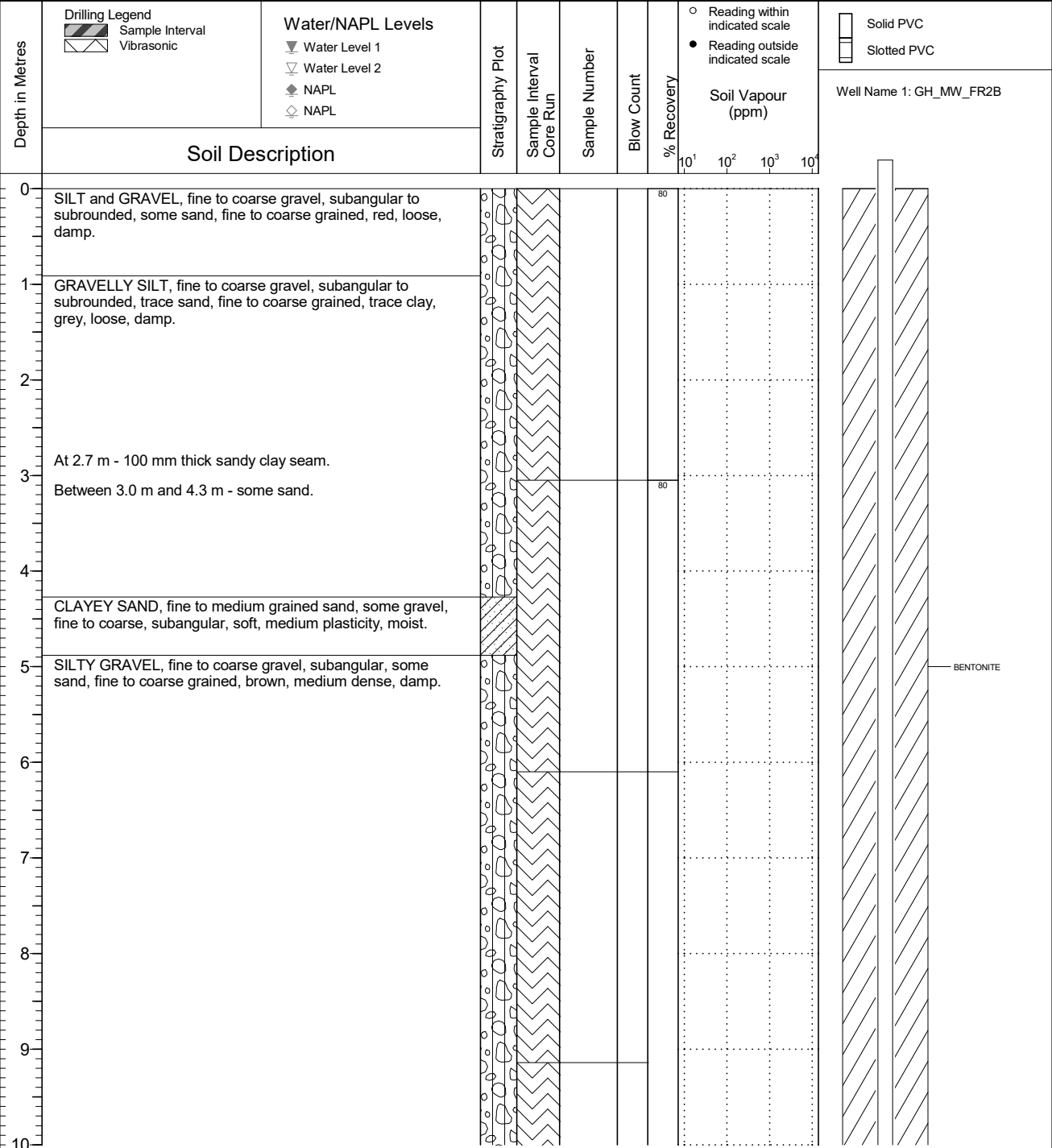
Location
Teck Coal Regional Groundwater

PAGE 1 OF 2

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1504.686
Top of Casing Elev. (m) 1505.483
Northing: 5545365.024 Easting: 654323.277

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2B

Location
Teck Coal Regional Groundwater

PAGE 2 OF 2

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1504.686
Top of Casing Elev. (m) 1505.483
Northing: 5545365.024 Easting: 654323.277

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: GH_MW_FR2B
							10 ¹	10 ²	10 ³	10 ⁴	
10	SILTY GRAVEL, fine to coarse gravel, subangular, some sand, fine to coarse grained, brown, medium dense, damp. (continued)										
11	CLAYEY SAND, fine to medium grained sand, some gravel, fine to coarse, subangular, trace silt, grey, medium dense, moderate plasticity, moist.										
12	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, grey, loose, wet.										
13											
14											
15											
Bottom of hole at 15.2 m.											
16											
17											
18											
19											
20											

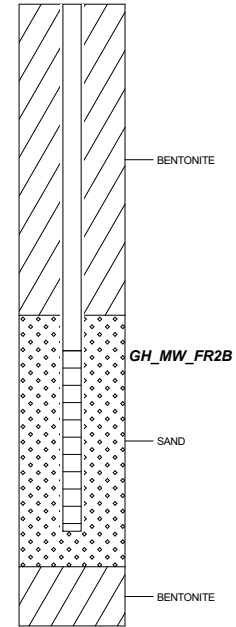
Drilling Legend
 Sample Interval
 Vibrasonic

Water/NAPL Levels
 Water Level 1
 Water Level 2
 NAPL
 NAPL

○ Reading within indicated scale
 ● Reading outside indicated scale

Solid PVC
 Slotted PVC

Well Name 1: GH_MW_FR2B



NOTES

Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

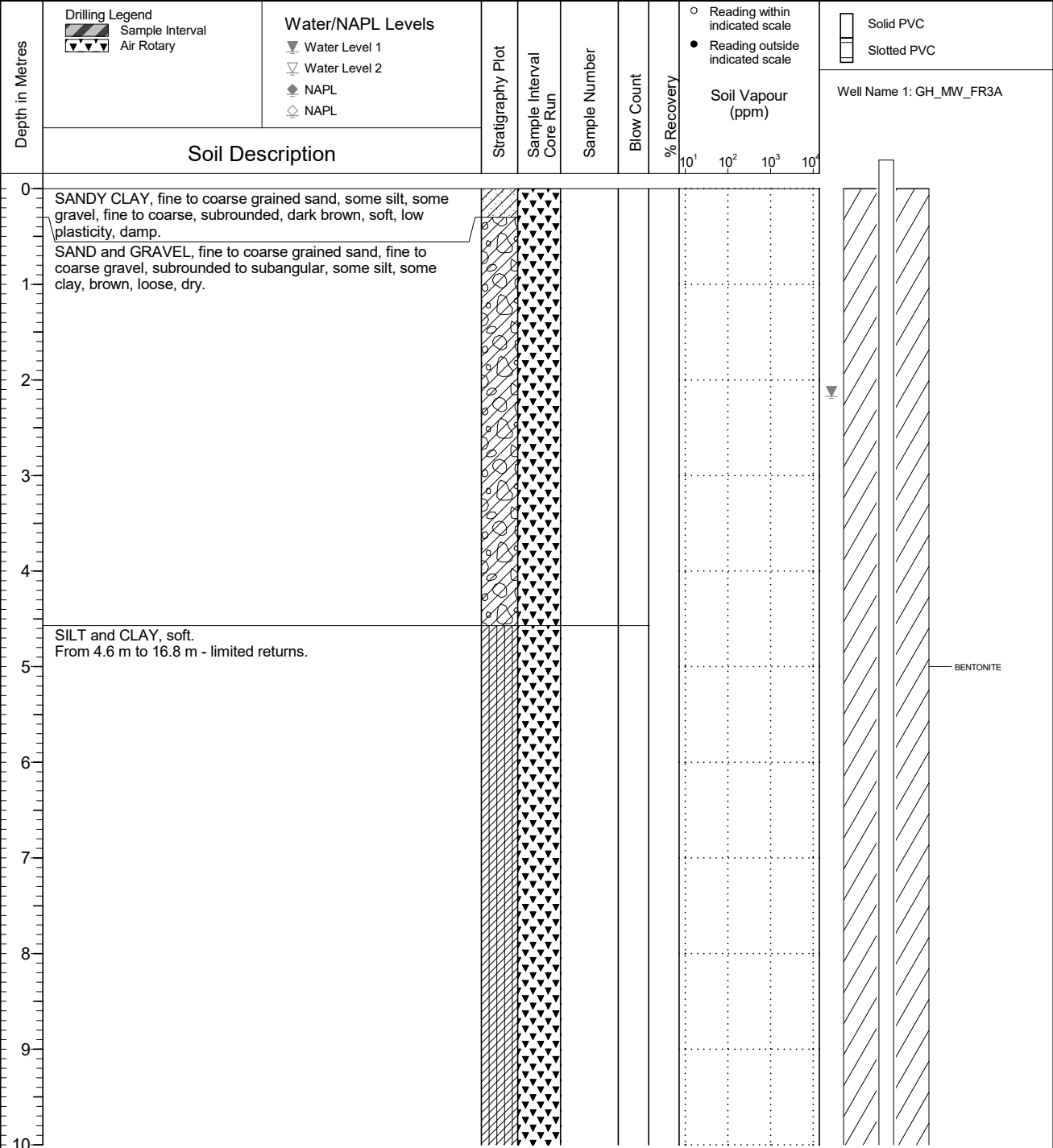
Location
Teck Coal Regional Groundwater

PAGE 1 OF 5

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1487.555
 Top of Casing Elev. (m) 1488.372
 Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 14
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

Location
Teck Coal Regional Groundwater

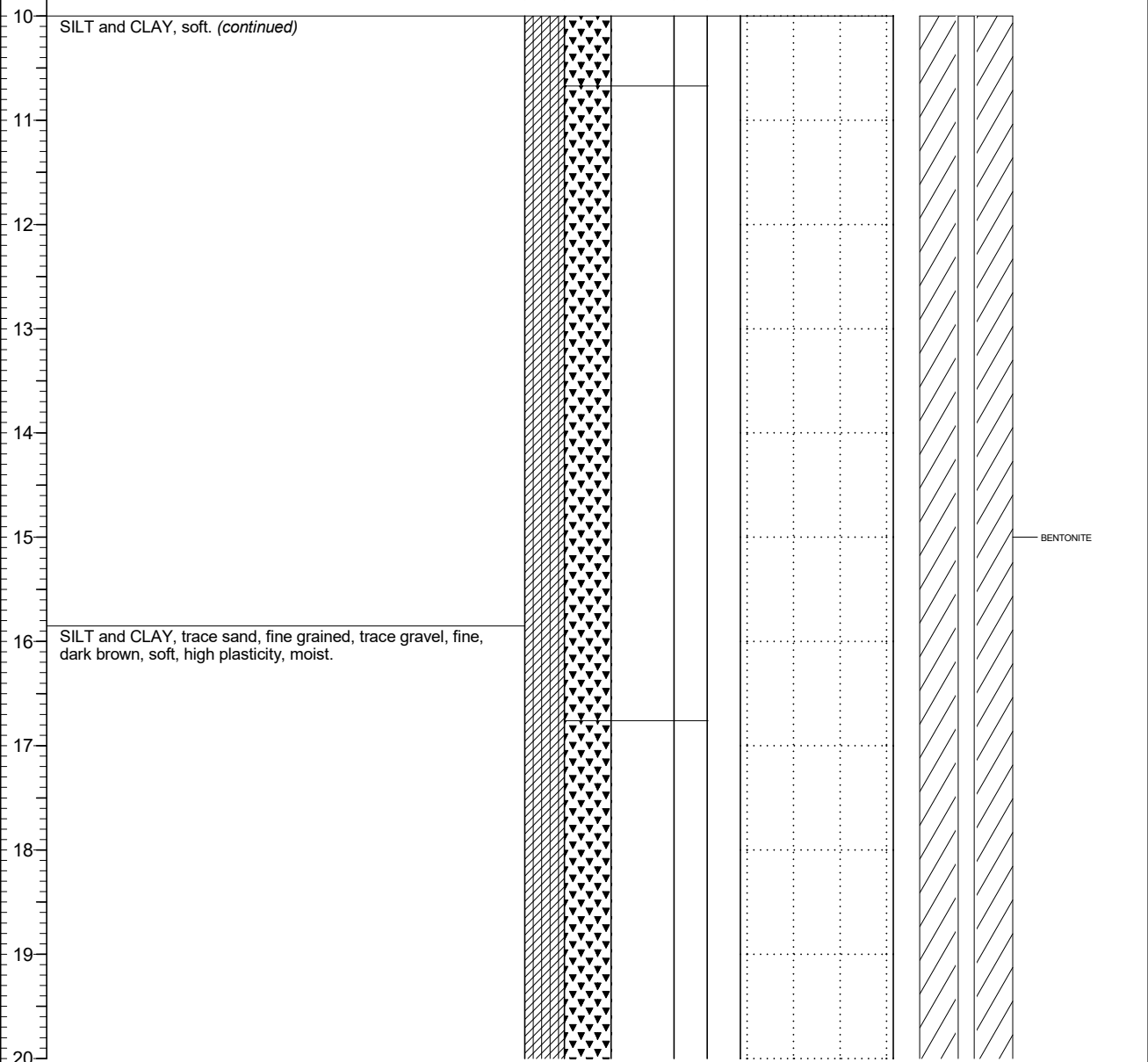
PAGE 2 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR3A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

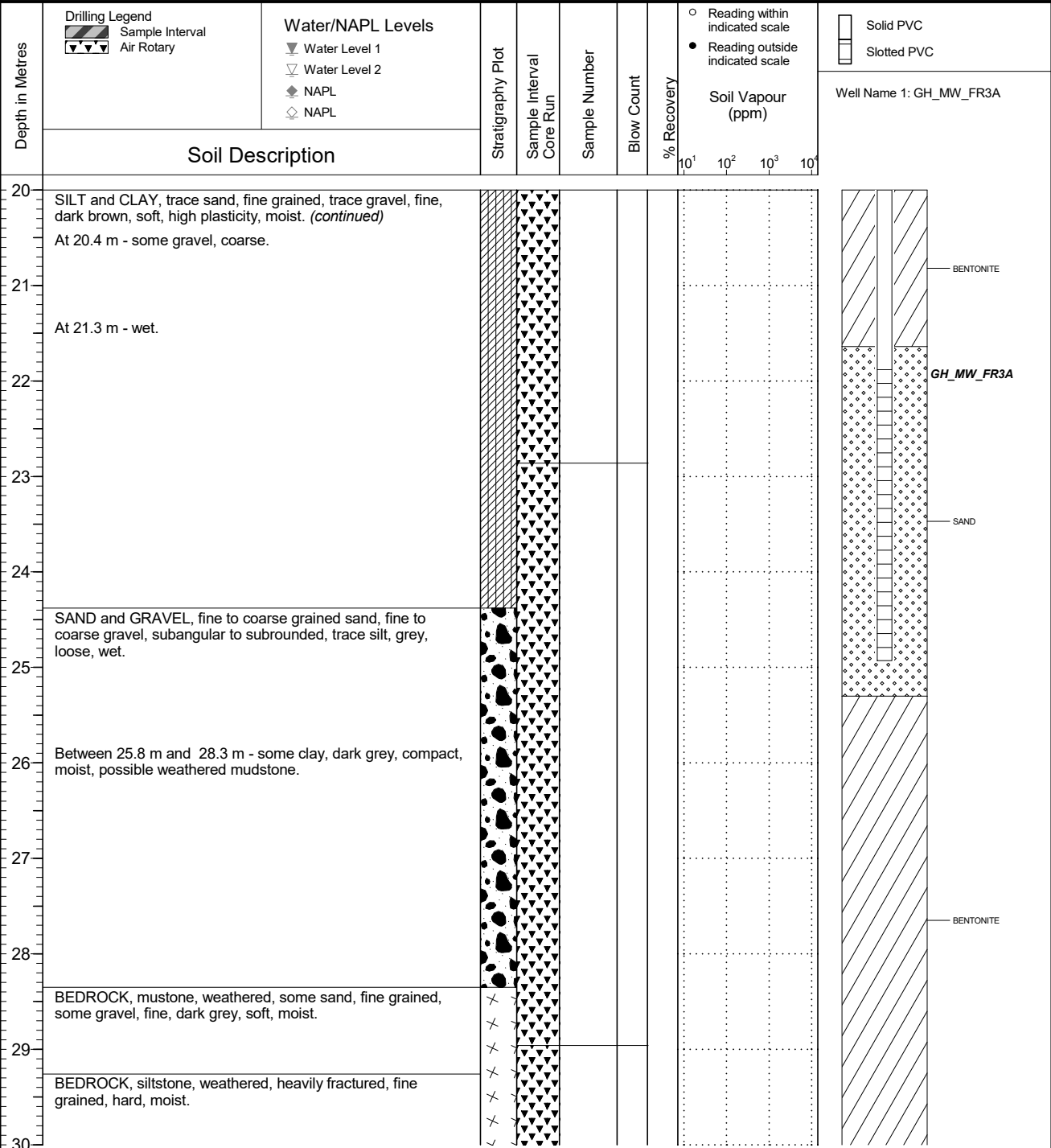
Location
Teck Coal Regional Groundwater

PAGE 3 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

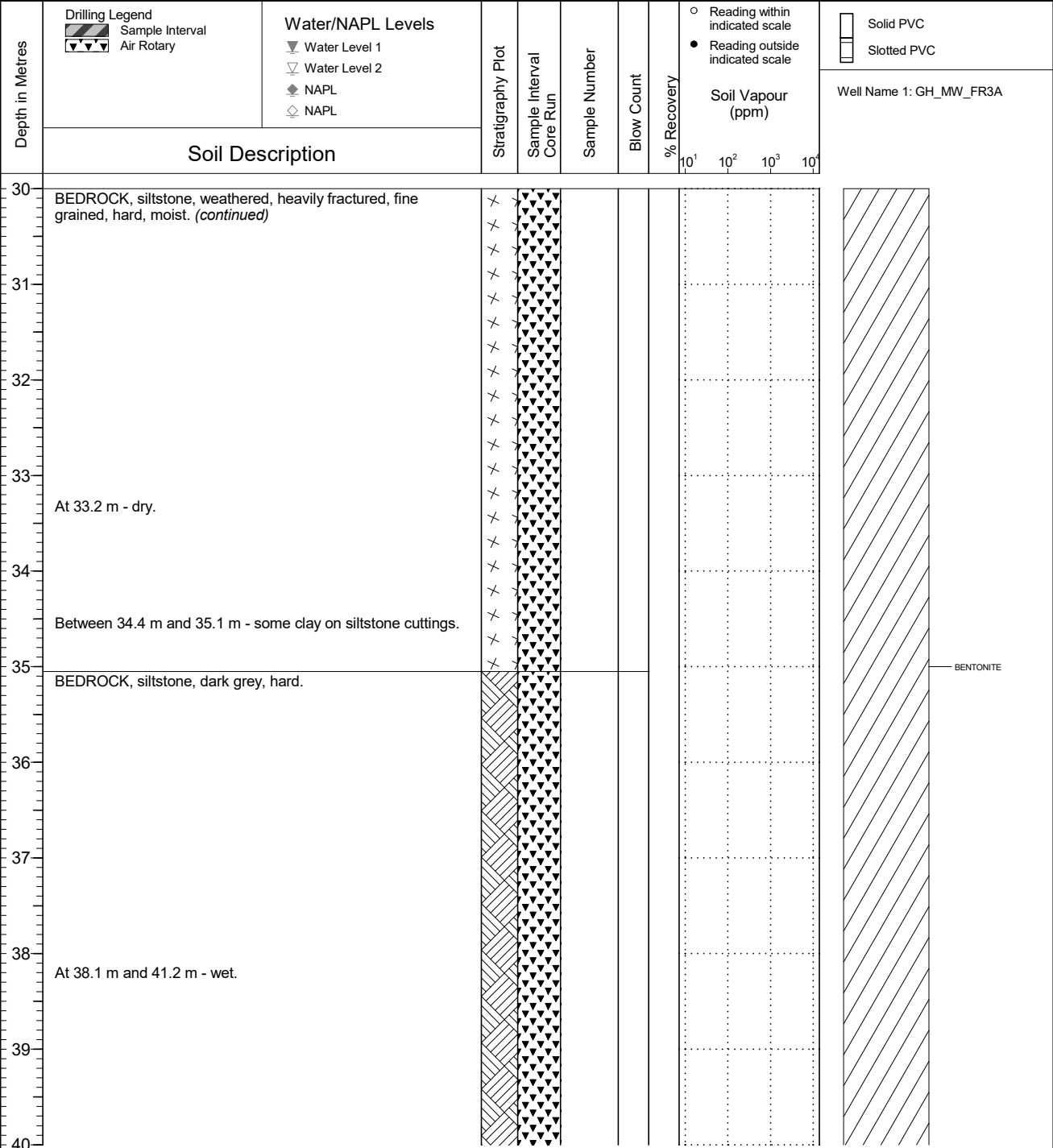
Location
Teck Coal Regional Groundwater

PAGE 4 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL



NOTES

Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

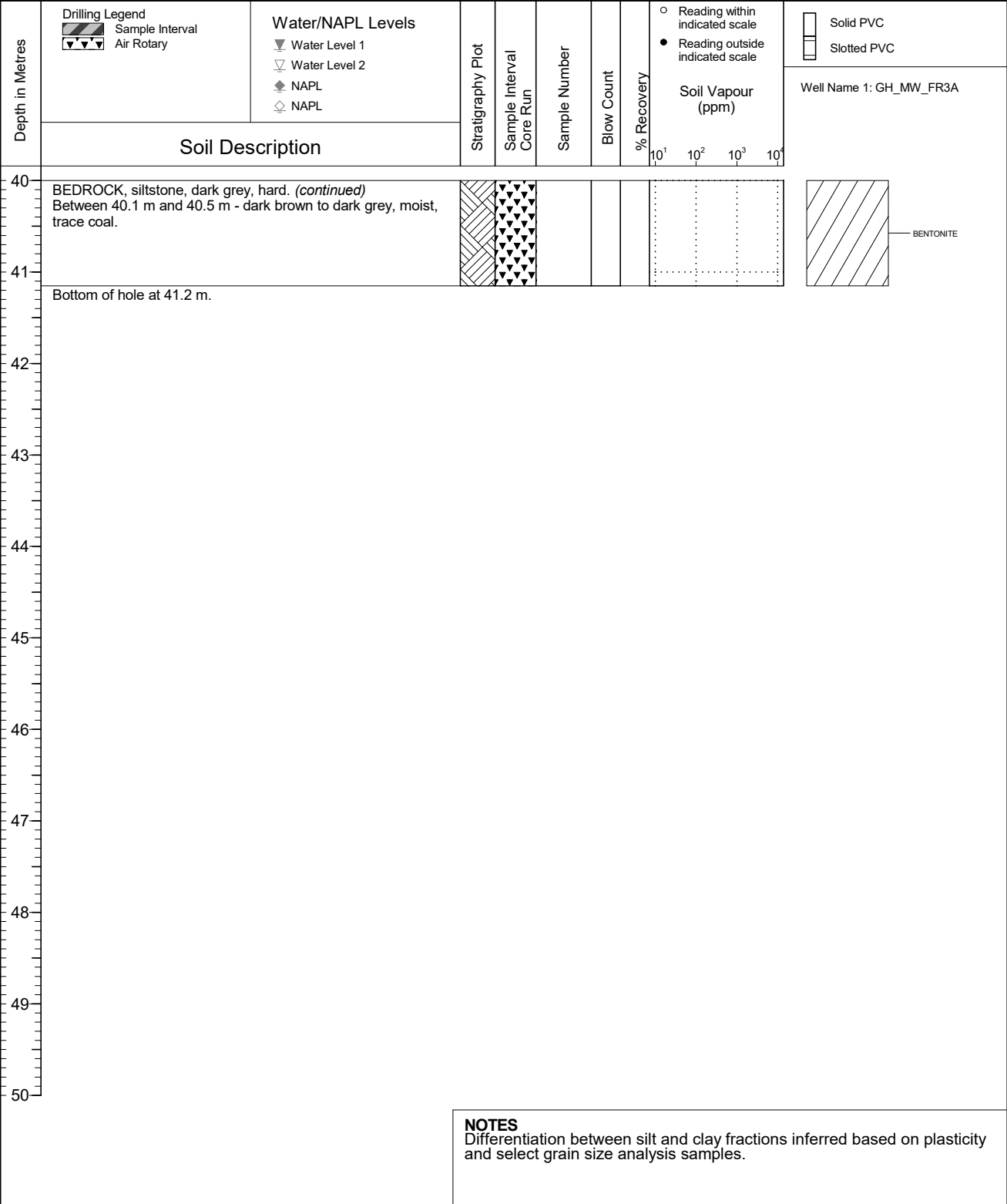
Location
Teck Coal Regional Groundwater

PAGE 5 OF 5

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1487.555
 Top of Casing Elev. (m) 1488.372
 Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 14
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3B

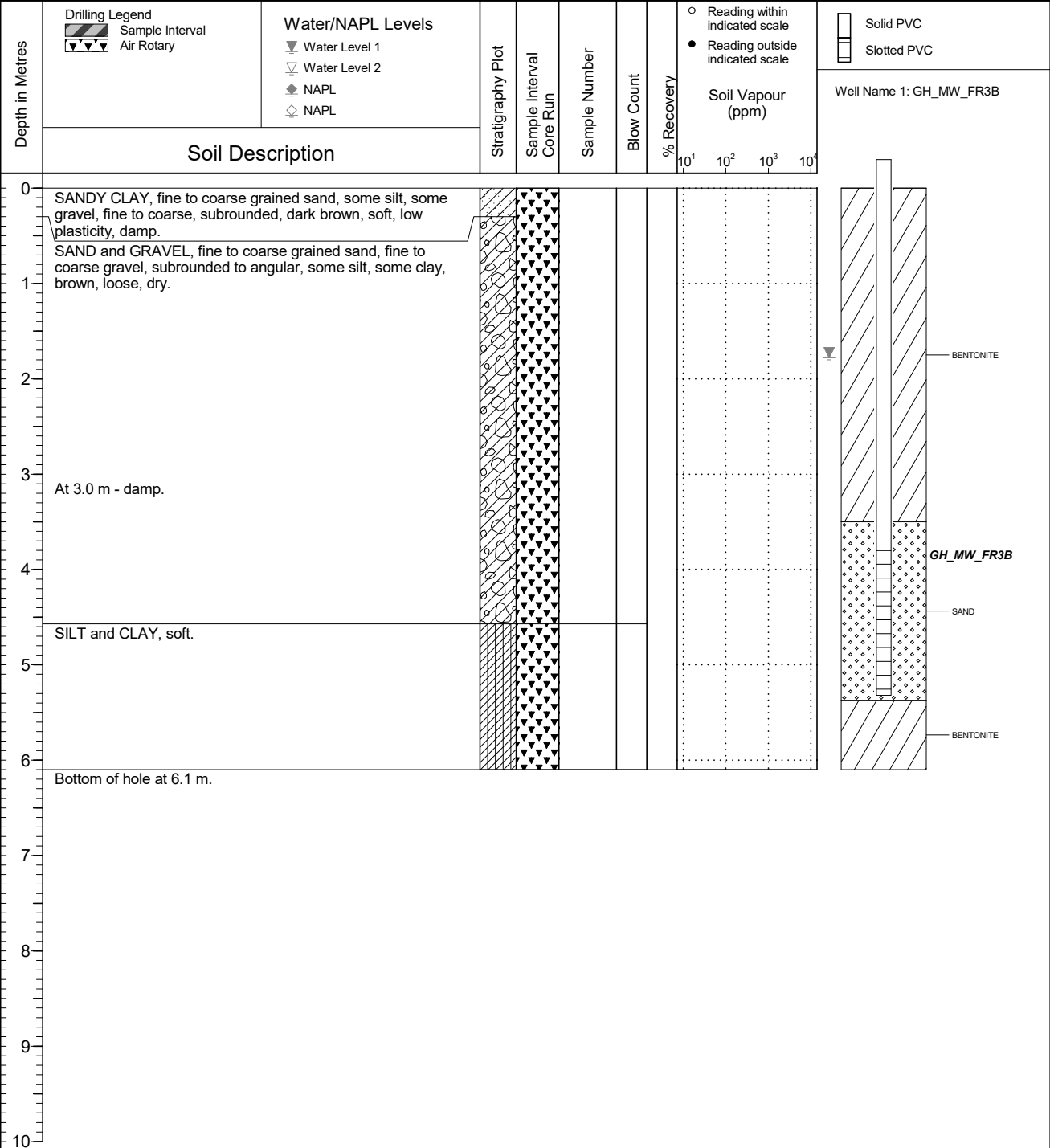
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1487.546
 Top of Casing Elev. (m) 1488.377
 Northing: 5545567.504 Easting: 653086.809

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 16
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

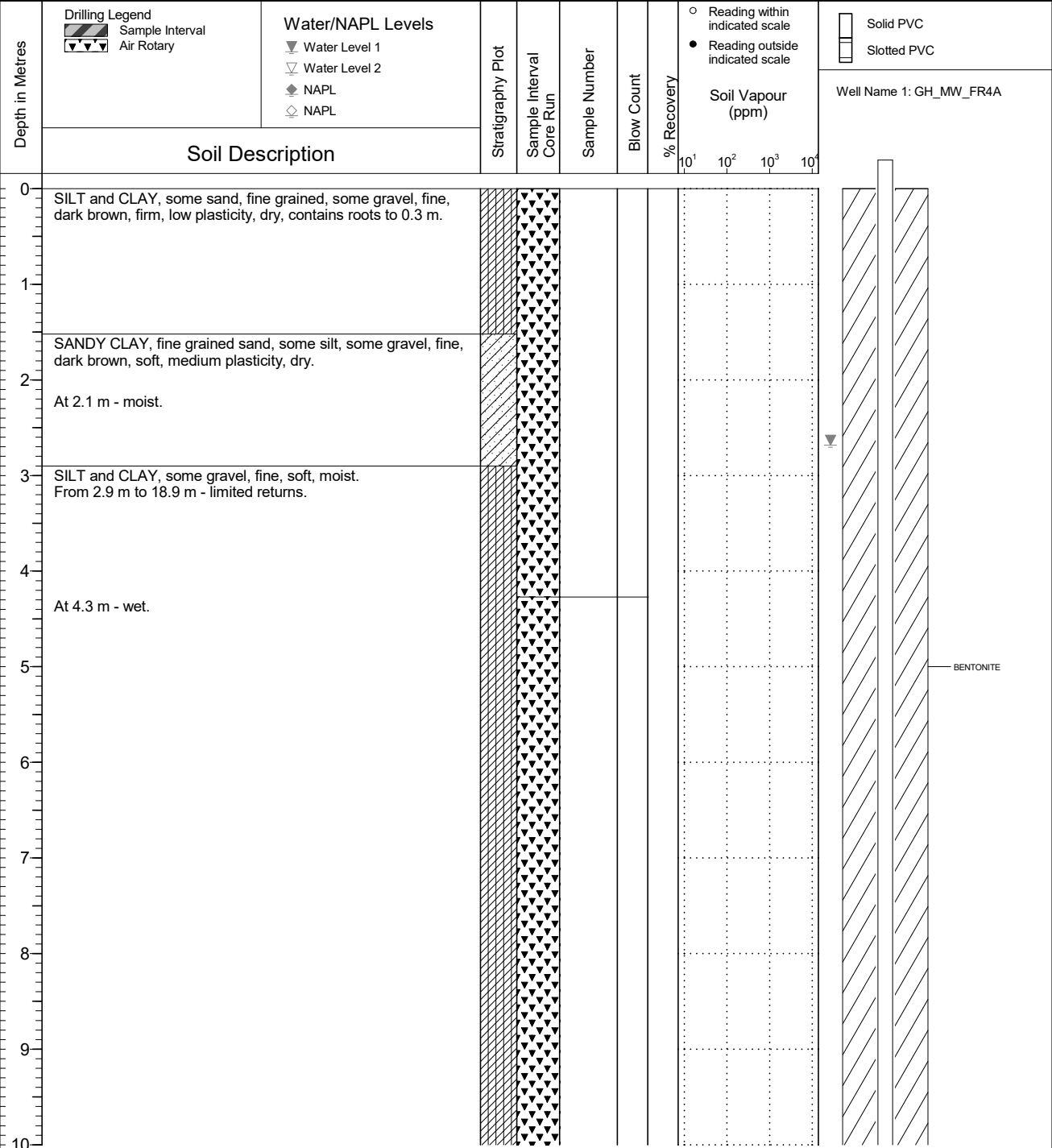
Location
Teck Coal Regional Groundwater

PAGE 1 OF 4

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.543
 Top of Casing Elev. (m) 1493.240
 Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 17
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

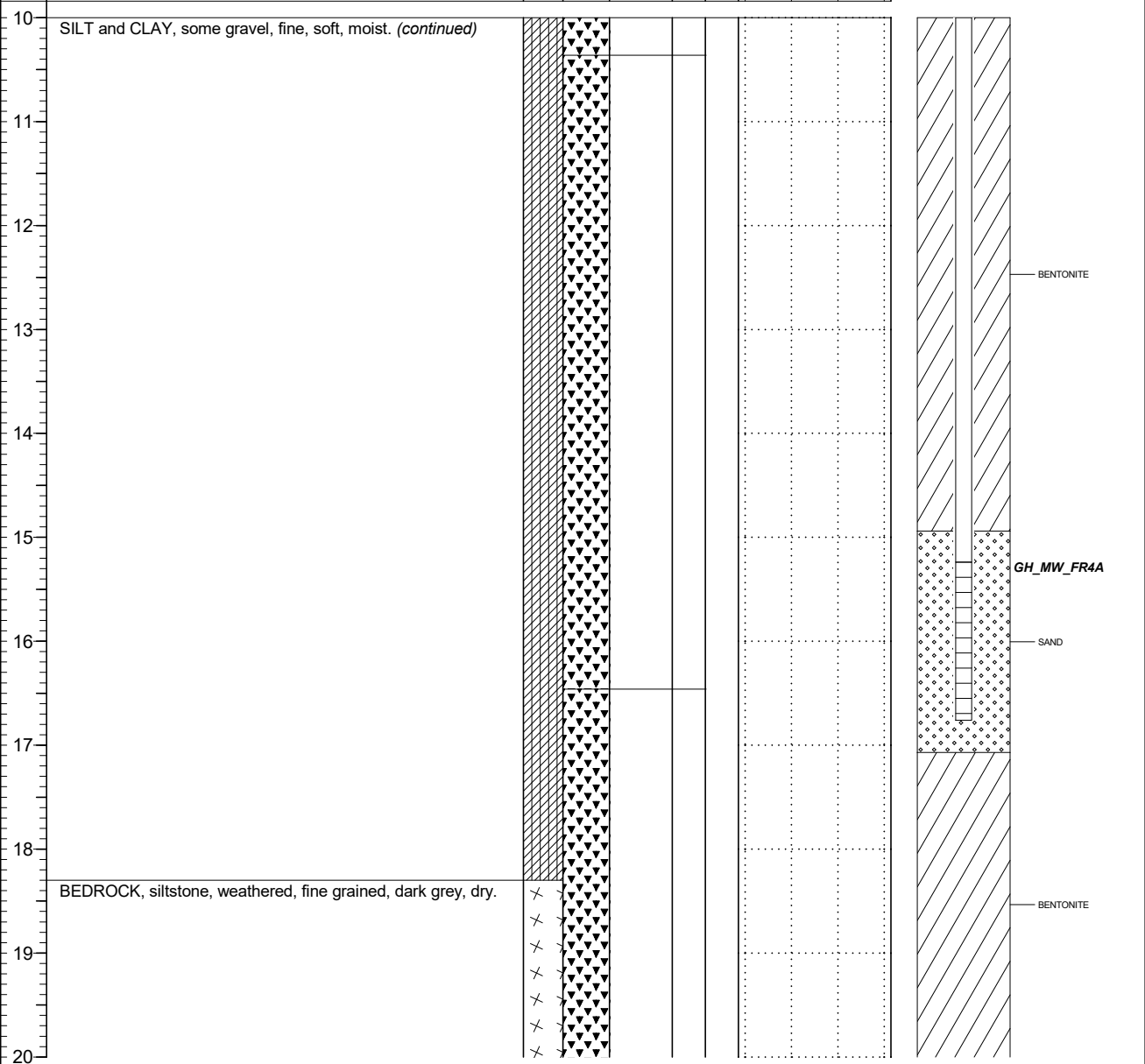
PAGE 2 OF 4

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.543
 Top of Casing Elev. (m) 1493.240
 Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 17
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="radio"/> Reading within indicated scale <input type="radio"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

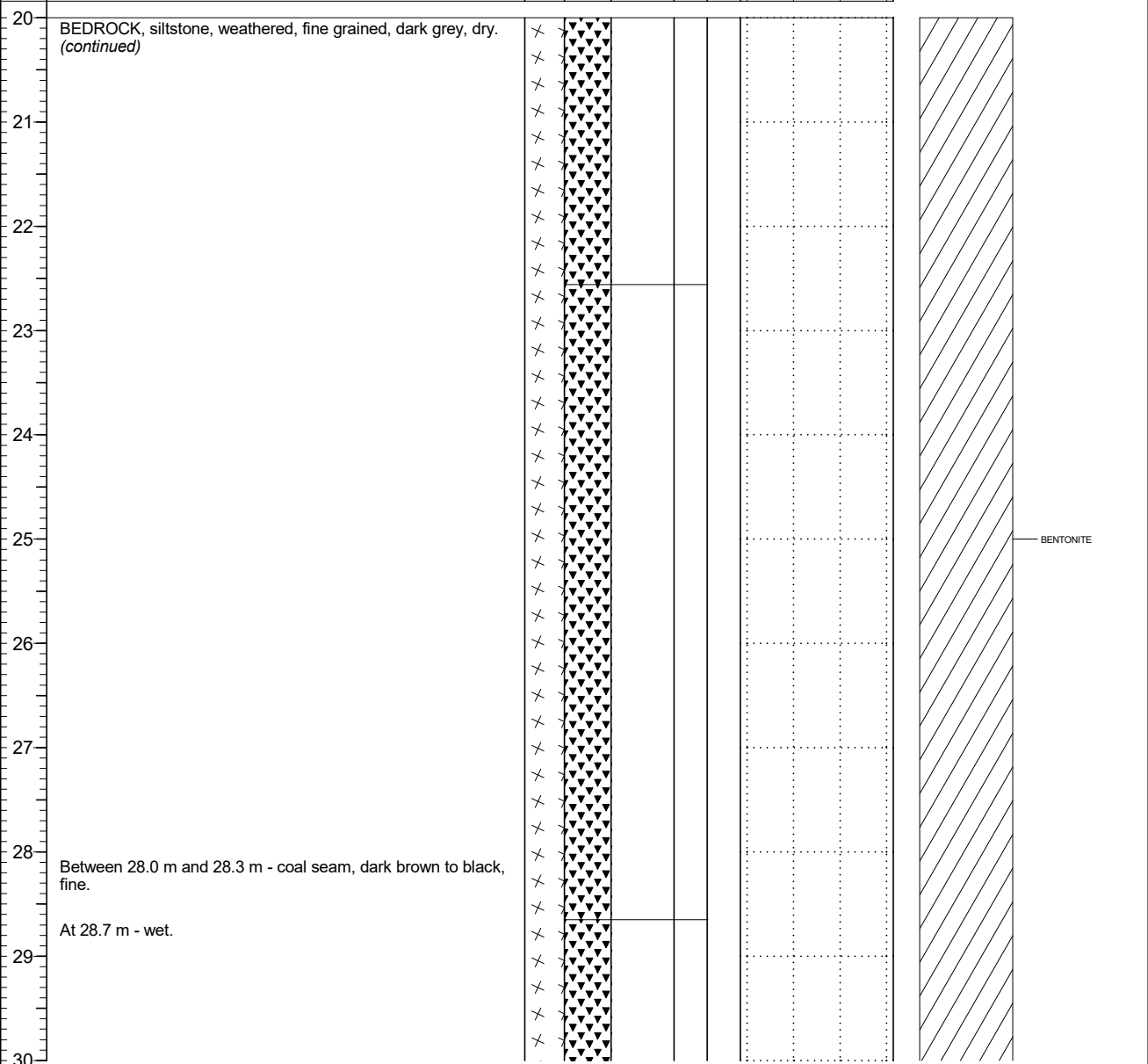
PAGE 3 OF 4

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.543
 Top of Casing Elev. (m) 1493.240
 Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 17
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

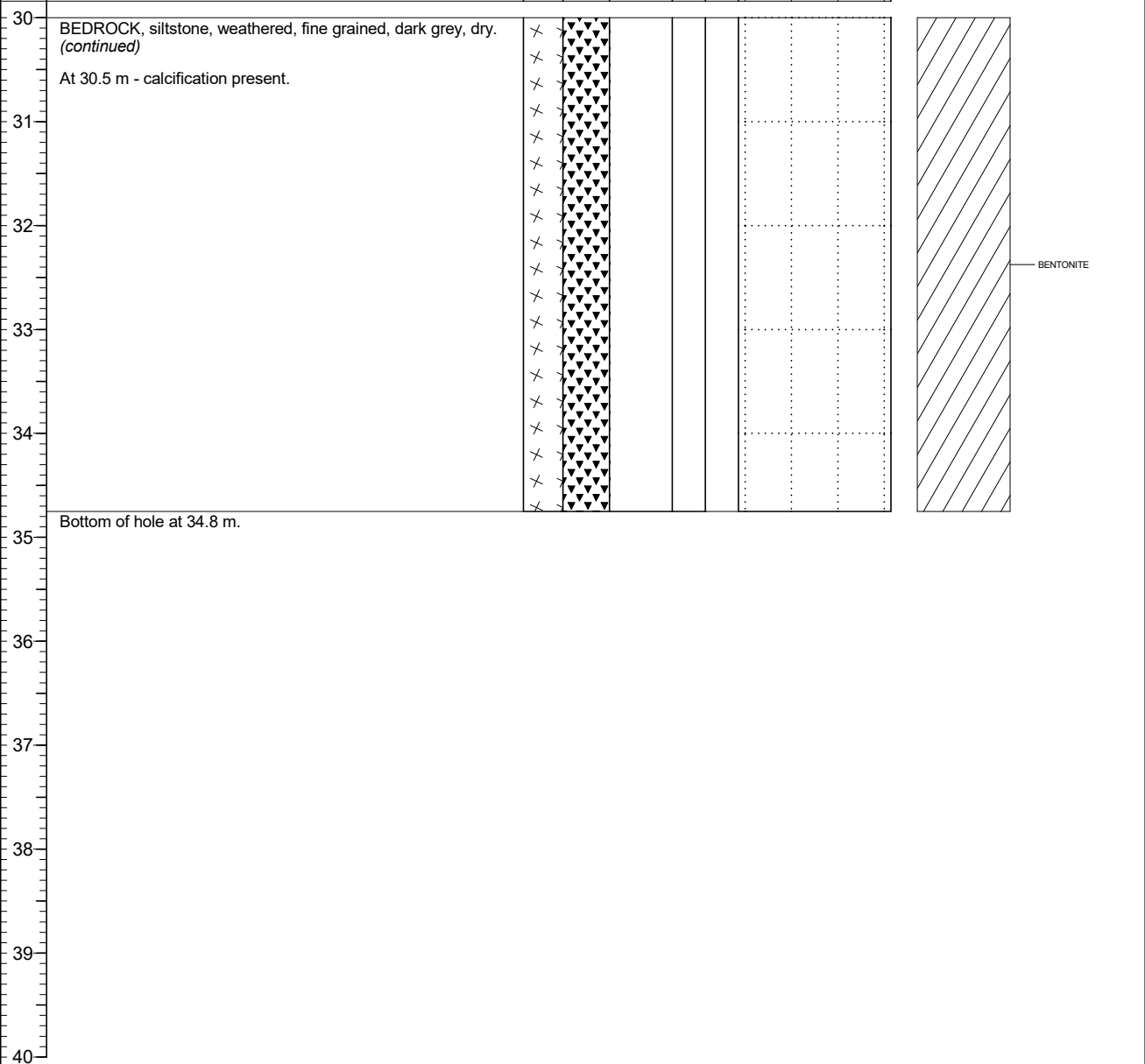
PAGE 4 OF 4

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1492.543
Top of Casing Elev. (m) 1493.240
Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 17
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="radio"/> Reading within indicated scale <input checked="" type="radio"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR4A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4B

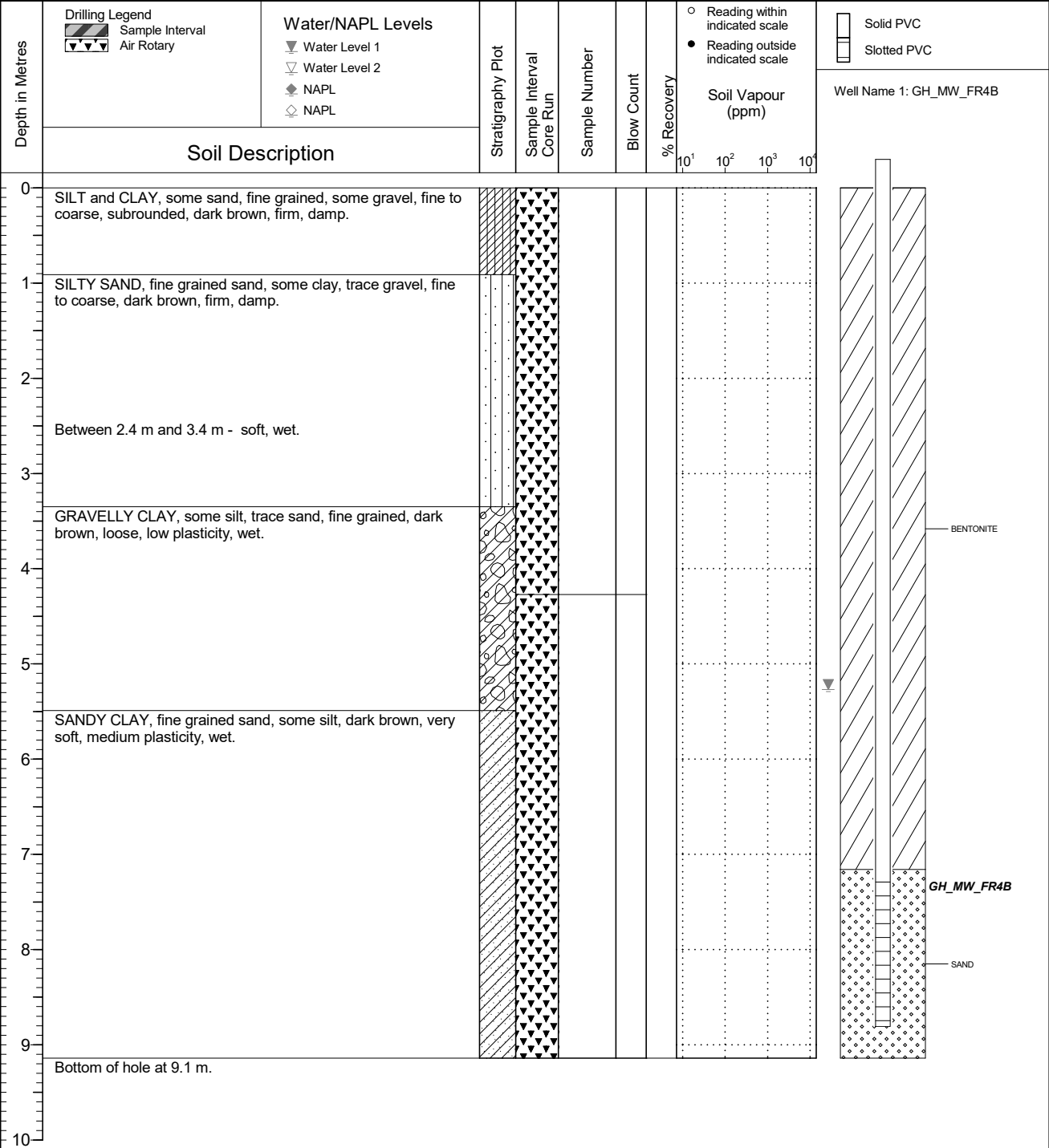
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.597
 Top of Casing Elev. (m) 1493.467
 Northing: 5545819.767 Easting: 653171.344

Project Number: 684431
 Borehole Logged By: AH
 Date Drilled: 2021 09 17
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

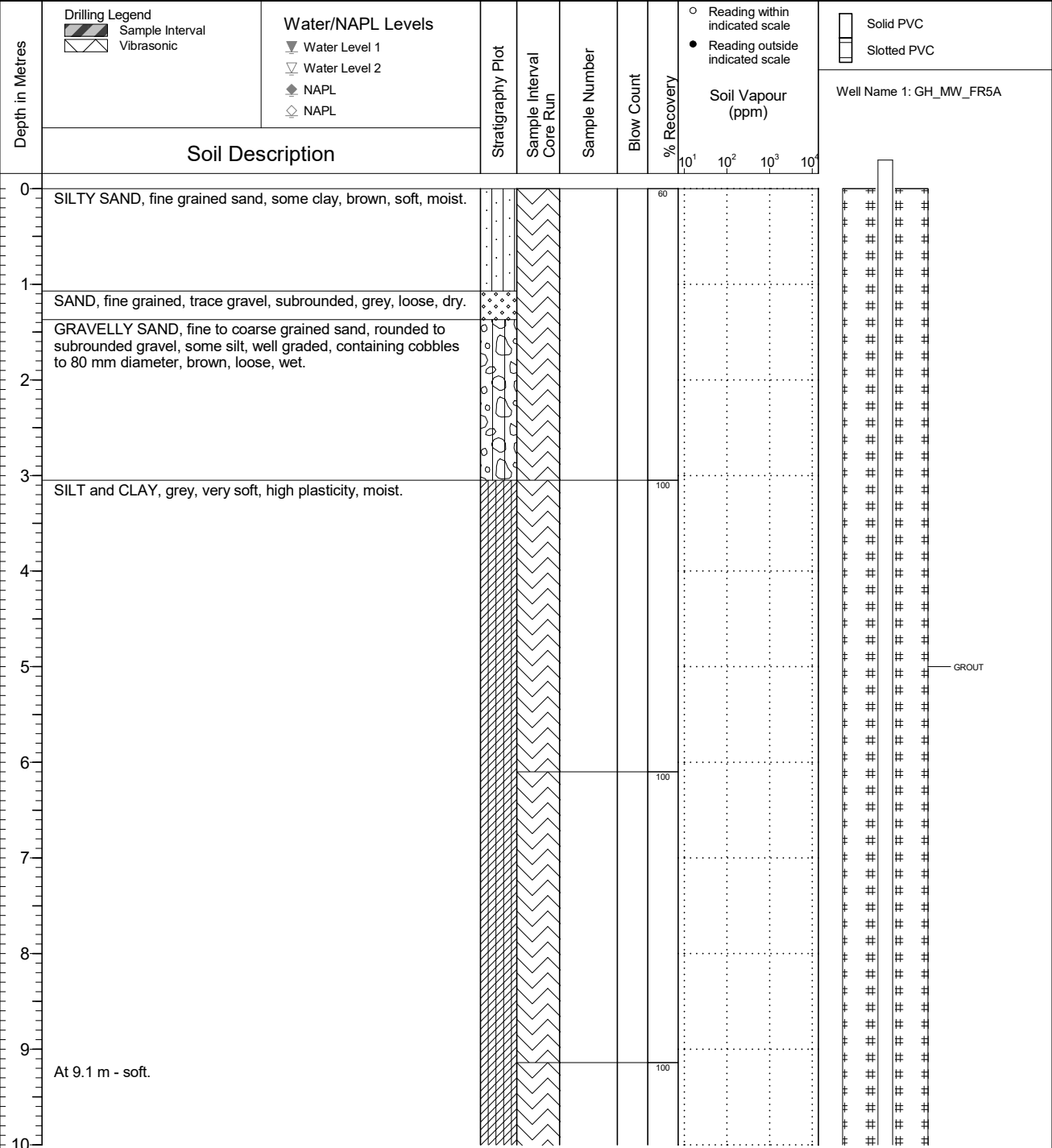
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

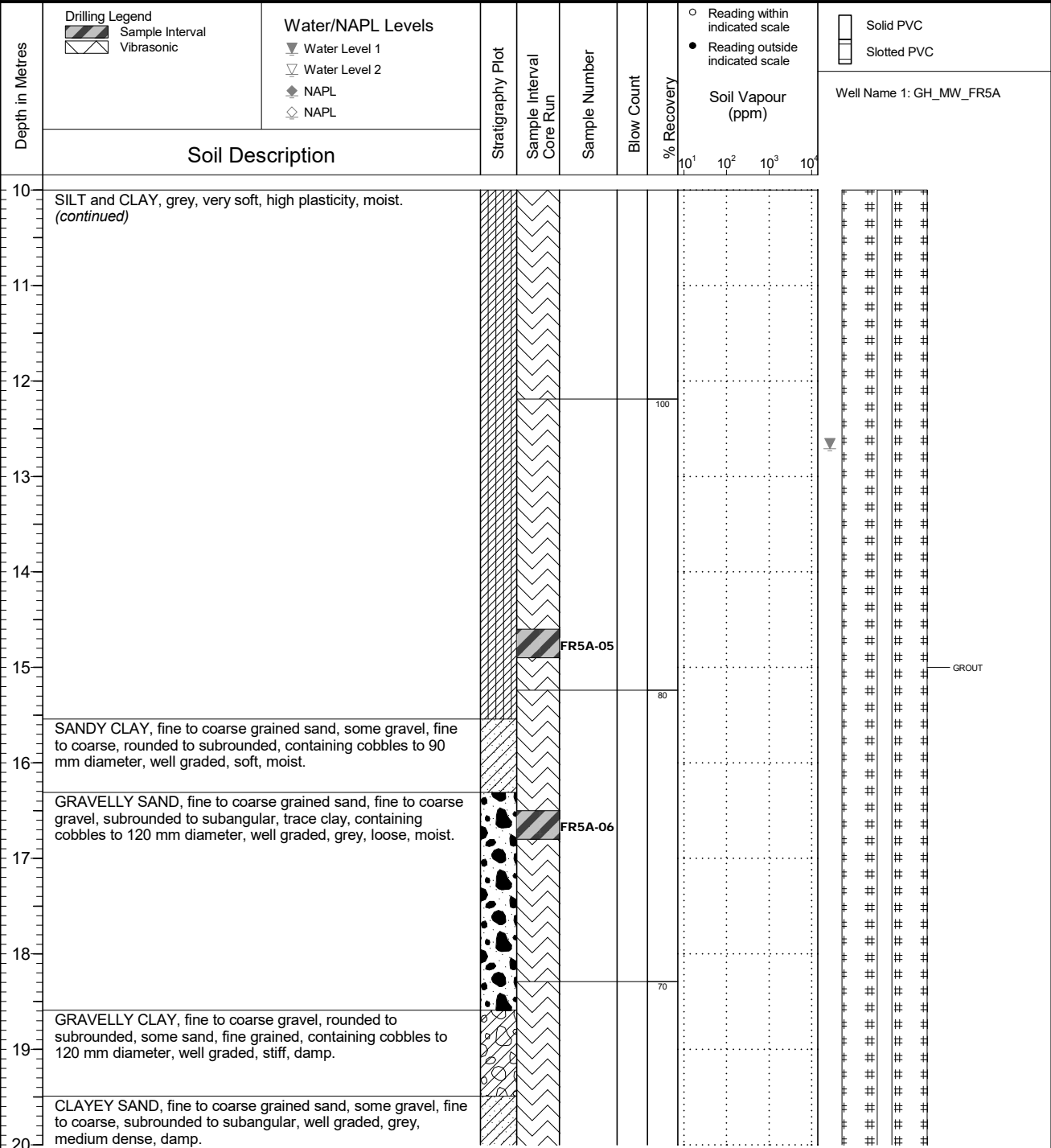
Location
Teck Coal Regional Groundwater

PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

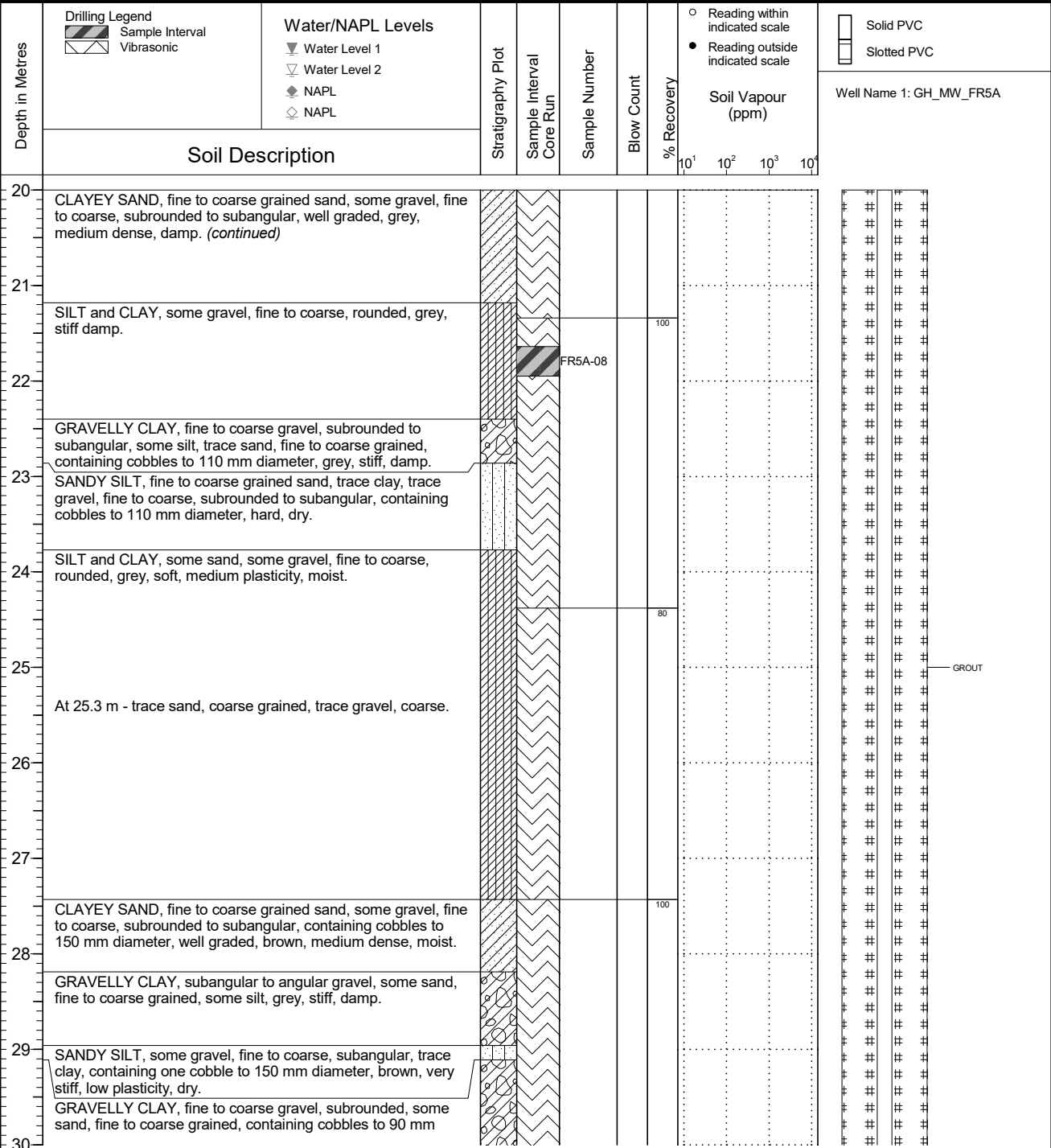
Location
Teck Coal Regional Groundwater

PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

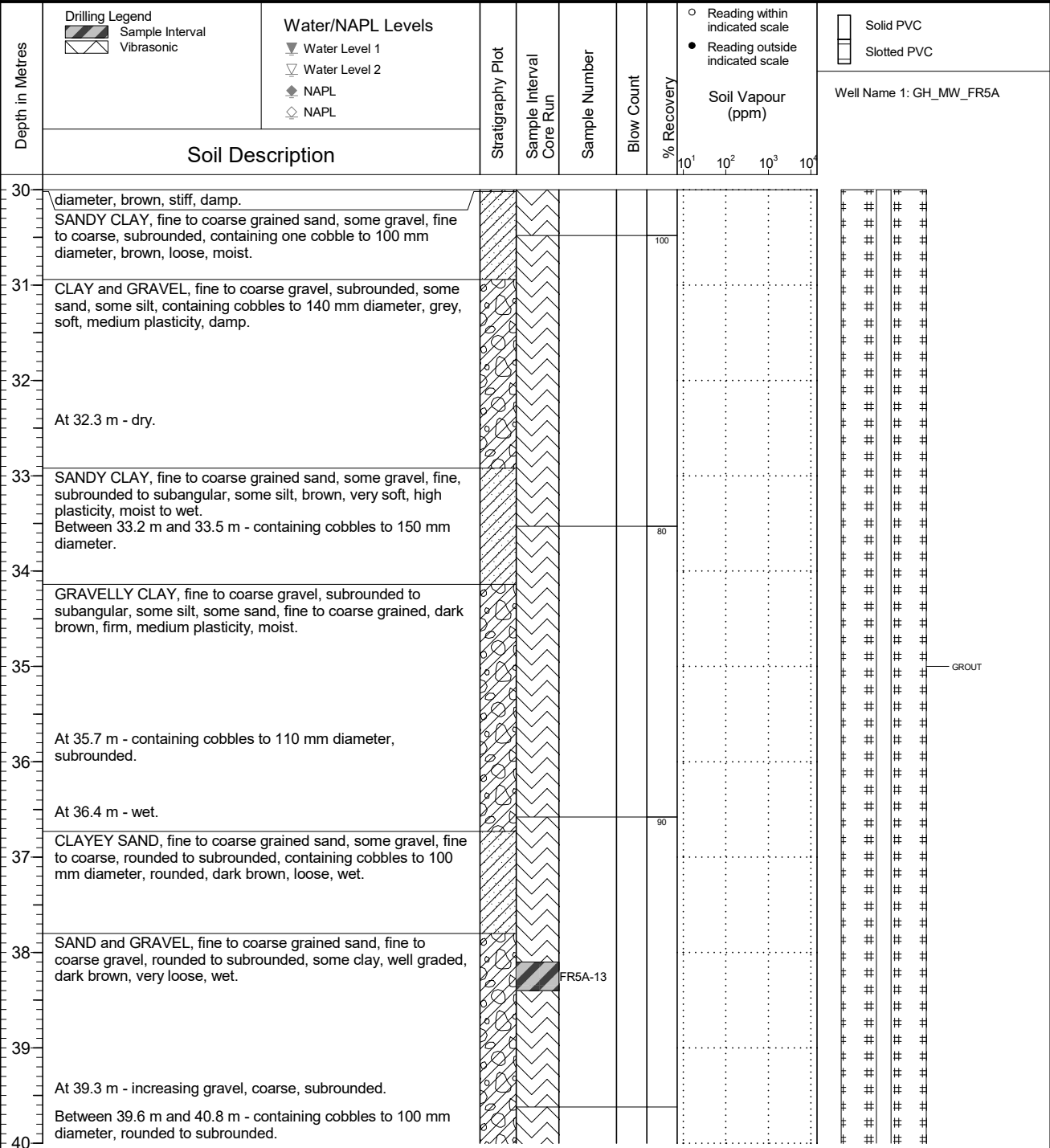
Location
Teck Coal Regional Groundwater

PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

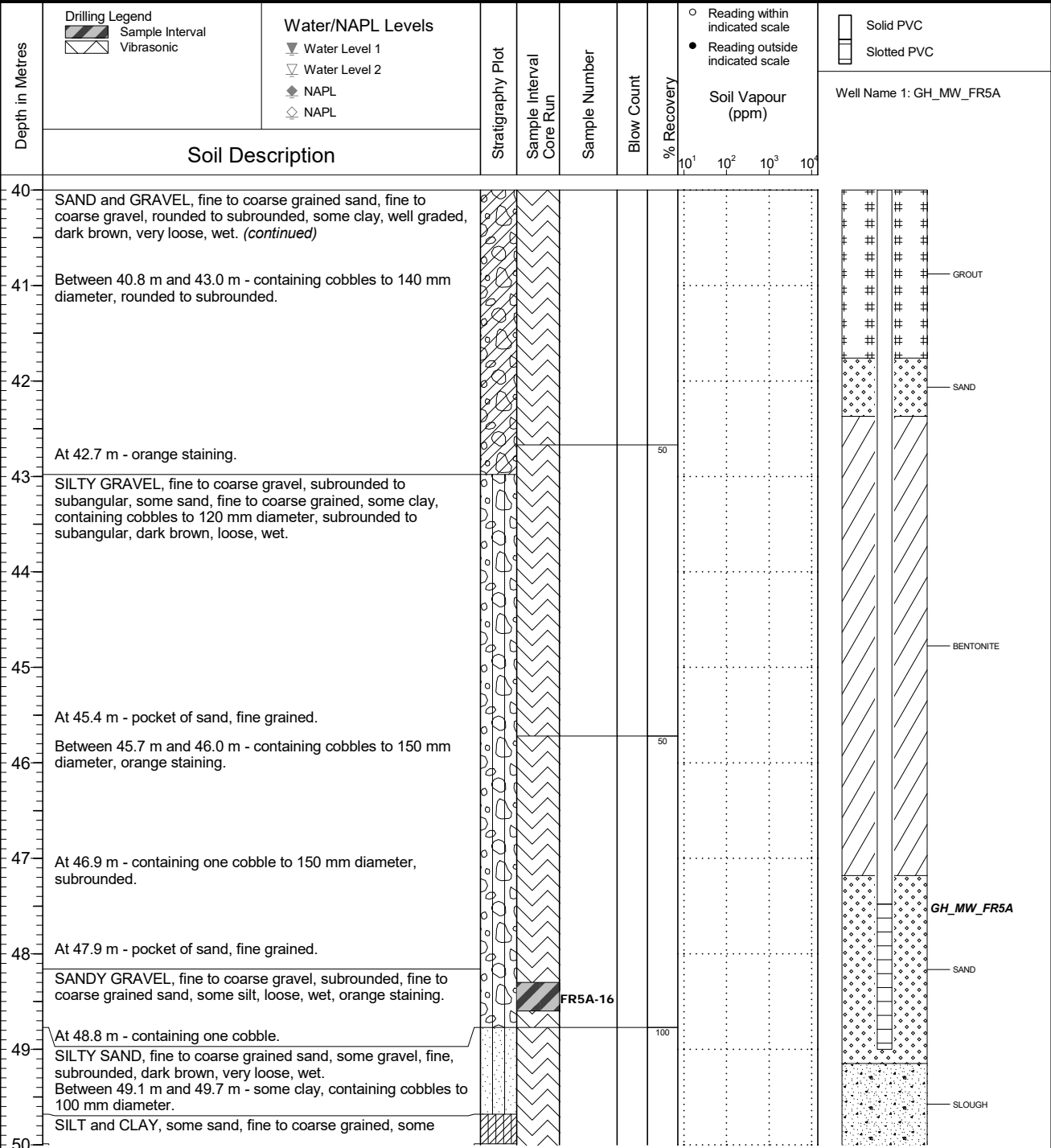
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
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NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

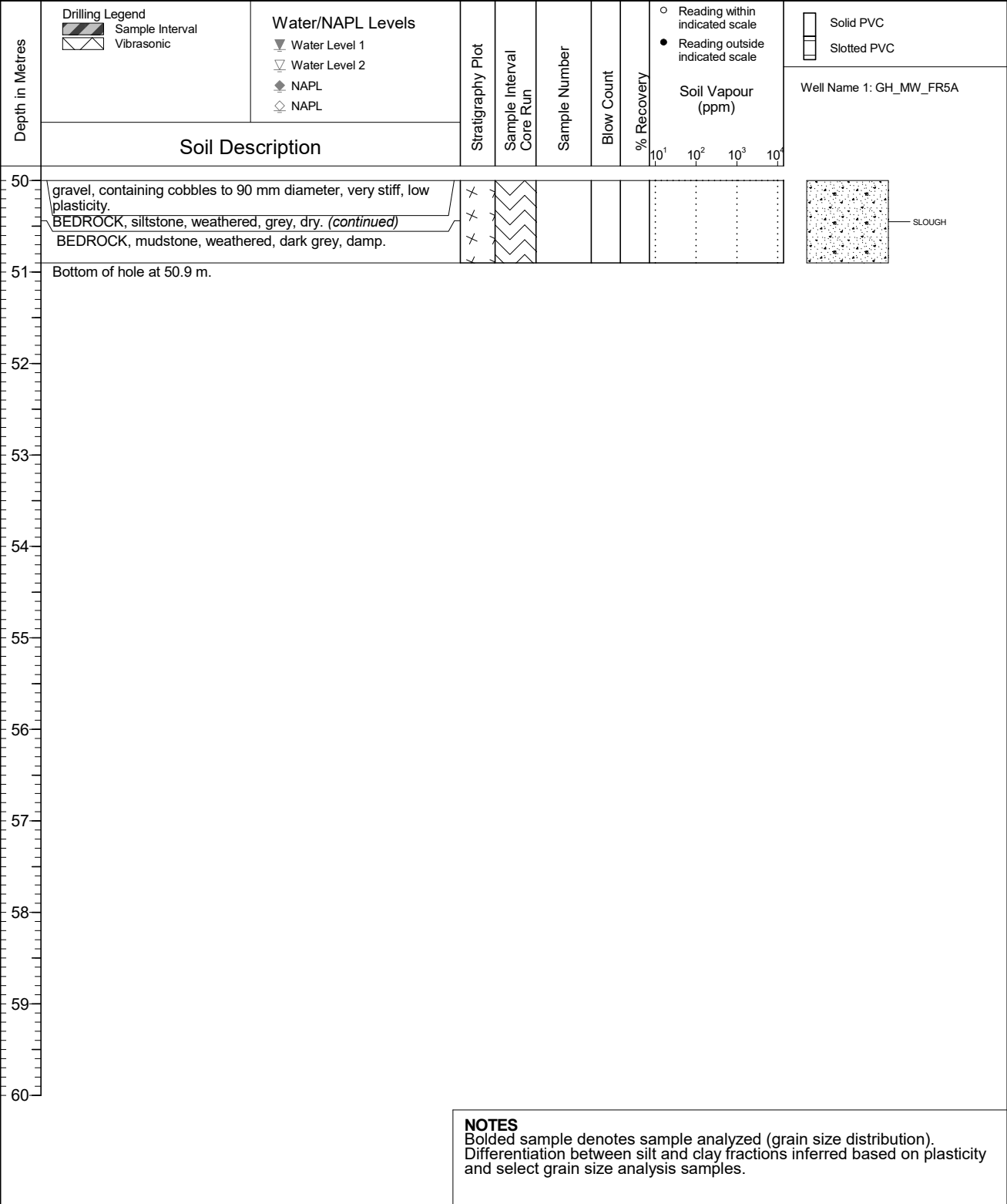
Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL





Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

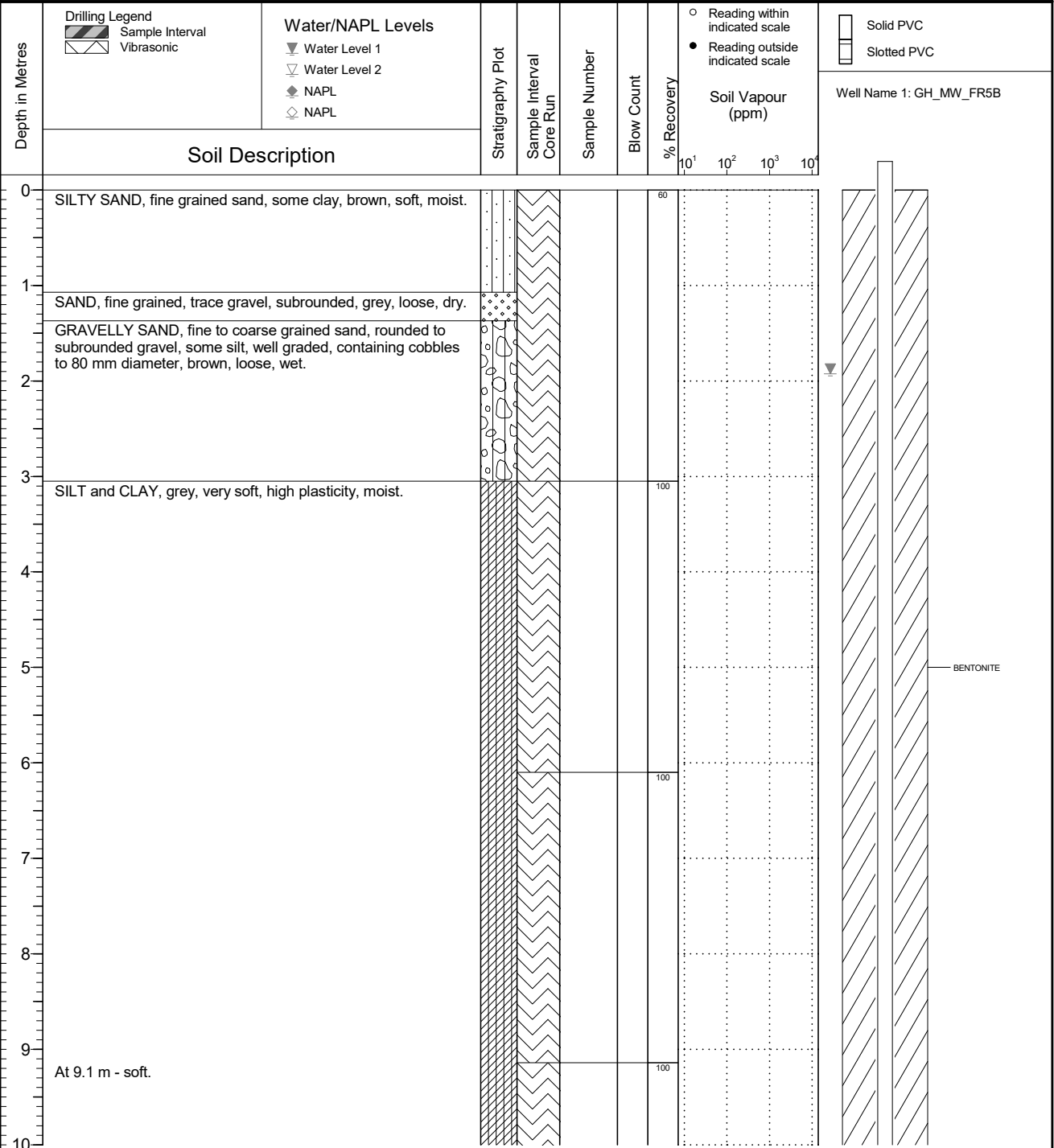
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

Location
Teck Coal Regional Groundwater

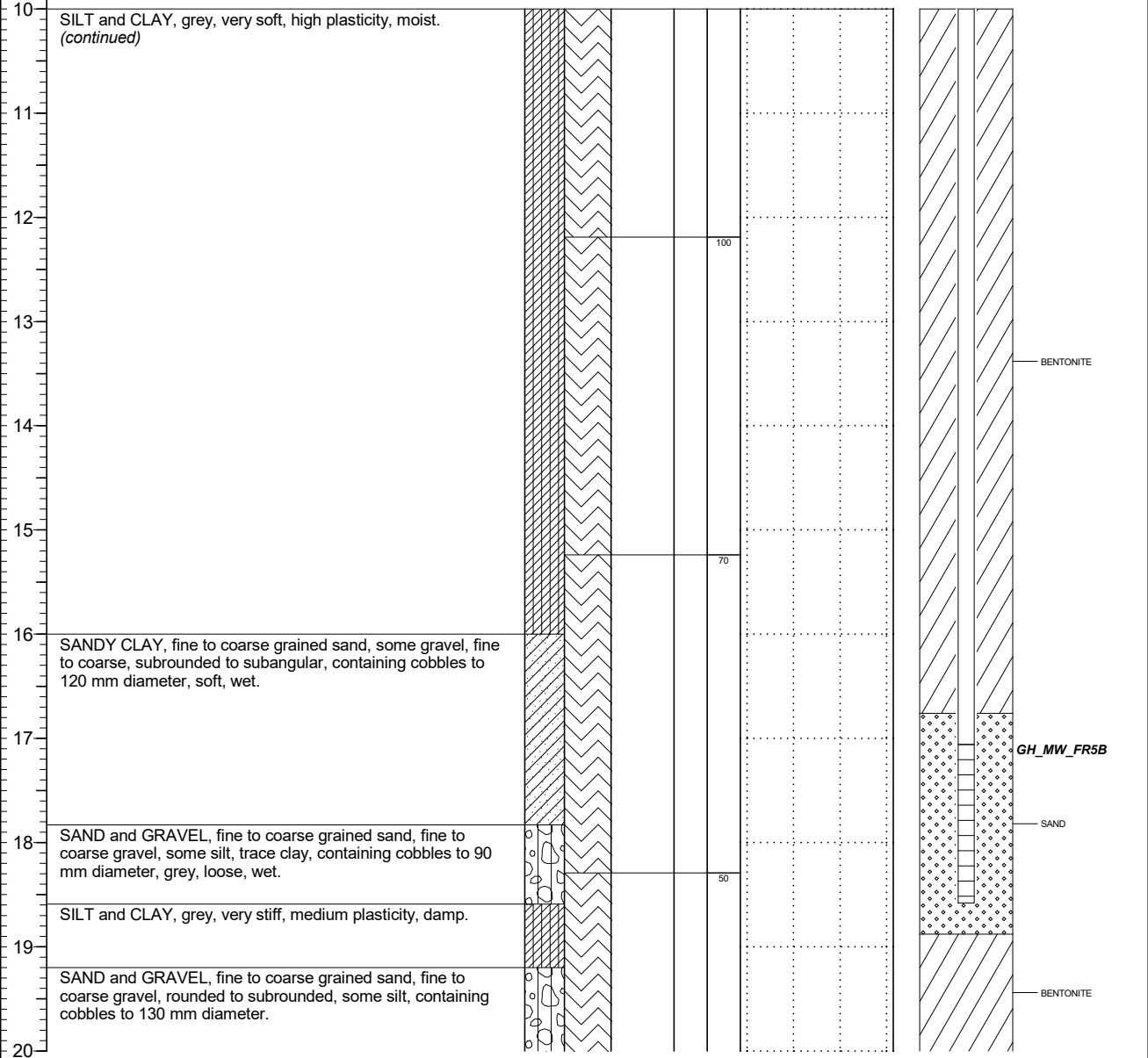
PAGE 2 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description	Soil Vapour (ppm)						Well Name 1: GH_MW_FR5B	



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

Location
Teck Coal Regional Groundwater

PAGE 3 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL

Depth in Metres	Drilling Legend	Water/NAPL Levels	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)	Well Name 1: GH_MW_FR5B
	Sample Interval Vibrasonic	Water Level 1 Water Level 2 NAPL NAPL							
Soil Description									
20	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, rounded to subrounded, some silt, containing cobbles to 130 mm diameter. <i>(continued)</i>								
21	SILT, some clay, grey, very stiff, low plasticity, damp.								
Bottom of hole at 21.5 m.									
22									
23									
24									
25									
26									
27									
28									
29									
30									

NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR6

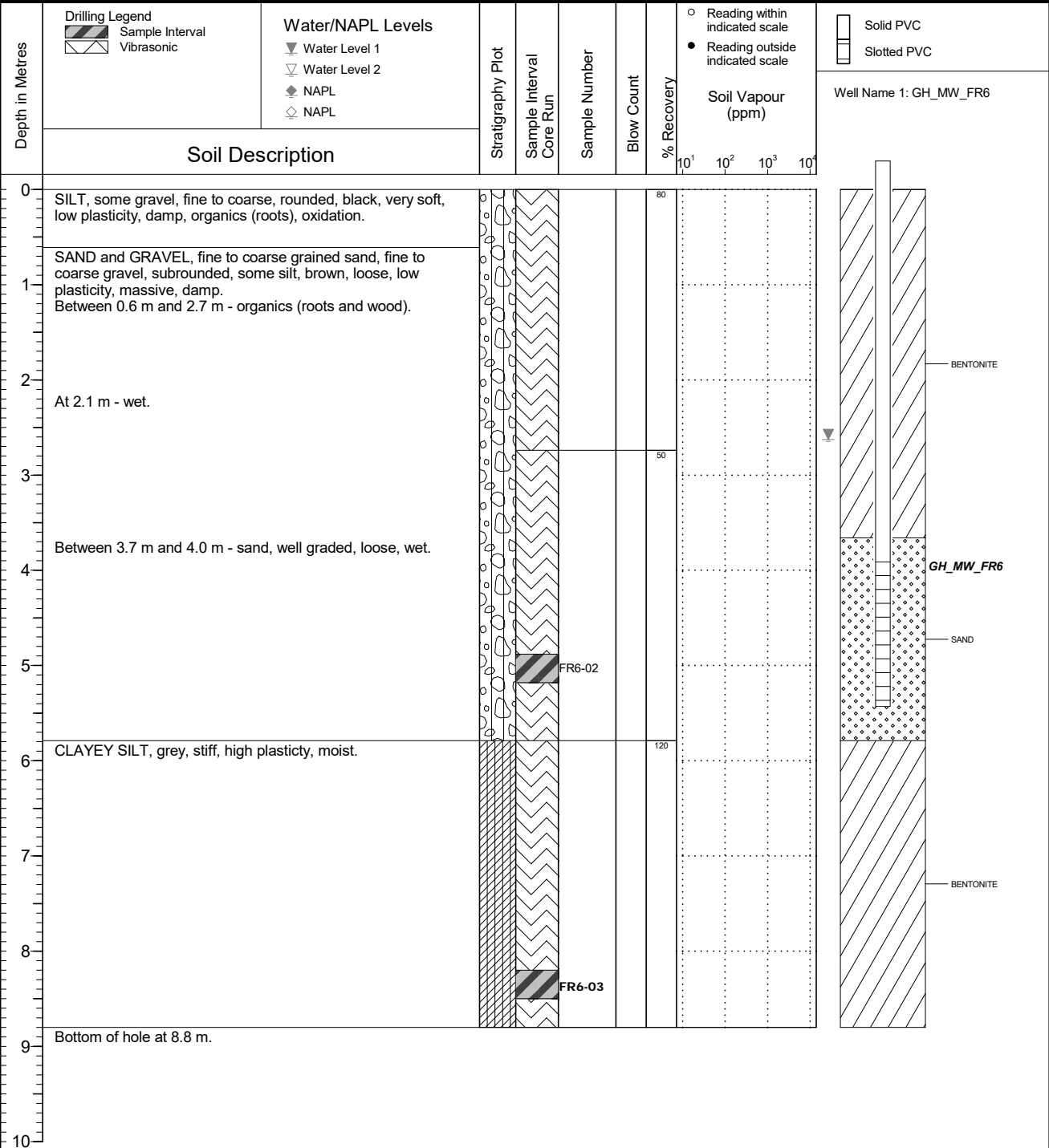
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1490.767
Top of Casing Elev. (m) 1491.537
Northing: 5545300.974 Easting: 653861.040

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 26
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

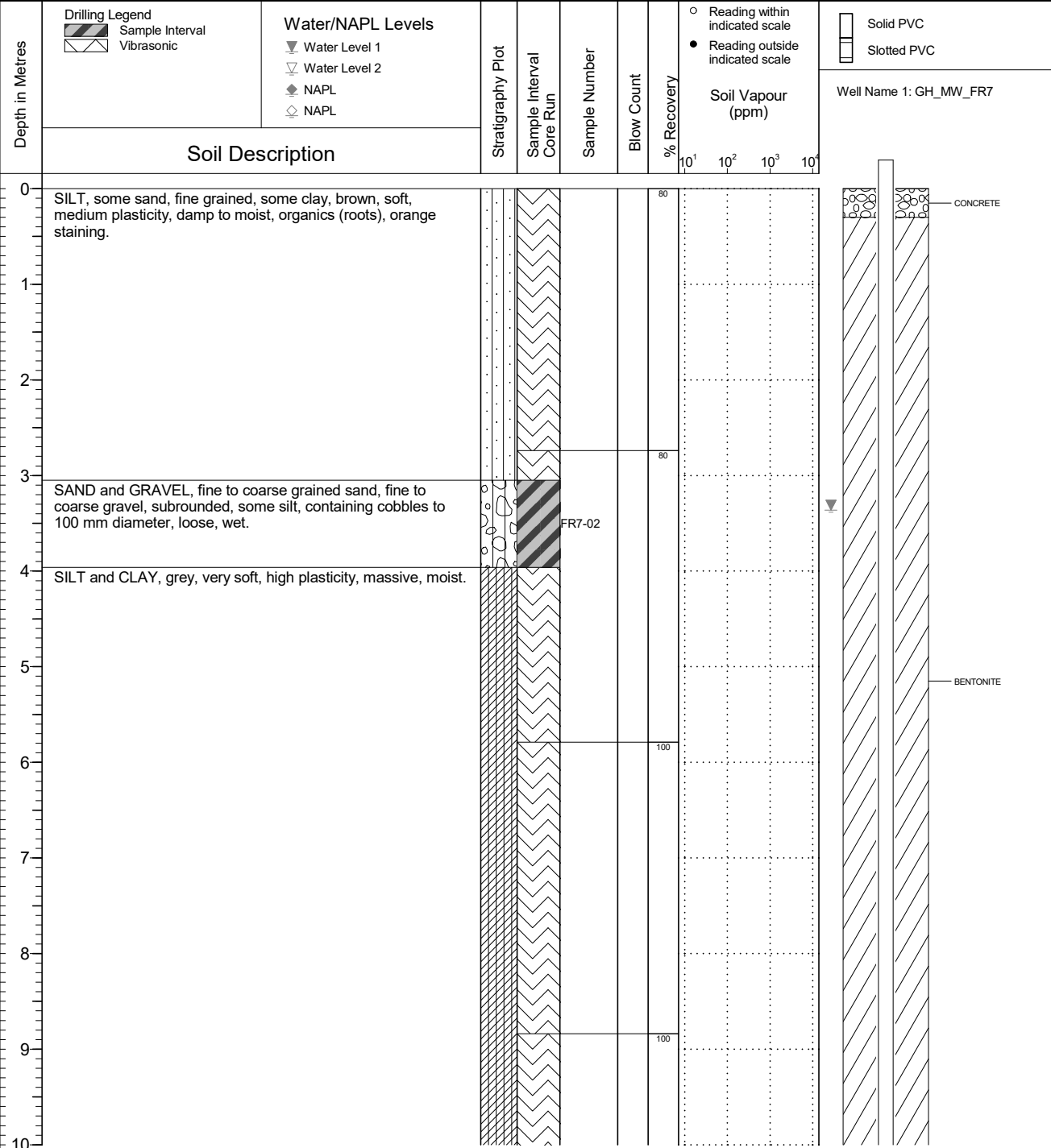
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

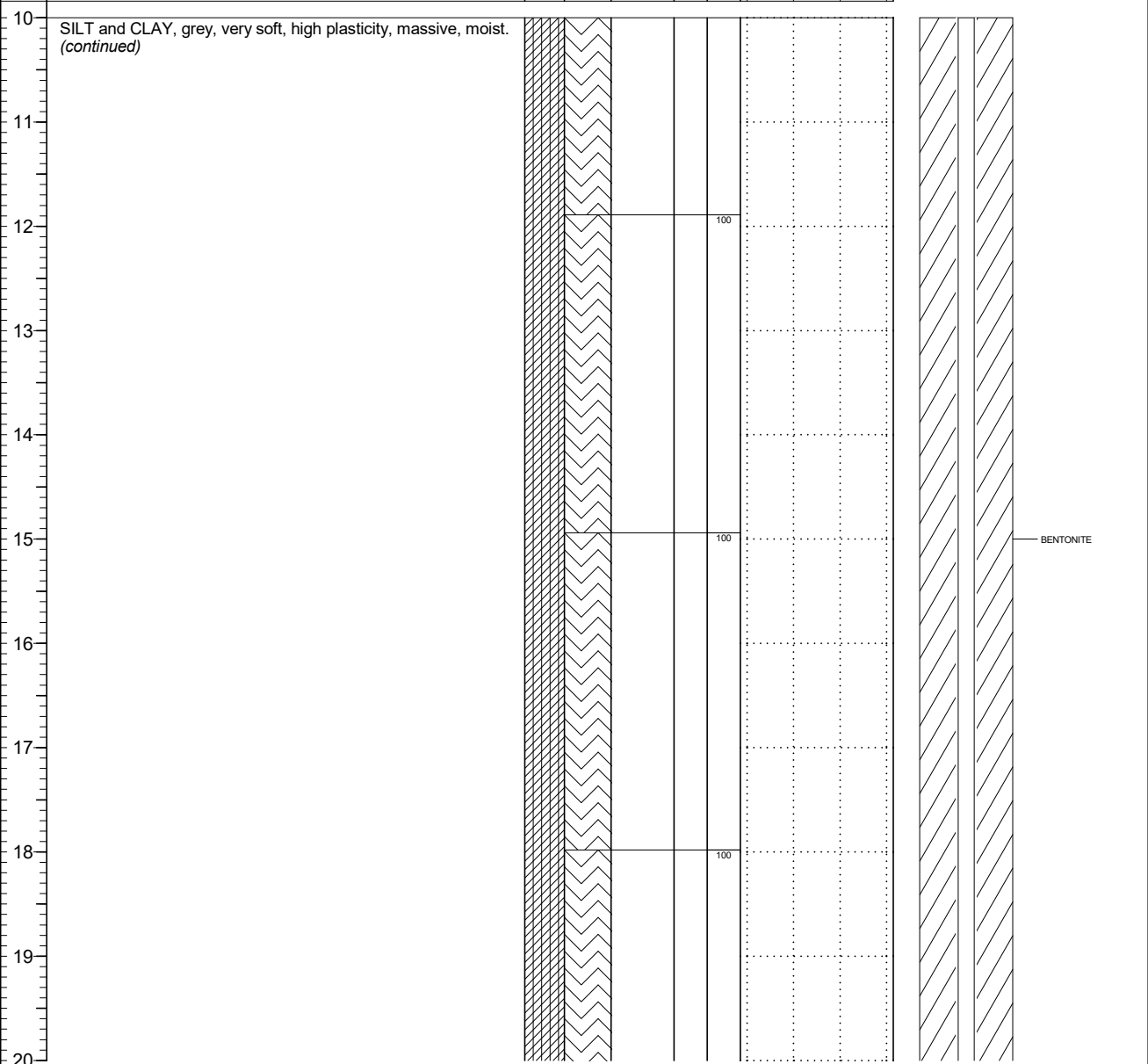
PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

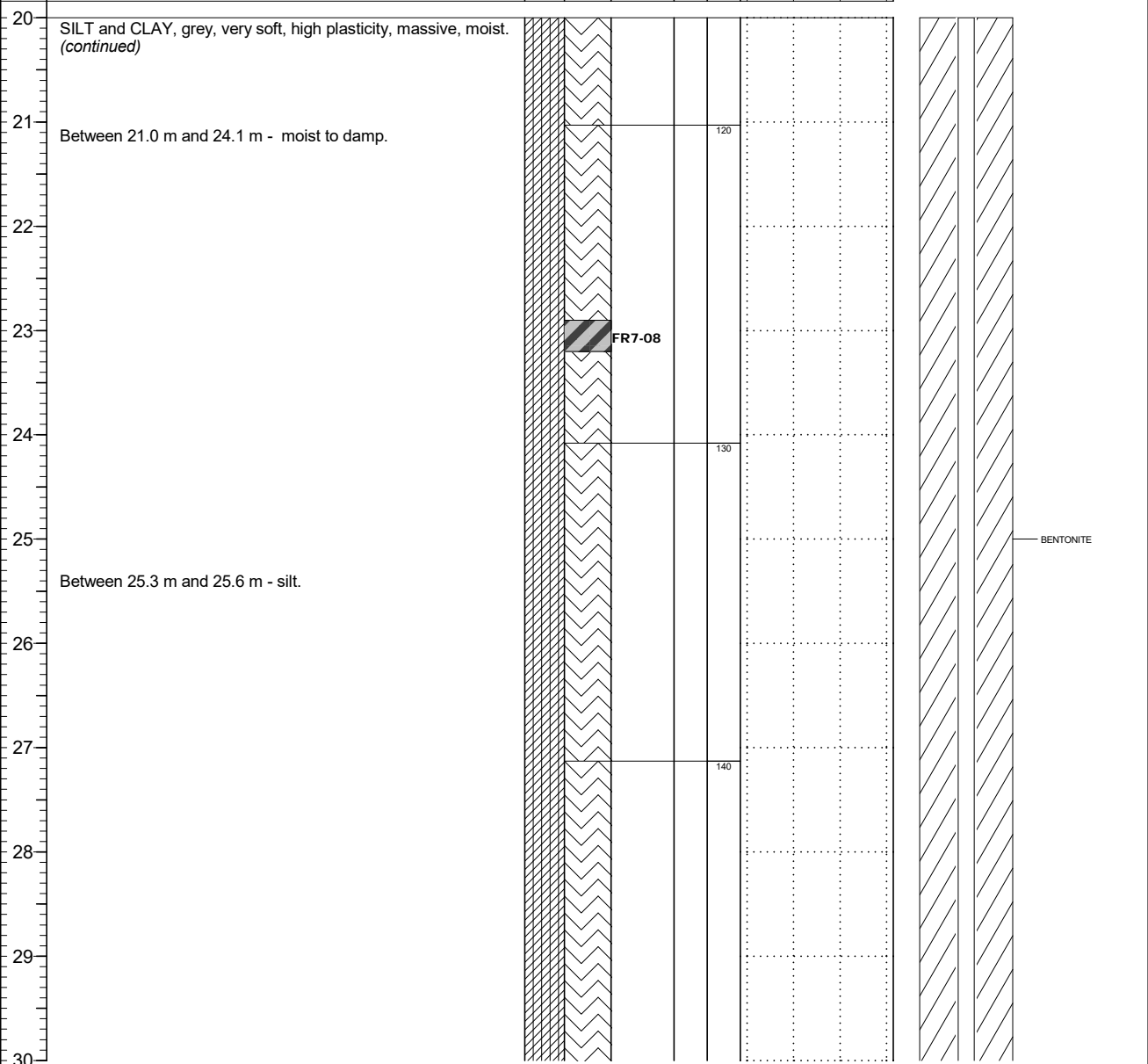
PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

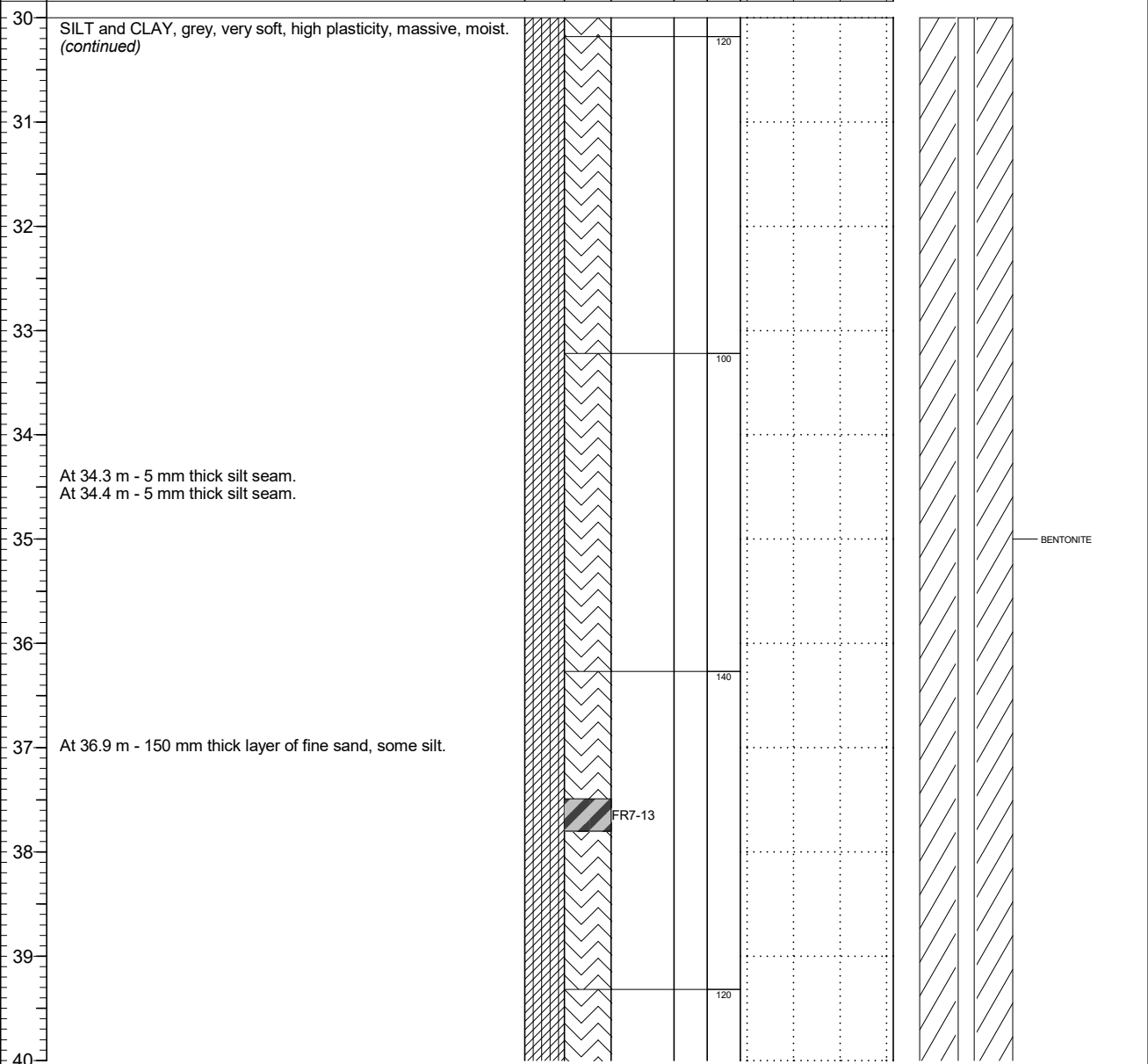
PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

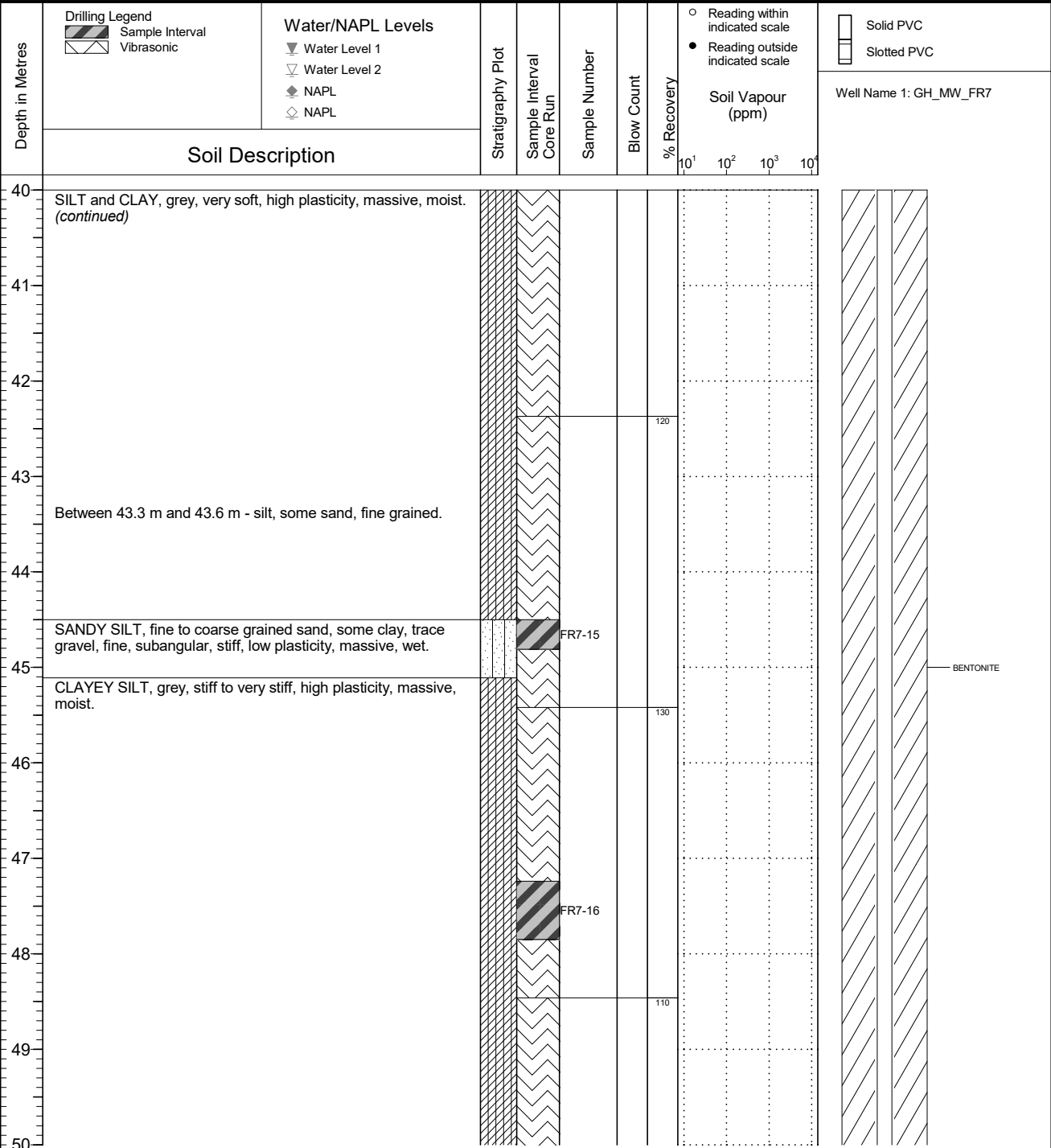
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

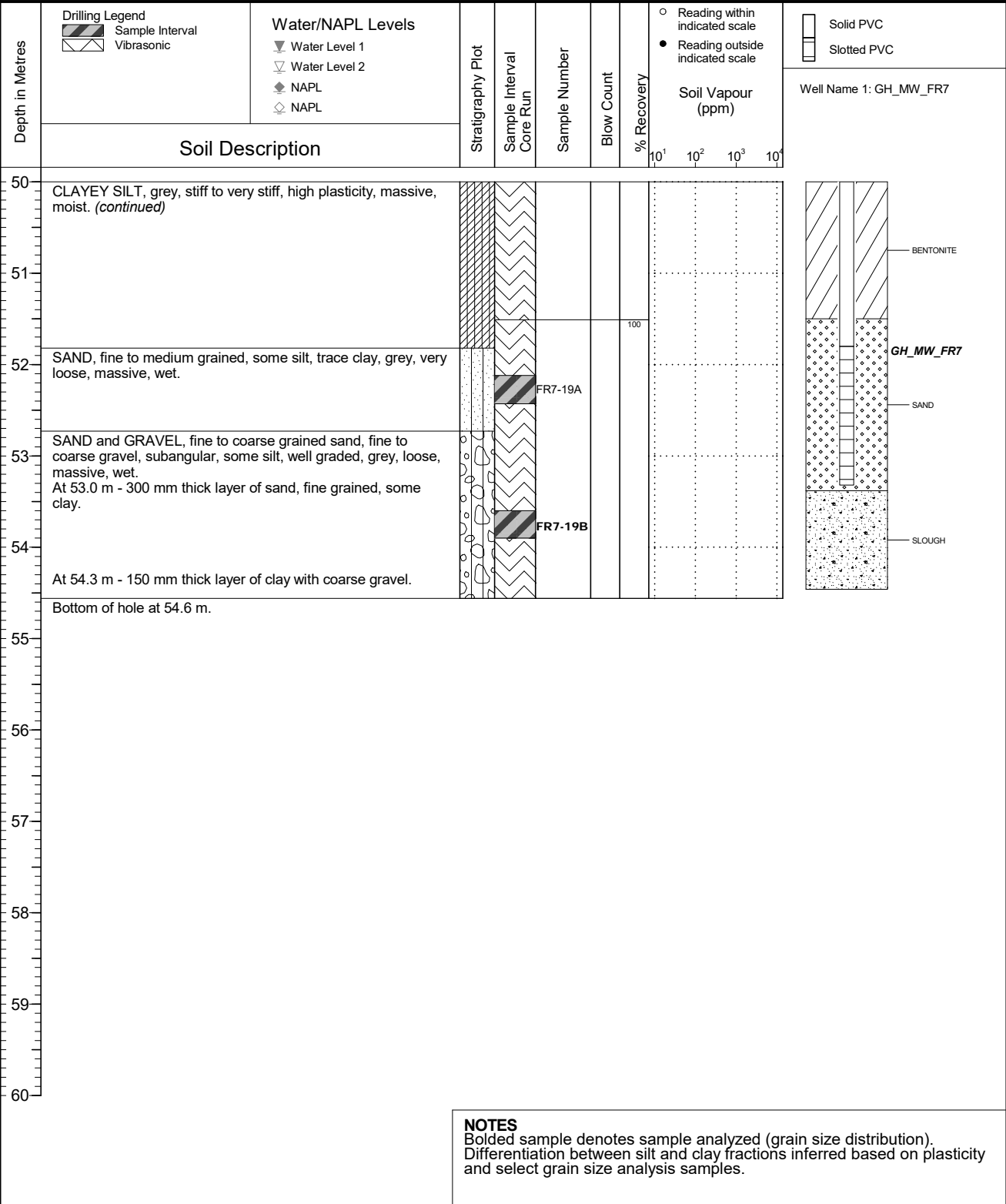
Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

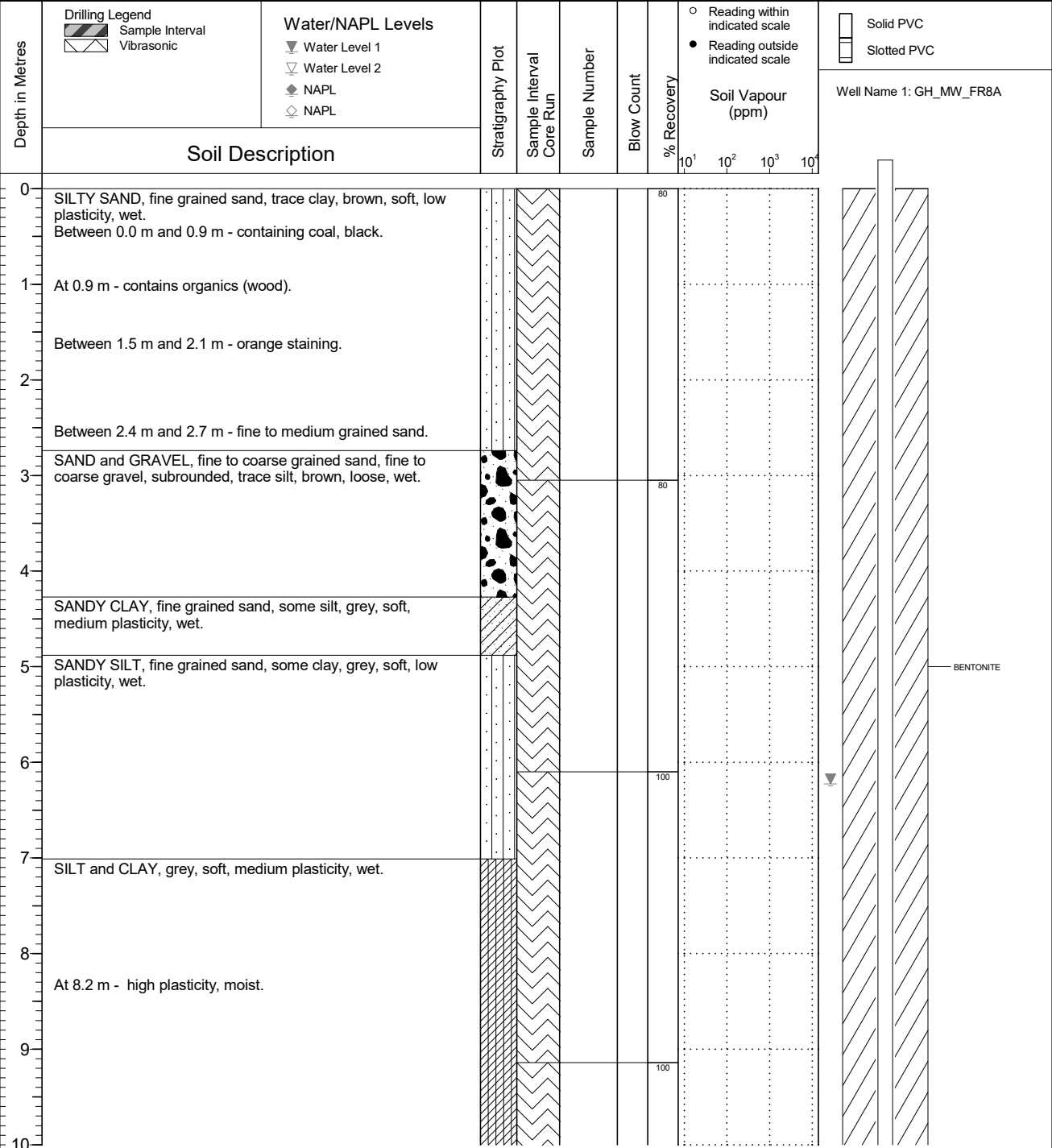
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

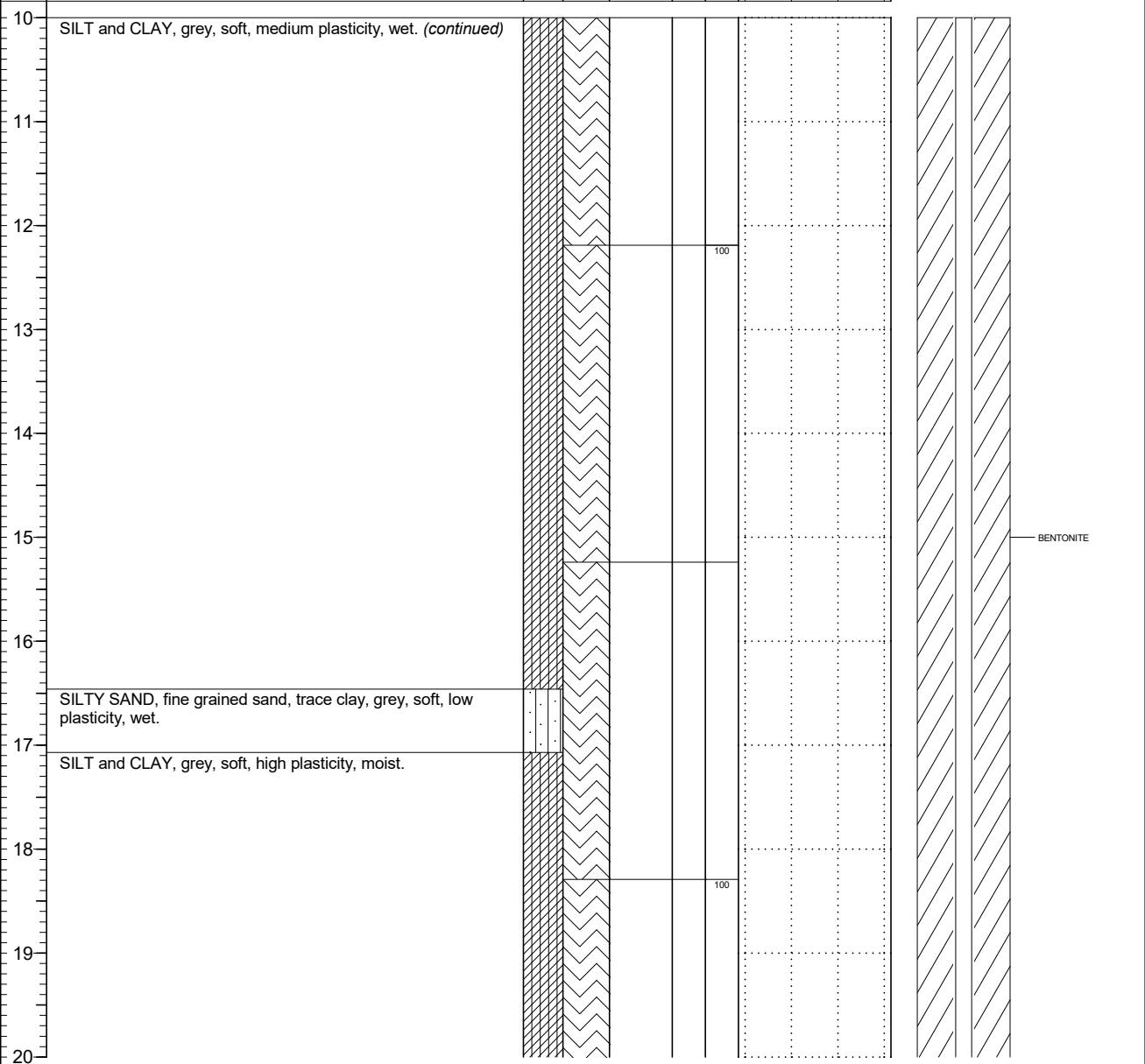
PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR8A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

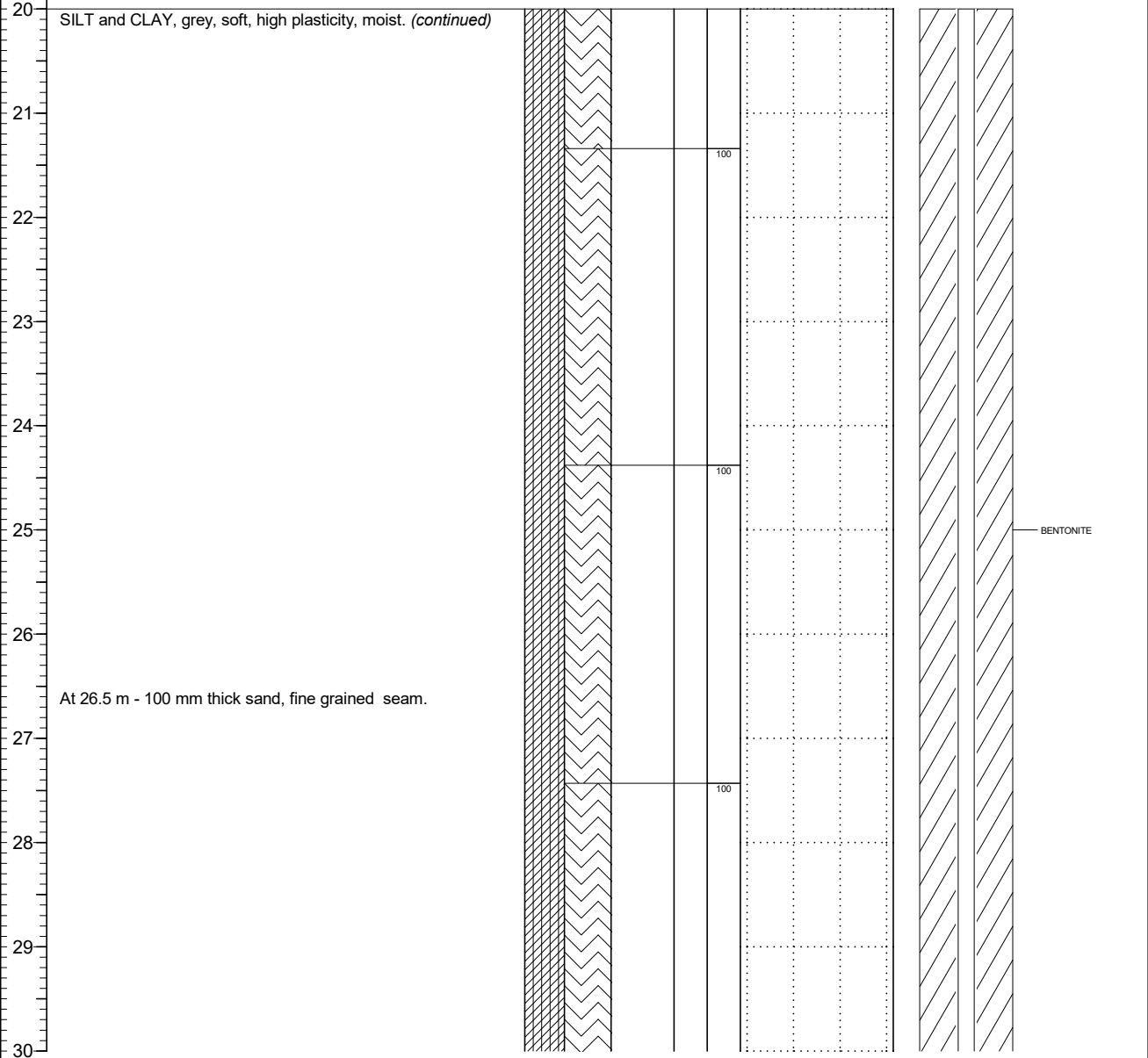
PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description	Soil Vapour (ppm)						Well Name 1: GH_MW_FR8A	



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

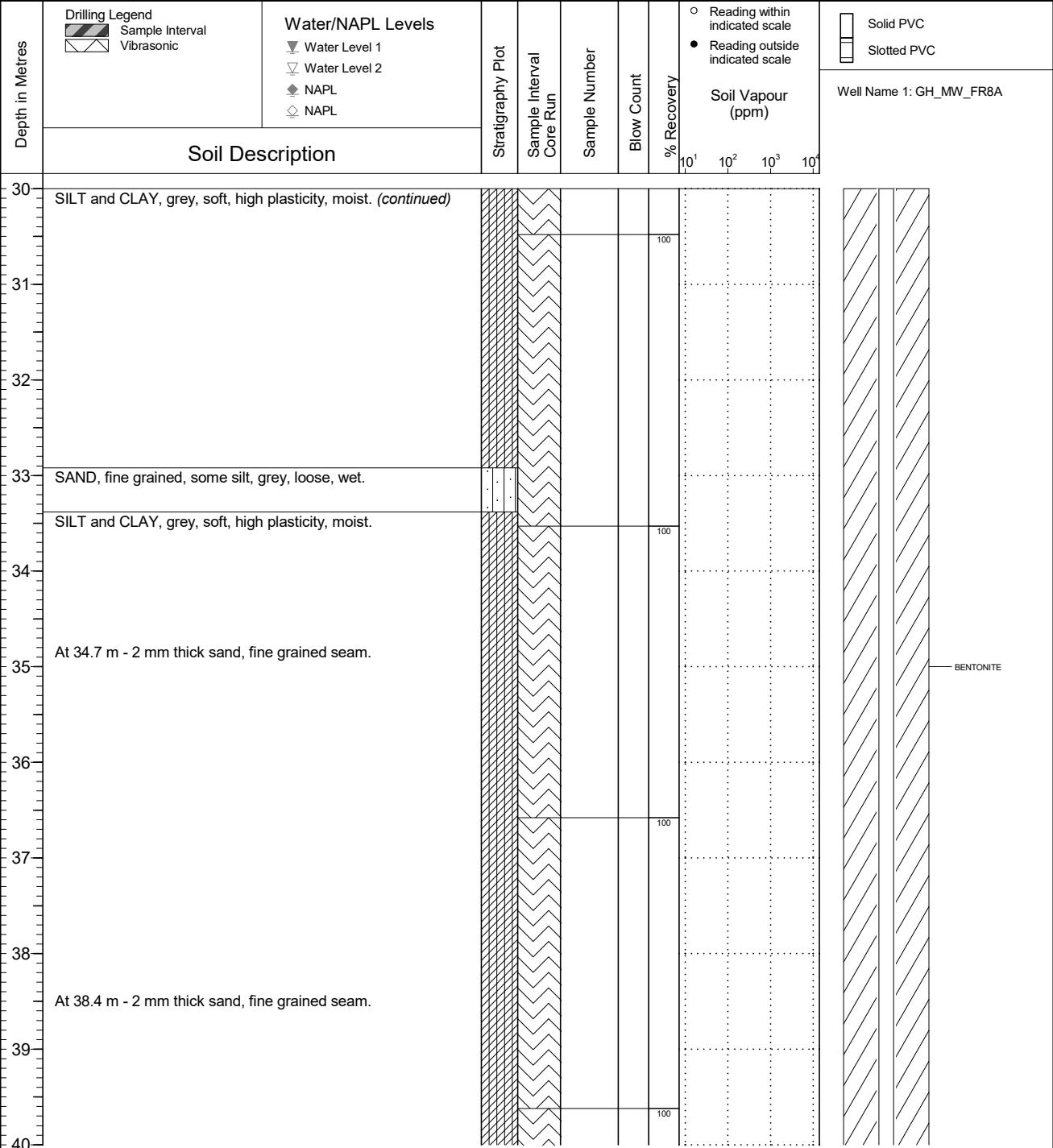
Location
Teck Coal Regional Groundwater

PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES

Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

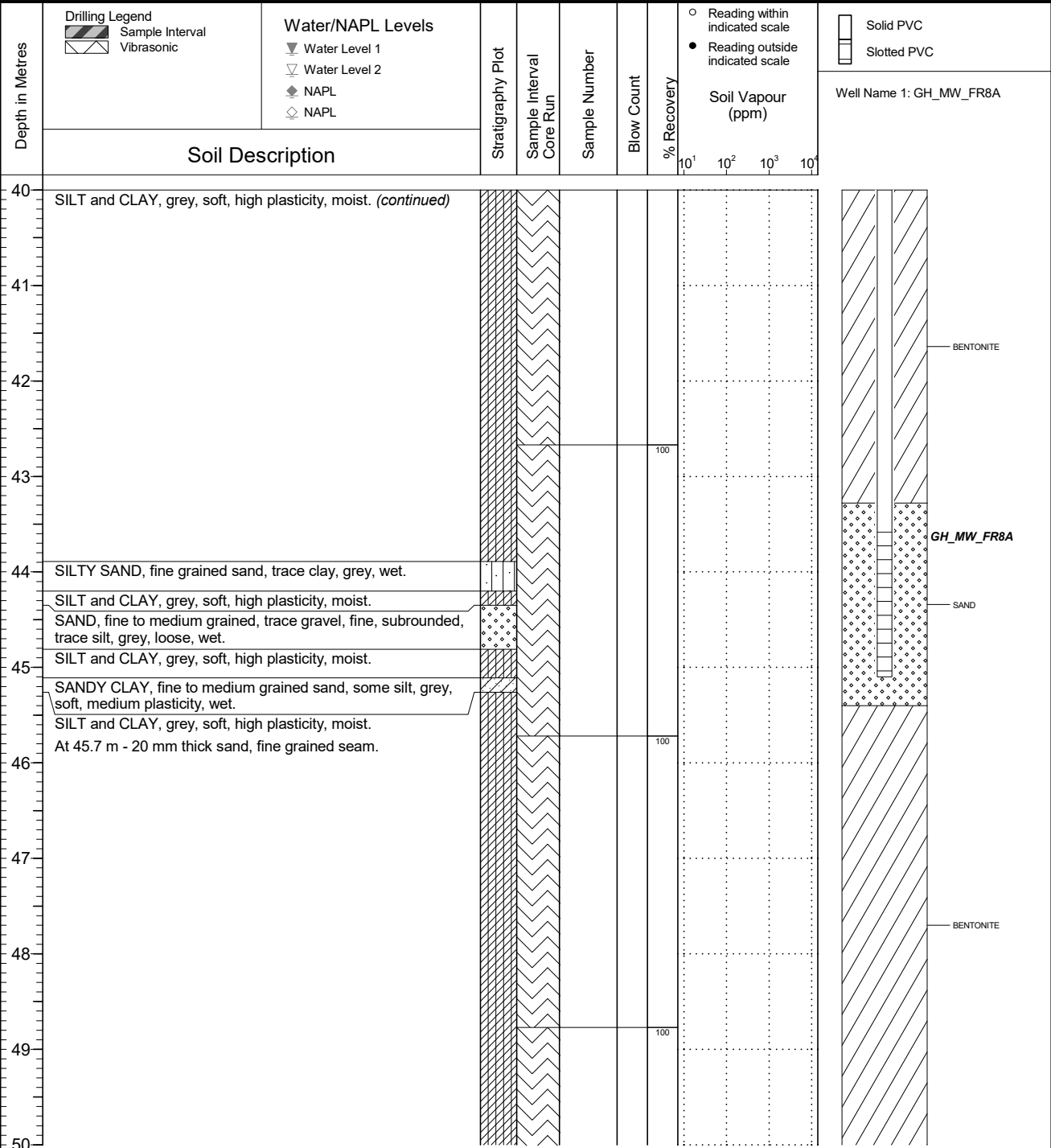
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

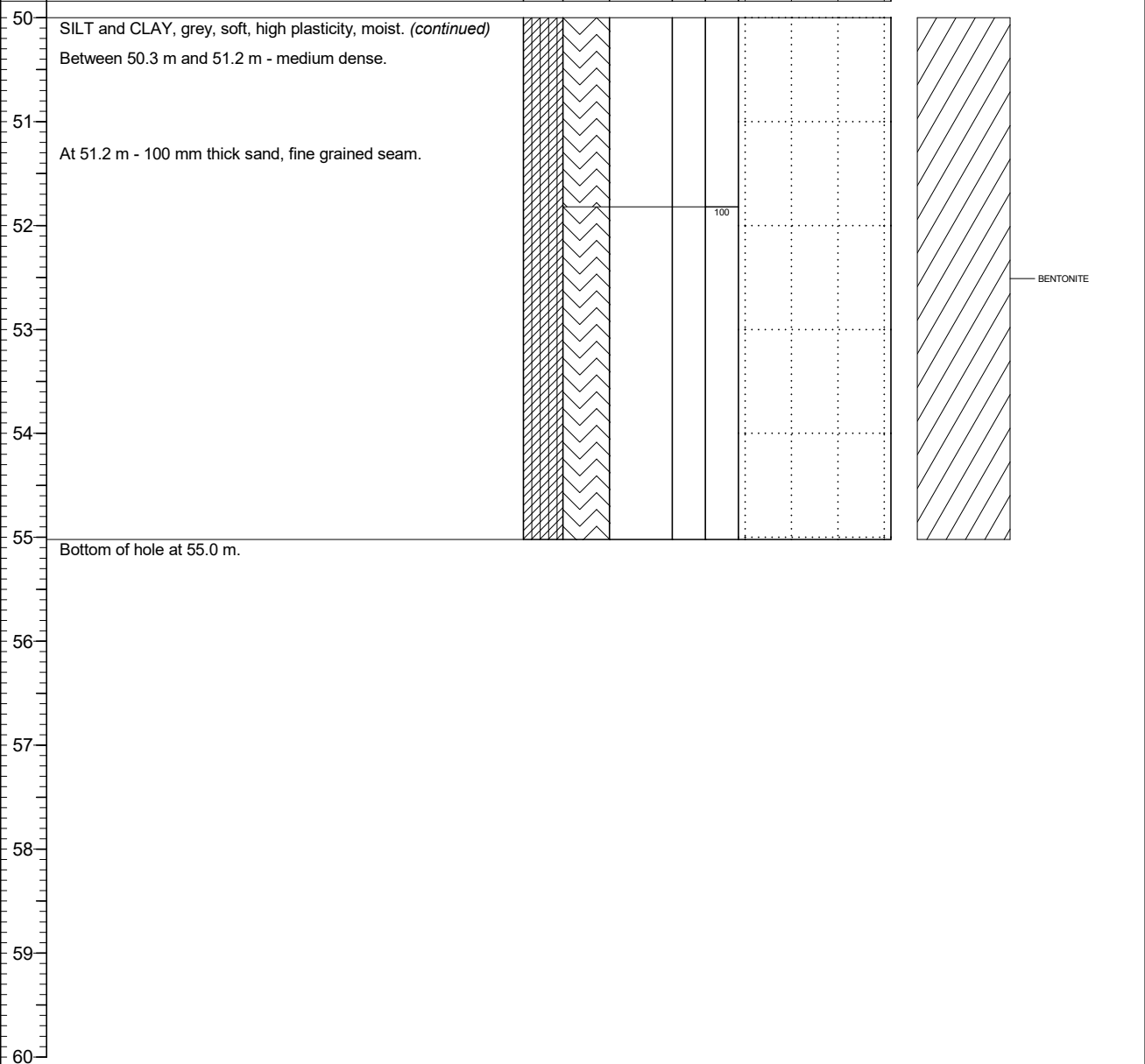
PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR8A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8B

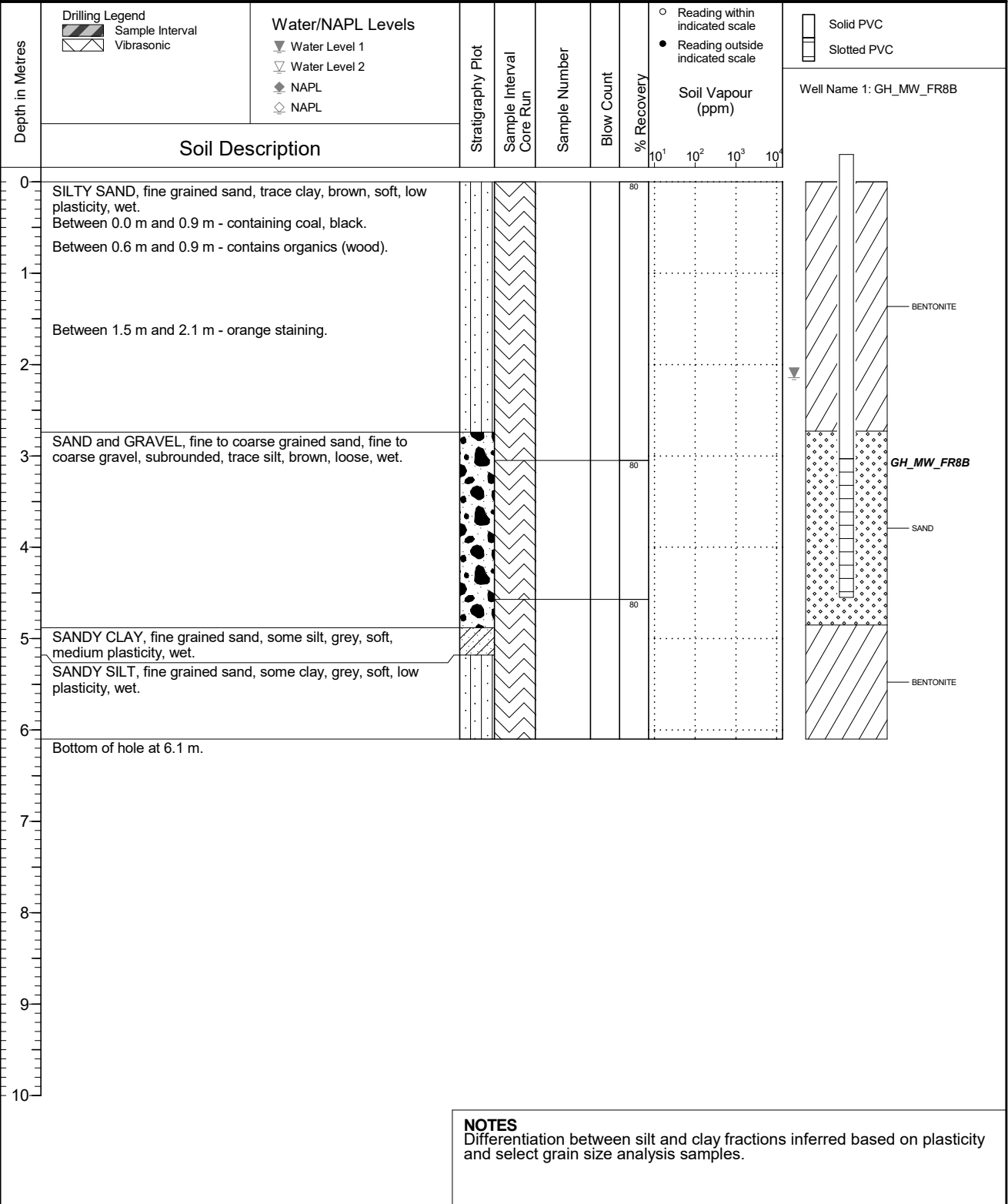
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

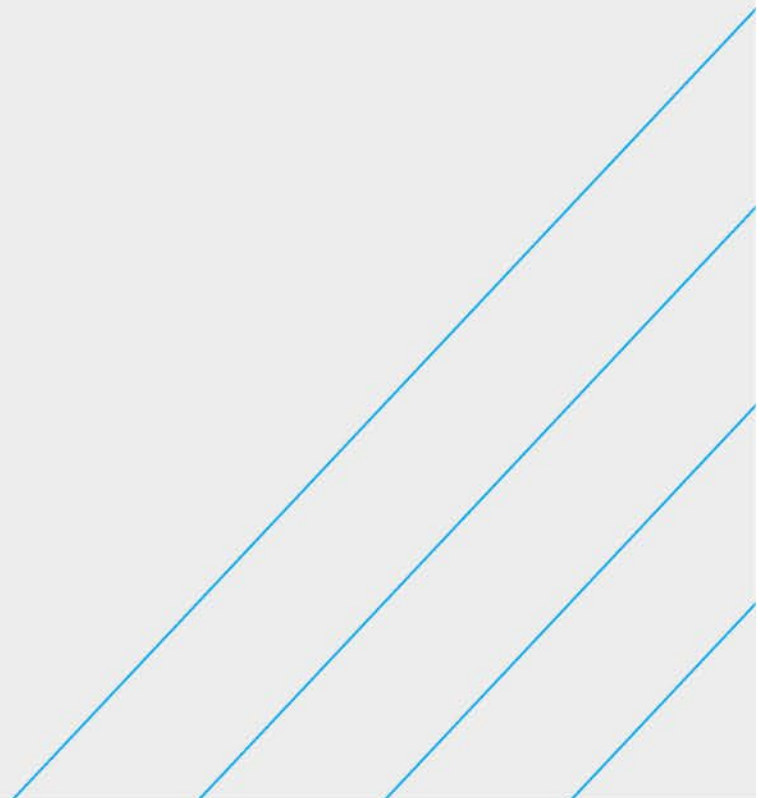
Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.125
Top of Casing Elev. (m) 1492.993
Northing: 5545206.676 Easting: 654145.781

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

Line Creek Operations Borehole Logs – Wells for Evaluation



Teck Coal Limited

Borehole No: LC_MW_LC1-1A

Project: LCO Phase 2 Water Treatment

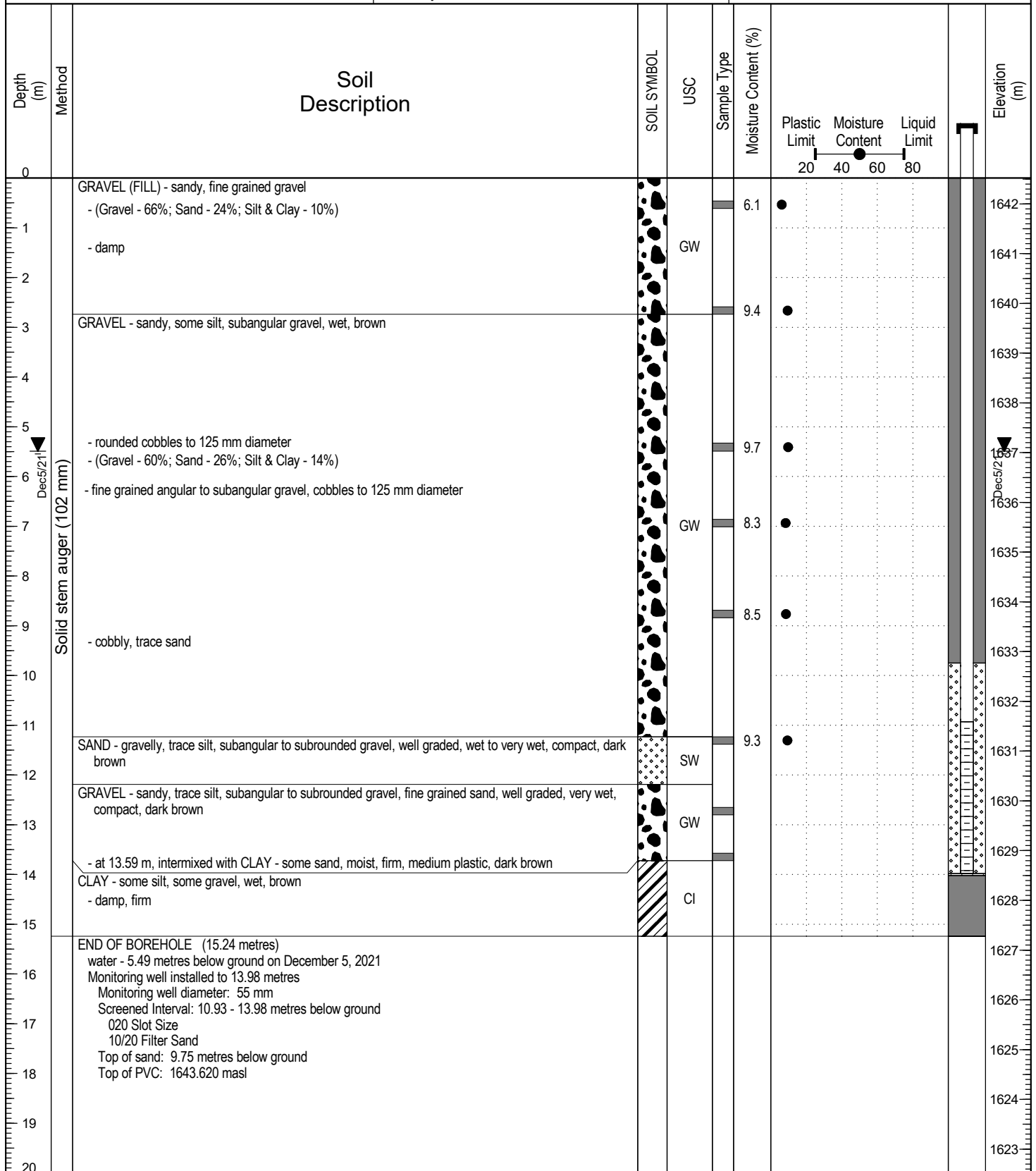
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1642.52 m

Elk Valley, British Columbia

UTM: 661955.34 E; 5538175.93 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 15.24 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Carl Forkheim

Completion Date: 2021 December 4

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_LC1-2A

Project: LCO Phase 2 Water Treatment

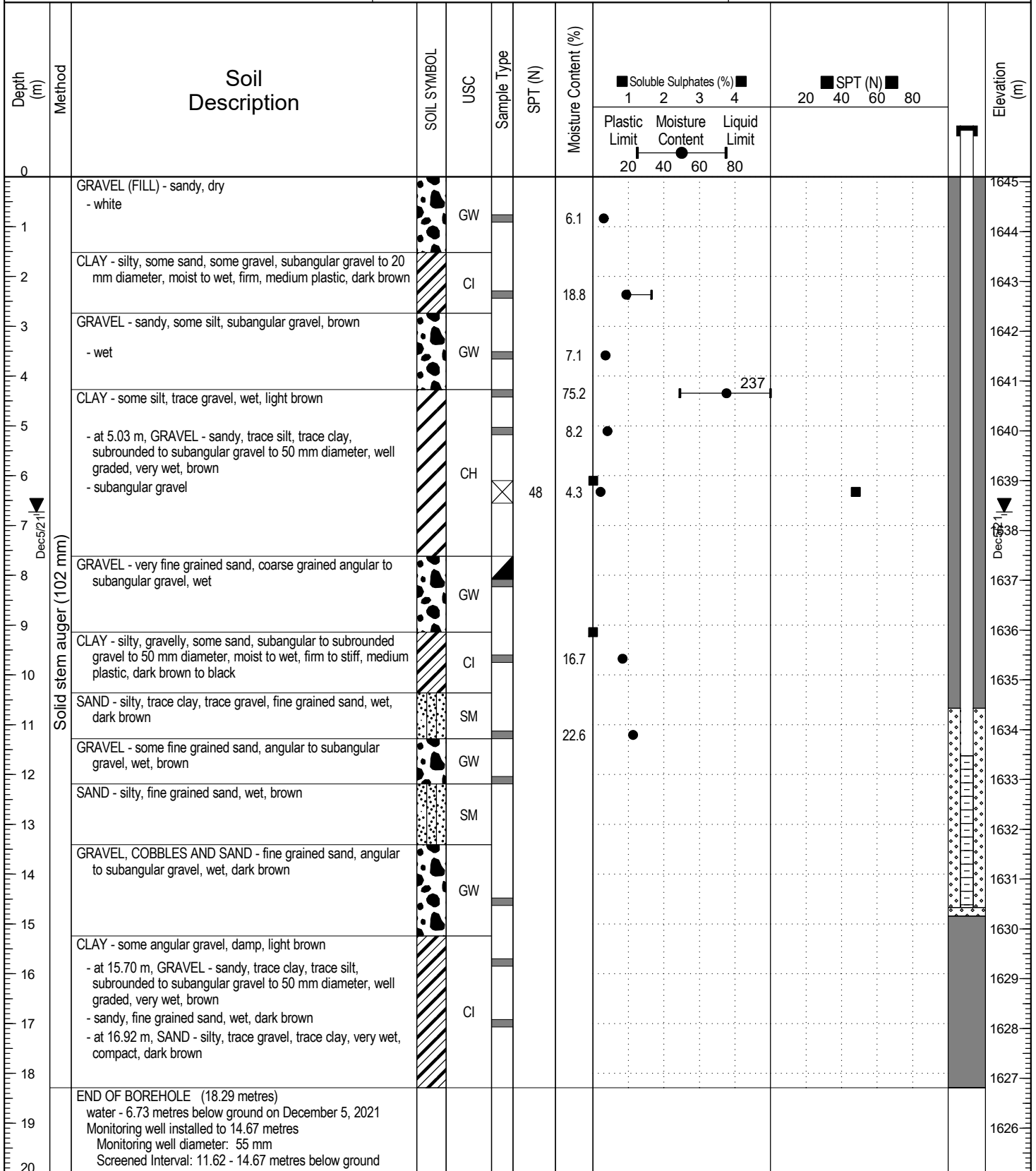
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1645.1 m

Elk Valley, British Columbia

UTM: 662008.42 E; 5538214.14 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 18.29 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Megan Savage

Completion Date: 2021 December 3

Reviewed By: Stephan Klump

Page 1 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-2A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1645.1 m

Elk Valley, British Columbia

UTM: 662008.42 E; 5538214.14 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)			SPT (N)				LC_MW_LC1-2A	Elevation (m)
								1	2	3	4	20	40	60		
20																
21		020 Slot Size 10/20 Filter Sand Top of sand: 10.67 metres below ground Top of PVC: 1646.135 masl														
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																



Contractor: Mud Bay Drilling

Completion Depth: 18.29 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Megan Savage

Completion Date: 2021 December 3

Reviewed By: Stephan Klump

Page 2 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-3A

Project: LCO Phase 2 Water Treatment

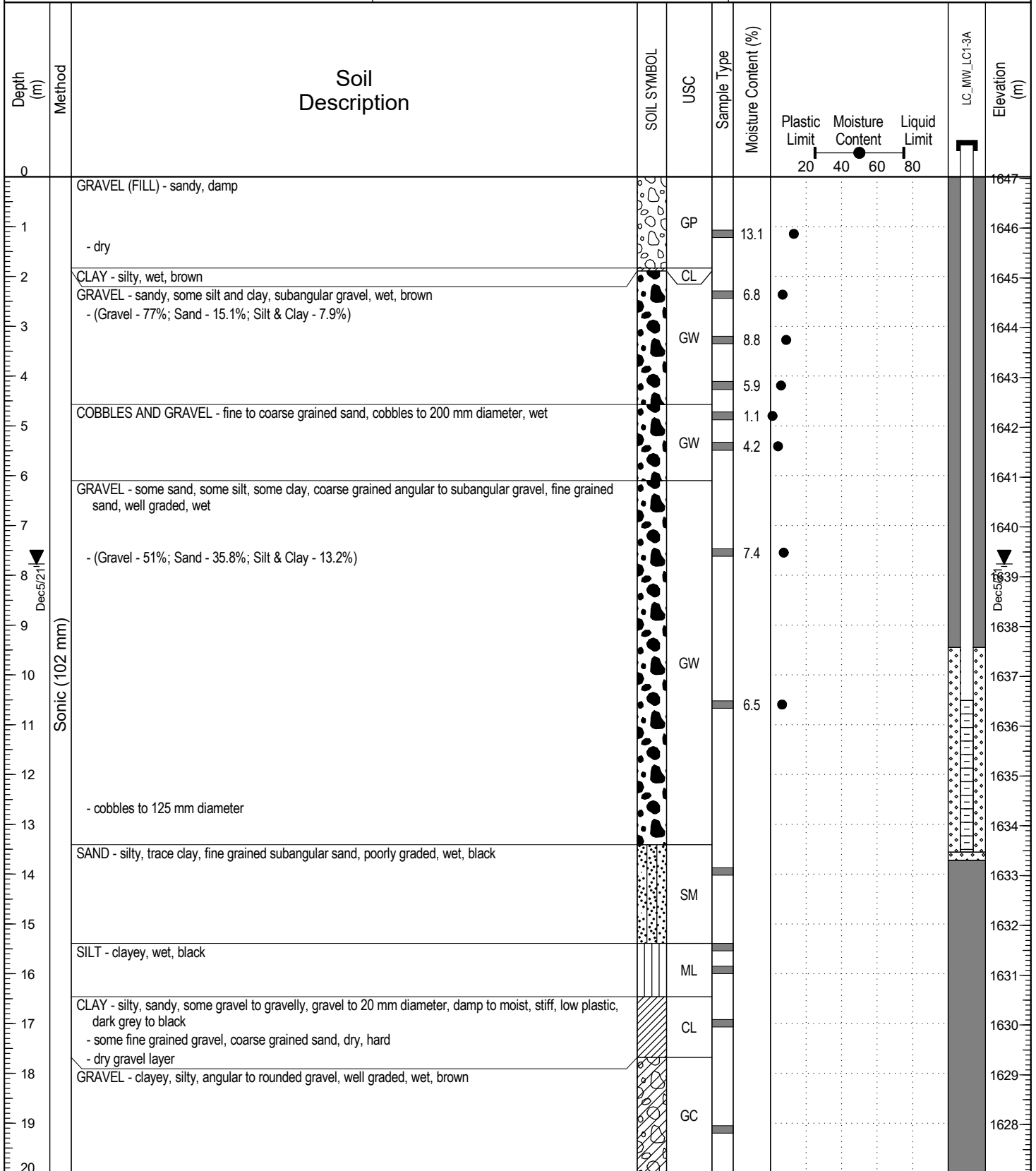
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1647.03 m

Elk Valley, British Columbia

UTM: 661989.64 E; 5538247.11 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 24.38 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 1

Logged By: Carl Forkheim

Completion Date: 2021 December 1

Reviewed By: Stephan Klump

Page 1 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-3A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1647.03 m

Elk Valley, British Columbia

UTM: 661989.64 E; 5538247.11 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Moisture Content (%)	Plastic Limit	Moisture Content	Liquid Limit	LC_MW_LC1-3A	Elevation (m)
20											1627
21	Sonic (102 mm)	CLAY - silty, sandy, trace to some gravel, gravel to 20 mm diameter, damp to wet, soft to hard, low plastic, black		GC							1626
22		- dry, very hard		CL							1625
23		- at 21.80 m, damp to moist, medium plastic, silt pockets, potential precipitates									1624
24		- at 22.71 m, gravel to 50 mm diameter		CI							1623
25		END OF BOREHOLE (24.38 metres) water - 7.77 metres below ground on December 5, 2021 Monitoring well installed to 13.56 metres Monitoring well diameter: 55 mm Screened Interval: 10.51 - 13.56 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 9.45 metres below ground Top of PVC: 1647.768 masl									1622
26											1621
27											1620
28											1619
29											1618
30											1617
31											1616
32											1615
33											1614
34											1613
35											1612
36											1611
37											1610
38											1609
39											1608
40											



Contractor: Mud Bay Drilling

Completion Depth: 24.38 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 1

Logged By: Carl Forkheim

Completion Date: 2021 December 1

Reviewed By: Stephan Klump

Page 2 of 2

Teck Coal Limited

Borehole No: LC_MW_WLC-1A

Project: LCO Phase 2 Water Treatment

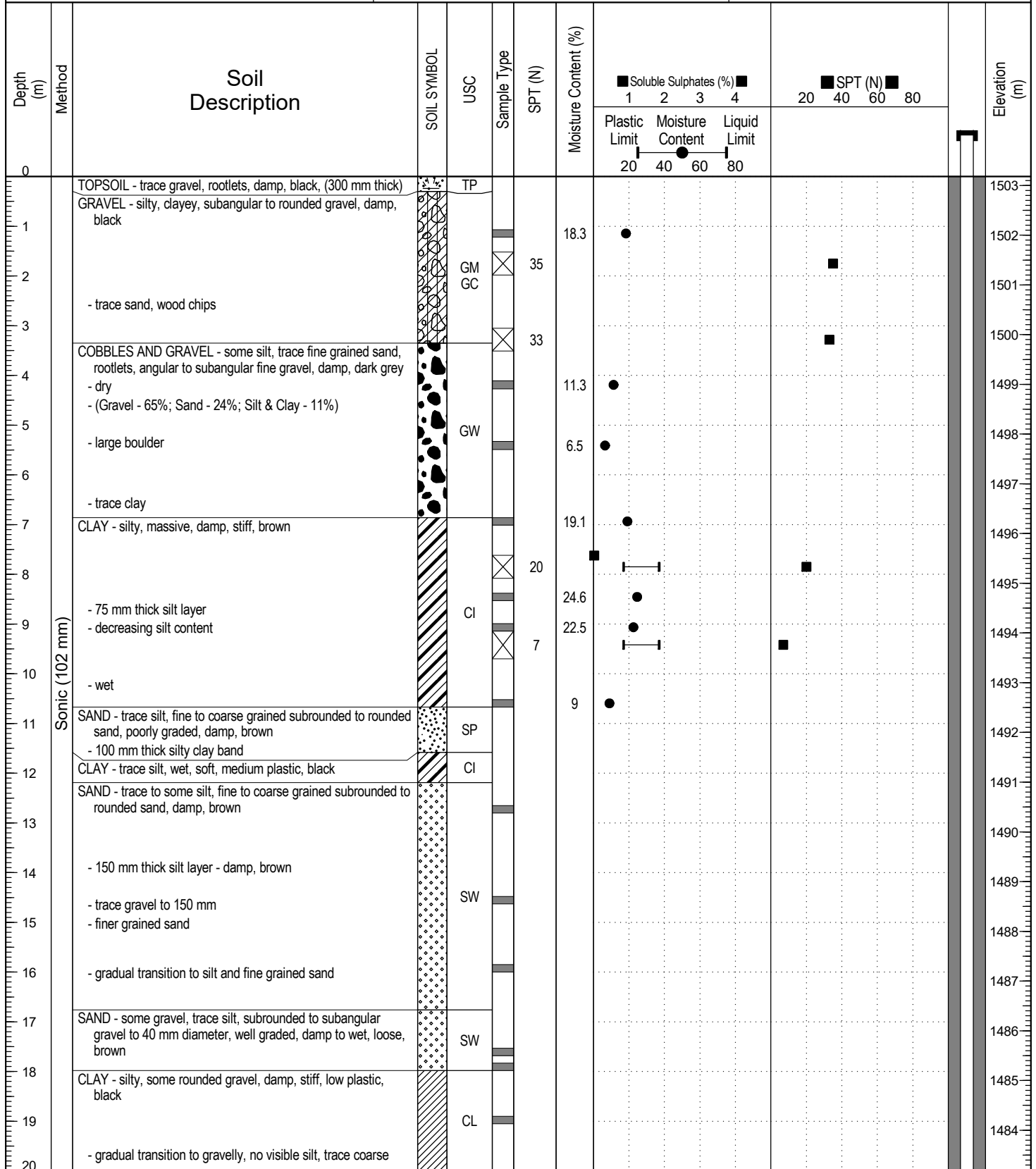
Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1503.18 m

Elk Valley, British Columbia

UTM: 659753.09 E; 5532228.49 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 1 of 3

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)			SPT (N)				LC_MW_WLC-1A	Elevation (m)
								1	2	3	4	20	40	60		
							Plastic Limit	Moisture Content	Liquid Limit							
							20	40	60	80						
20		subangular sand, subangular gravel, hard													1483	
21				CL											1482	
22		- cobbles 75 to 100 mm diameter													1481	
23		- trace silt, fine rounded to angular gravel, dry to damp													1480	
24		- silty, some angular gravel, damp, brown													1479	
25		GRAVEL - clayey, silty, trace coarse grained sand, fine grained gravel to cobbles, damp, hard, dark grey													1478	
26		- cobbles, dry													1477	
27		- 200 mm thick silty clay band													1476	
28		- wet for 900 mm													1475	
29		- 200 mm thick silty clay and gravel layer, compact													1474	
30		- pulverized cobble													1473	
31	Sonic (102 mm)	- pulverized cobble													1472	
32		- some coarse grained sand		GC											1471	
33															1470	
34		- cobbles for 600 mm													1469	
35															1468	
36		- some clayey silty gravel													1467	
37															1466	
38															1465	
39		- 460 mm thick silty clay layer													1464	
40																



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 2 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-1A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1503.18 m

Elk Valley, British Columbia

UTM: 659753.09 E; 5532228.49 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)				SPT (N)				LC_MW_WLC-1A	Elevation (m)
								1	2	3	4	20	40	60	80		
40																	
41		- 600 mm thick band of cobbles to 150 mm diameter - 600 mm thick silt layer - some clay, trace gravel, damp, hard															1463
42																	1462
43		- gradual transition to more clay and silt content															1461
44																	1460
45		- 900 mm thick layer of increasing silt content, subangular to subrounded gravel, moist to wet			GC GM GM												1459
46		- cobbles to 150 mm diameter															1458
47		- 600 mm thick clayey layer - moist, high plastic															1457
48		BEDROCK - pulverized, dry - weathered, hard clay				BEDROCK											1456
49		END OF BOREHOLE (48.77 metres) water - dry on December 14, 2021 Monitoring well installed to 47.24 metres Monitoring well diameter: 55 mm Screened Interval: 44.19 - 47.24 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 43.28 metres below ground Top of PVC: 1504.107 masl															1455
50																	1454
51																	1453
52																	1452
53																	1451
54																	1450
55																	1449
56																	1448
57																	1447
58																	1446
59																	1445
60																	1444



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 3 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-2A

Project: LCO Phase 2 Water Treatment

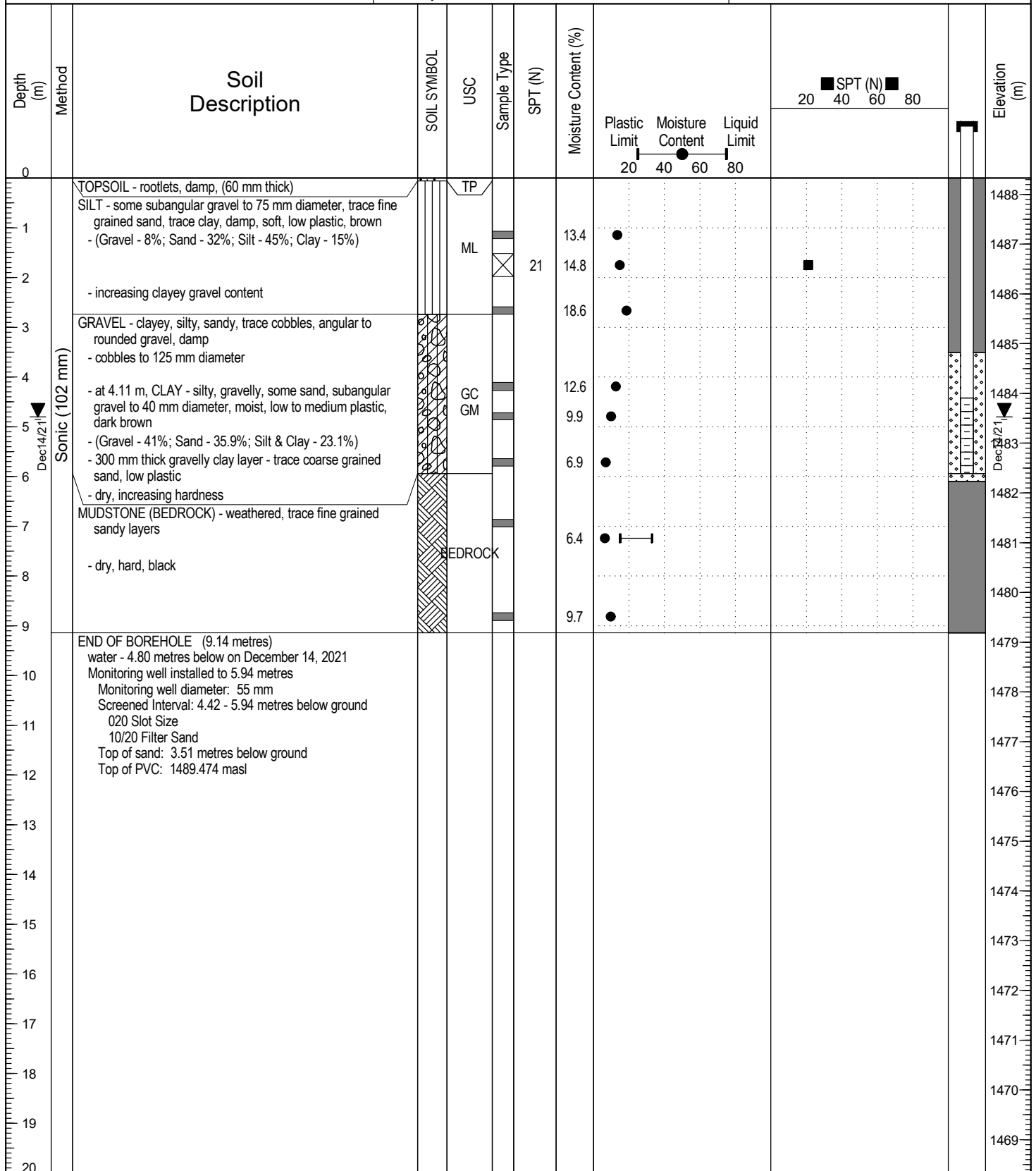
Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1488.33 m

Elk Valley, British Columbia

UTM: 659868.79 E; 5532370.14 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 9.14 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 30

Logged By: Carl Forkheim

Completion Date: 2021 November 30

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_WLC-3A

Project: LCO Phase 2 Water Treatment

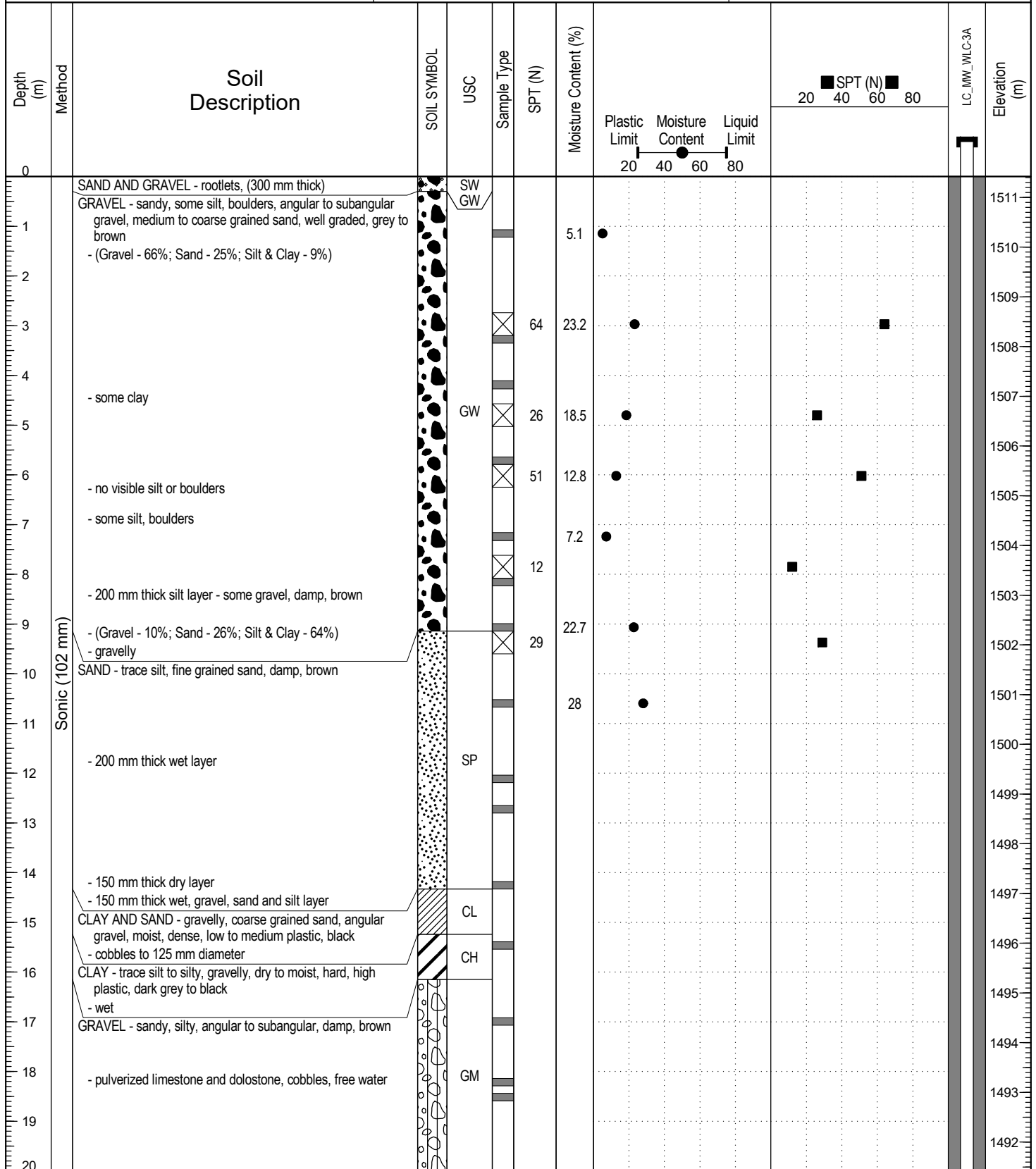
Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1511.42 m

Elk Valley, British Columbia

UTM: 659582.96 E; 5532281.38 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotasonic Drill Rig

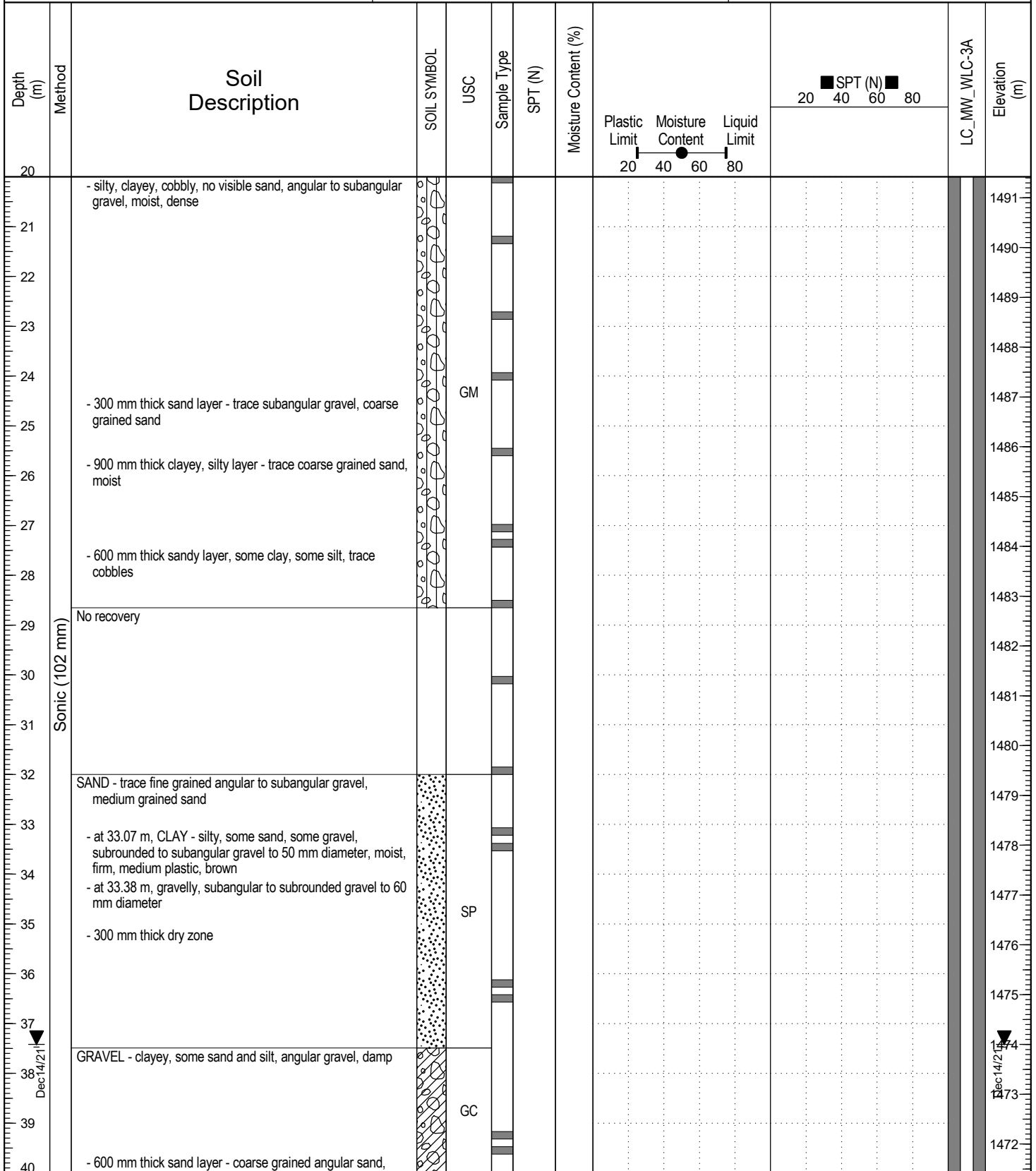
Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 1 of 3



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 2 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-3A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1511.42 m

Elk Valley, British Columbia

UTM: 659582.96 E; 5532281.38 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Plastic Limit Moisture Content Liquid Limit	SPT (N)	LC_MW_WLC-3A	Elevation (m)
40		moist		GC							1471
41		CLAY - some sand, some gravel, some rounded cobbles, damp to moist, very stiff, low plastic, black		CL							1470
42											1469
43	Sonic (102 mm)	GRAVEL - sandy, silty, clayey, angular gravel, damp, brown, iron inclusions									1468
44		- hard		GM							1467
45											1466
46		CLAY - trace gravel, hard, dark grey		CL							1465
47		- weathered bedrock inclusions									1464
48		END OF BOREHOLE (47.85 metres) water - 37.43 metres below ground on December 14, 2021 Monitoring well installed to 45.72 metres Monitoring well diameter: 55 mm Screened Interval: 42.67 - 45.72 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 42.06 metres below ground Top of PVC: 1511.415 masl									1463
49											1462
50											1461
51											1460
52											1459
53											1458
54											1457
55											1456
56											1455
57											1454
58											1453
59											1452
60											1452



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 3 of 3

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_LCA

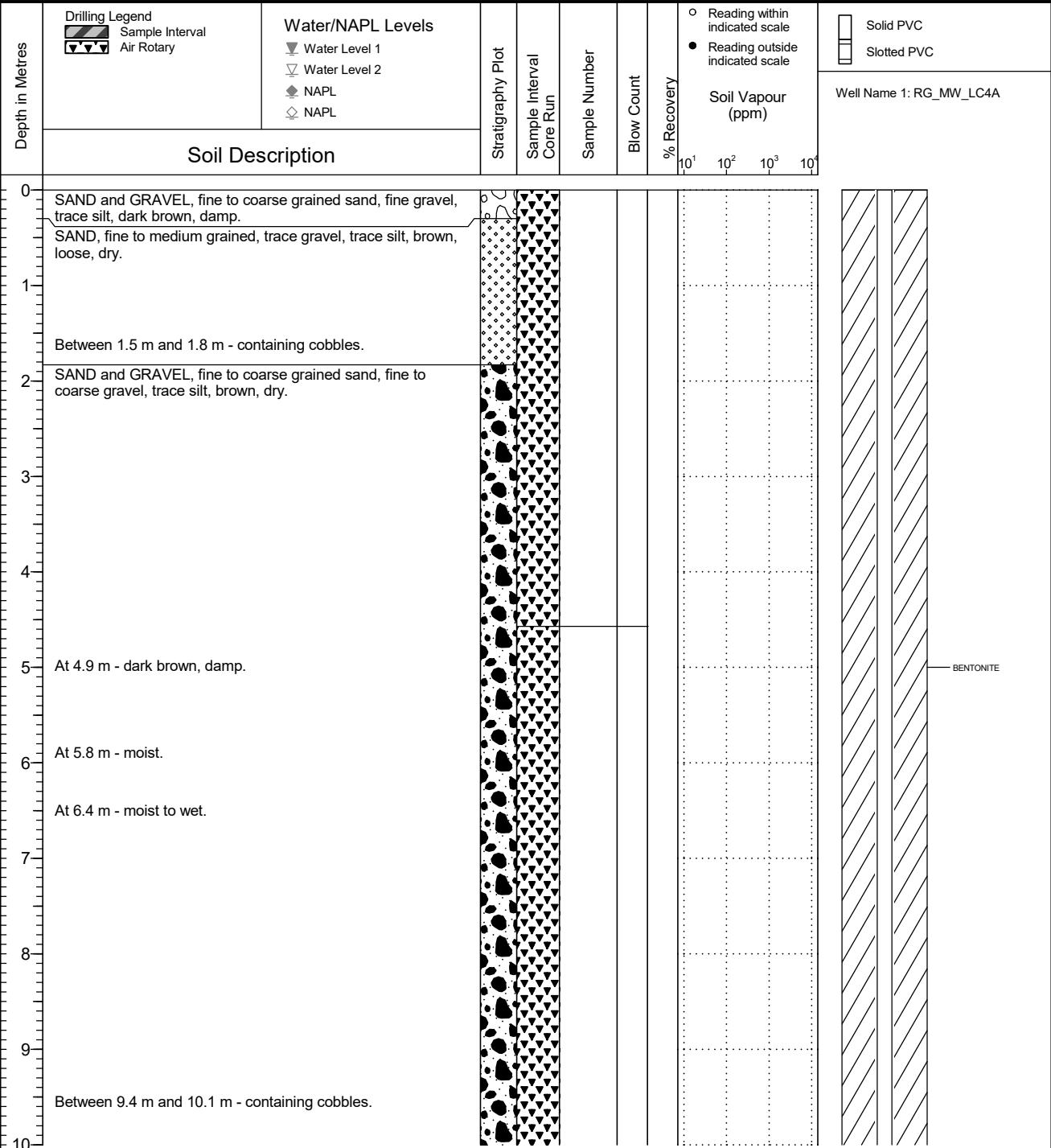
Location
**Regional Groundwater Monitoring -
Line Creek**

PAGE 1 OF 4

Drilling Contractor: JR Drilling
 Drilling Method: Dual Rotary
 Borehole Dia. (m): 0.18
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: n/a
 Ground Surface Elev. (m): TBD
 Top of Casing Elev. (m): TBD
 Northing: n/a Easting: n/a

Project Number: 683032
 Borehole Logged By: SE
 Date Drilled: 2021 08 10
 Log Typed By: VL



Soil Description

Between 1.5 m and 1.8 m - containing cobbles.

NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

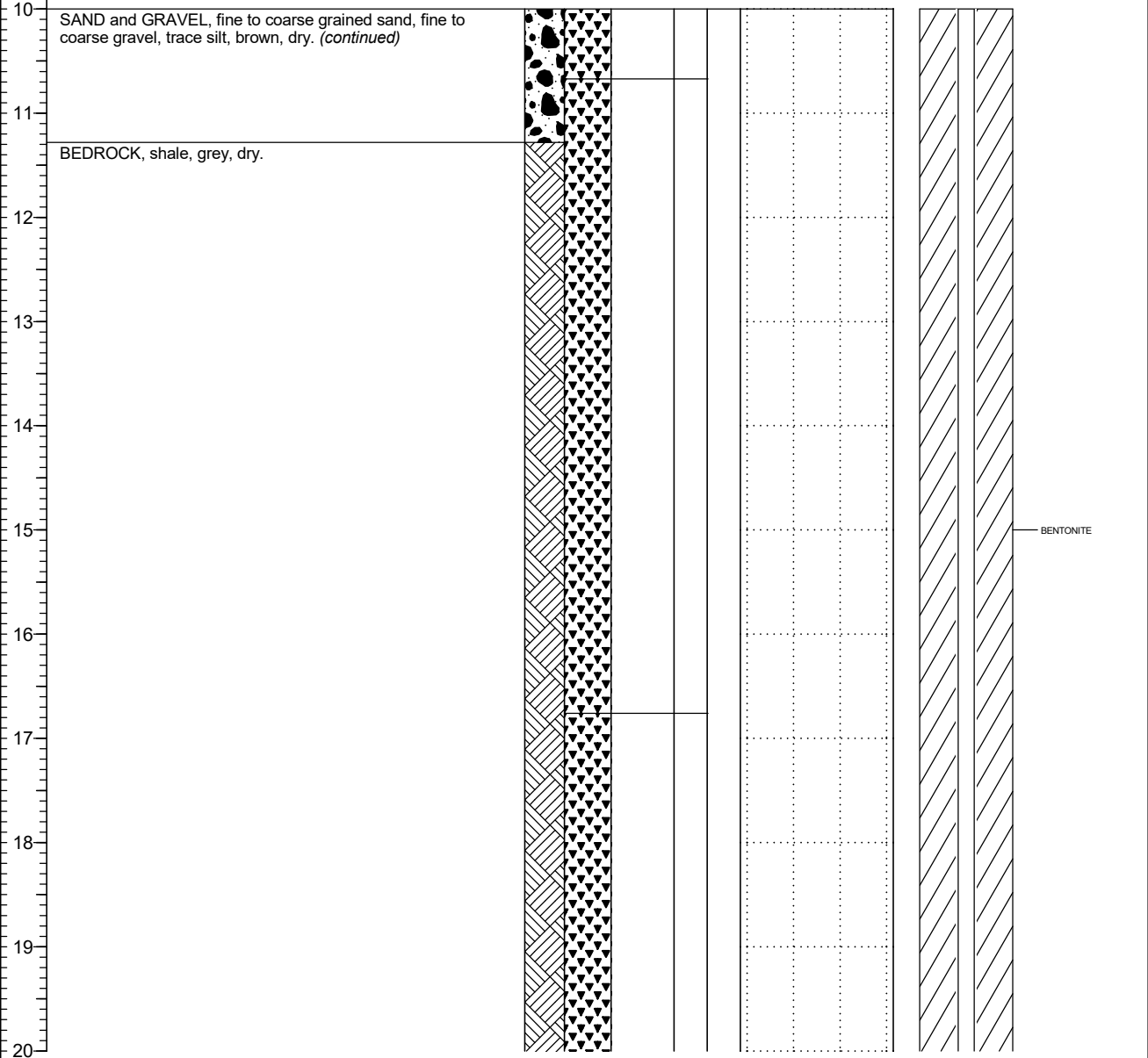
QA/QC: KH 2021 09 15 Print Date: 2021-09-21

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_LCA
	Location Regional Groundwater Monitoring - Line Creek	PAGE 2 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 10 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: RG_MW_LC4A
	Soil Description								



NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_LCA

Location
**Regional Groundwater Monitoring -
Line Creek**

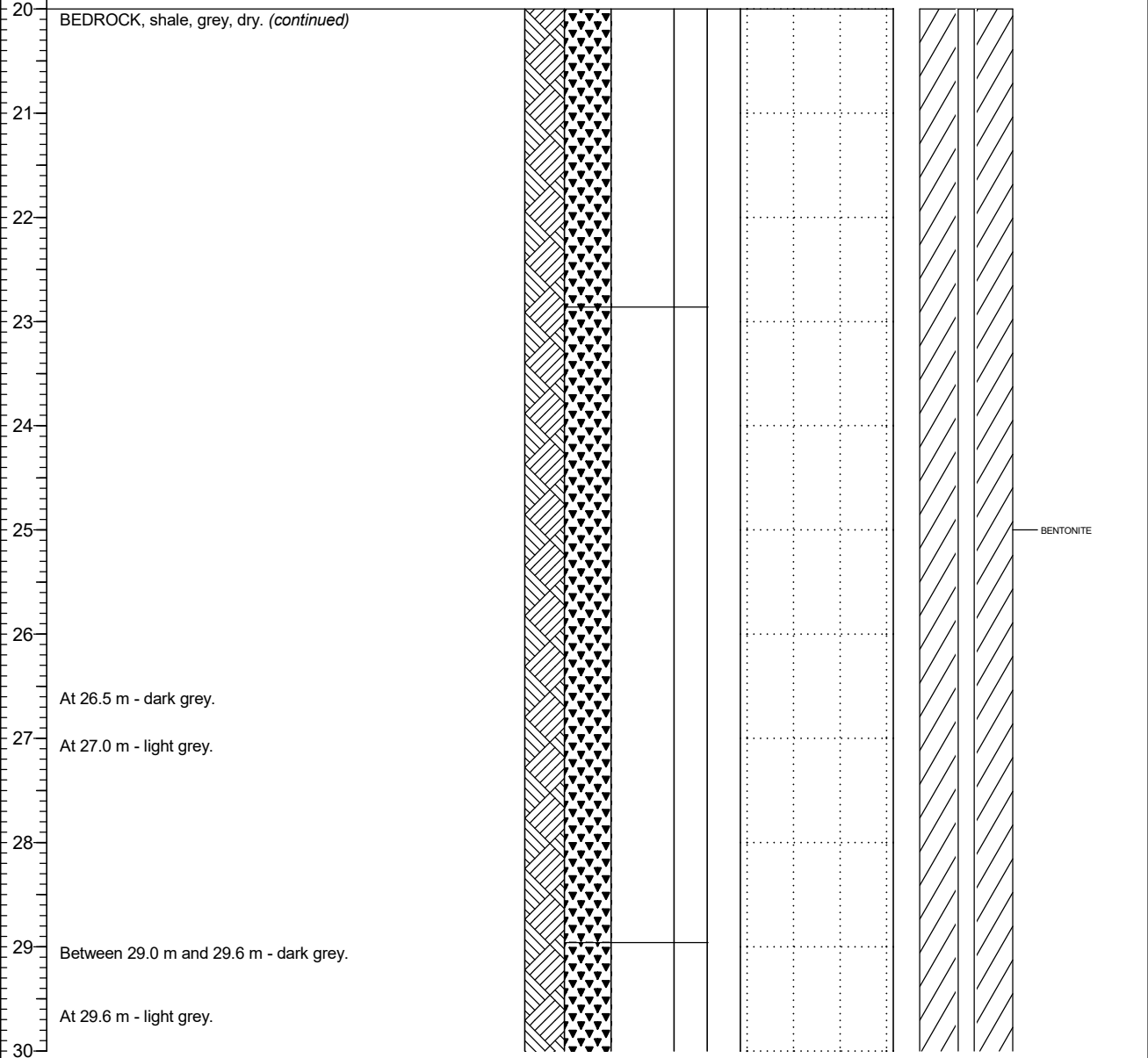
PAGE 3 OF 4

Drilling Contractor: JR Drilling
 Drilling Method: Dual Rotary
 Borehole Dia. (m): 0.18
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: n/a
 Ground Surface Elev. (m): TBD
 Top of Casing Elev. (m): TBD
 Northing: n/a Easting: n/a

Project Number: 683032
 Borehole Logged By: SE
 Date Drilled: 2021 08 10
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_LC4A
	Soil Description								



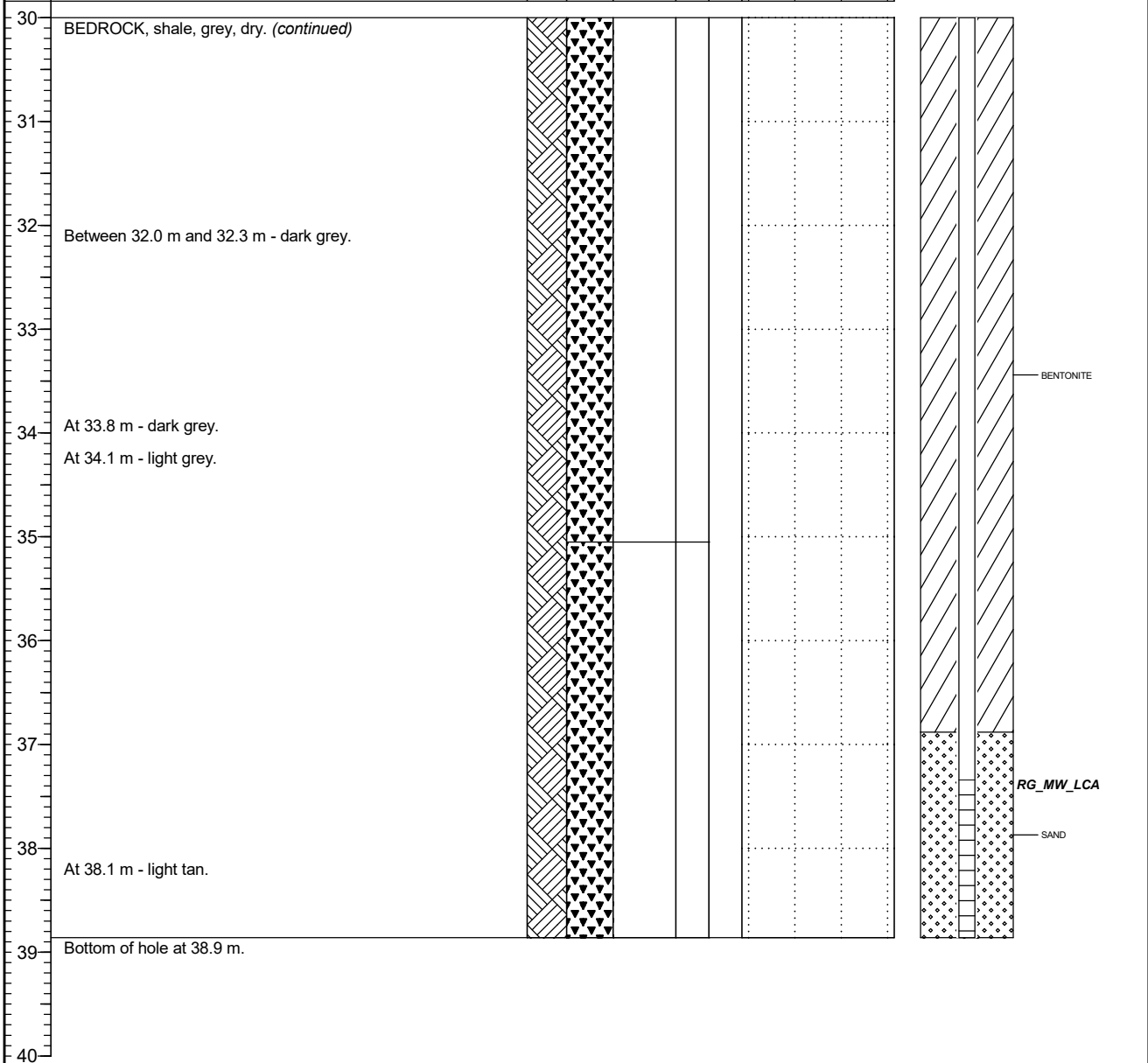
NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_LCA
	Location Regional Groundwater Monitoring - Line Creek	PAGE 4 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 10 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_LC4A
Soil Description									



NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

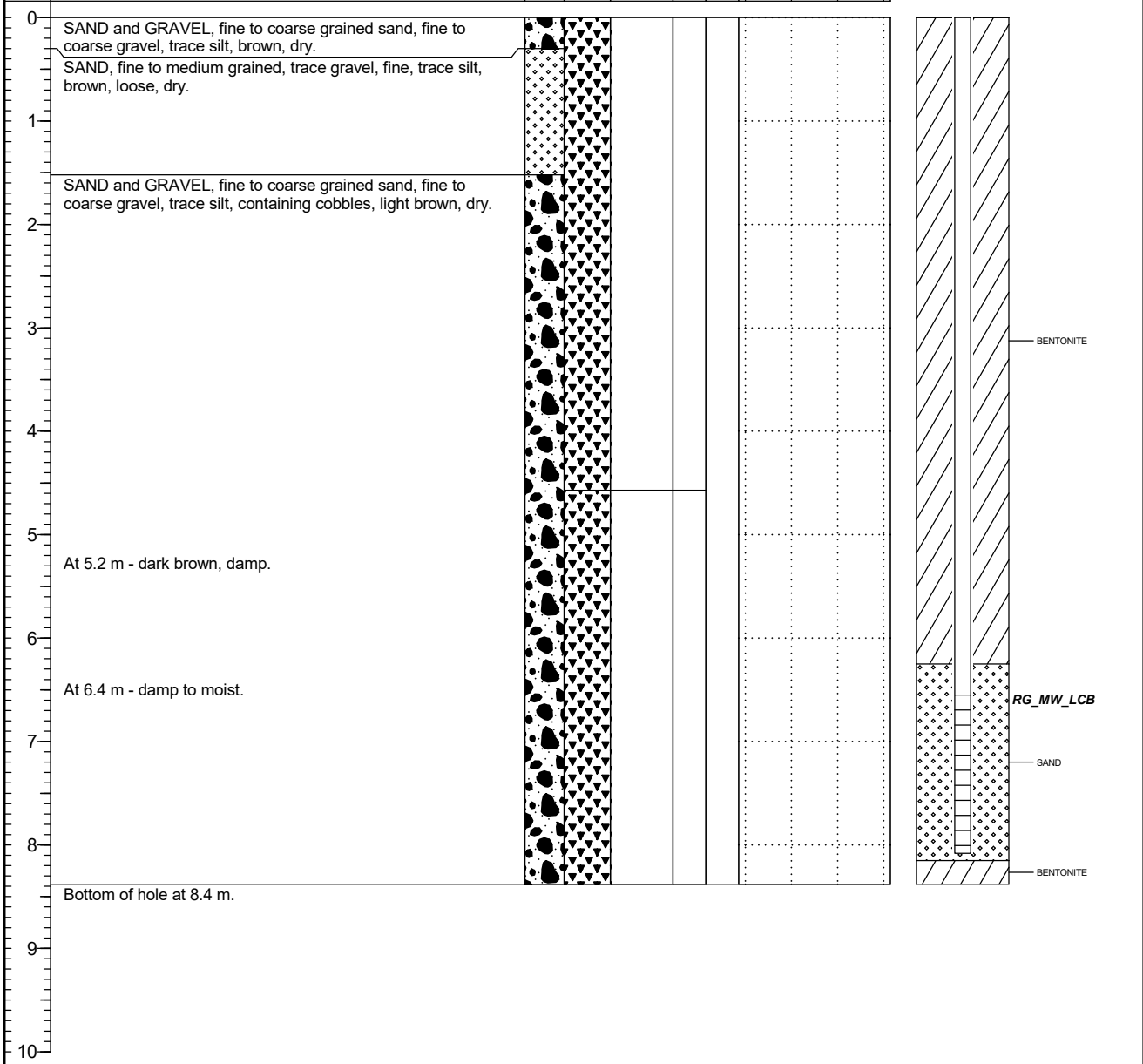
QA/QC: KH 2021 09 15 Print Date: 2021-09-21

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_LCB
	Location Regional Groundwater Monitoring - Line Creek	PAGE 1 OF 1

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 13 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: RG_MW_LC4B
	Soil Description								

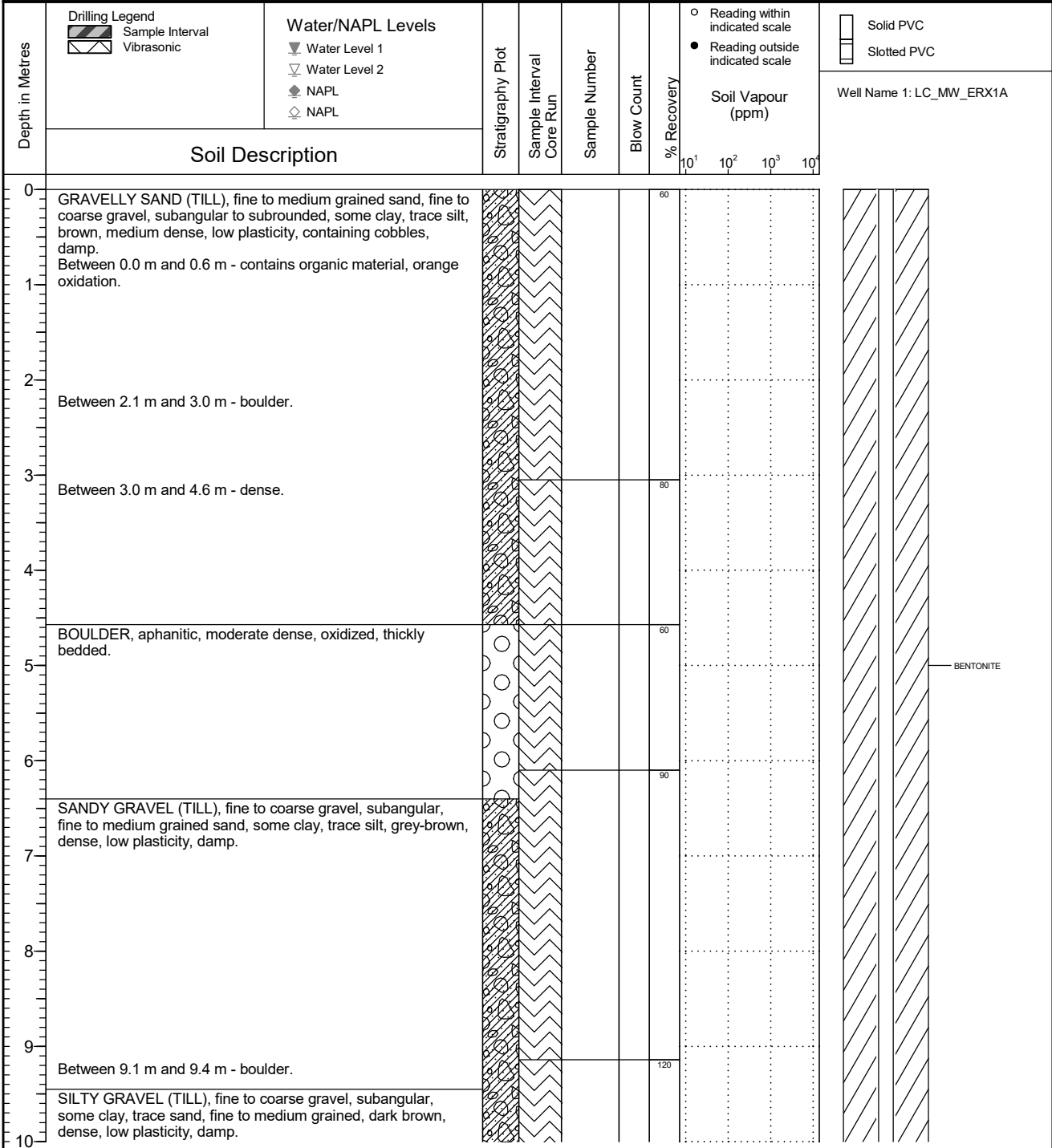


NOTES
 Casing: 0 – 8.1 m; Screen Interval: 6.6 – 8.1 m; Total Depth: 8.1 m
 Bentonite: 0 – 6.2 m; Sand Pack: 6.2 – 8.1 m; Bentonite: 8.1 - 8.4 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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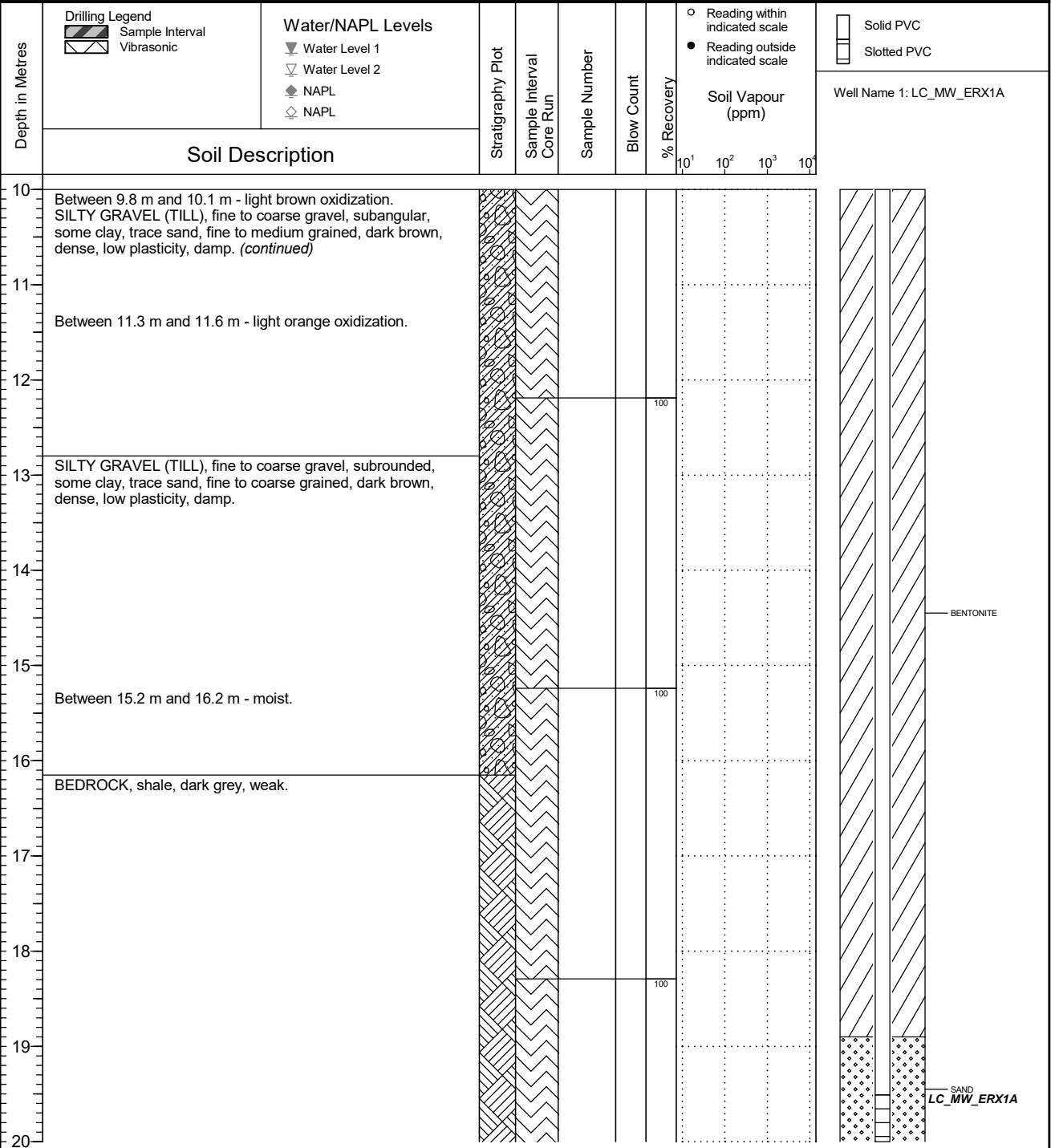
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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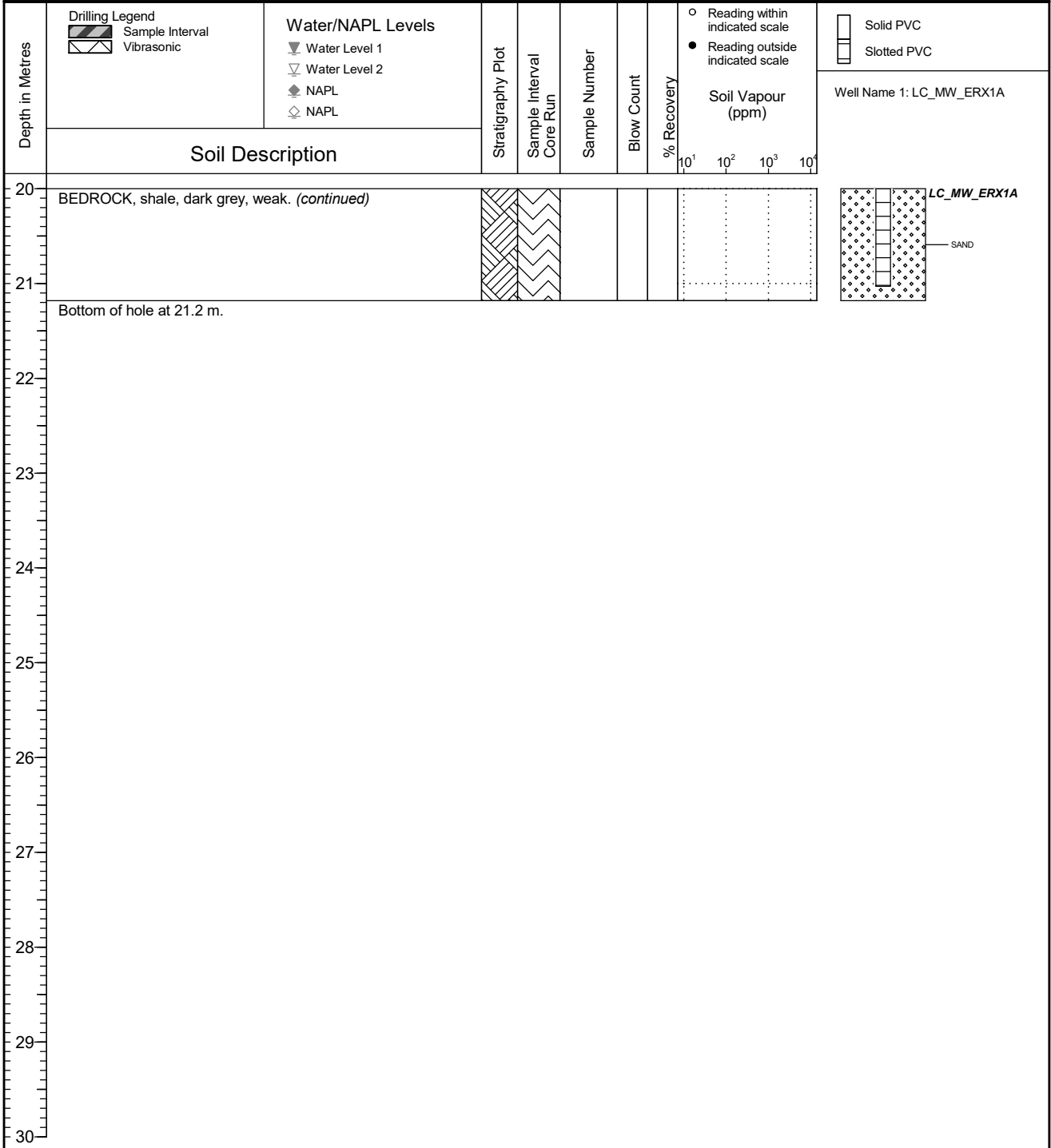
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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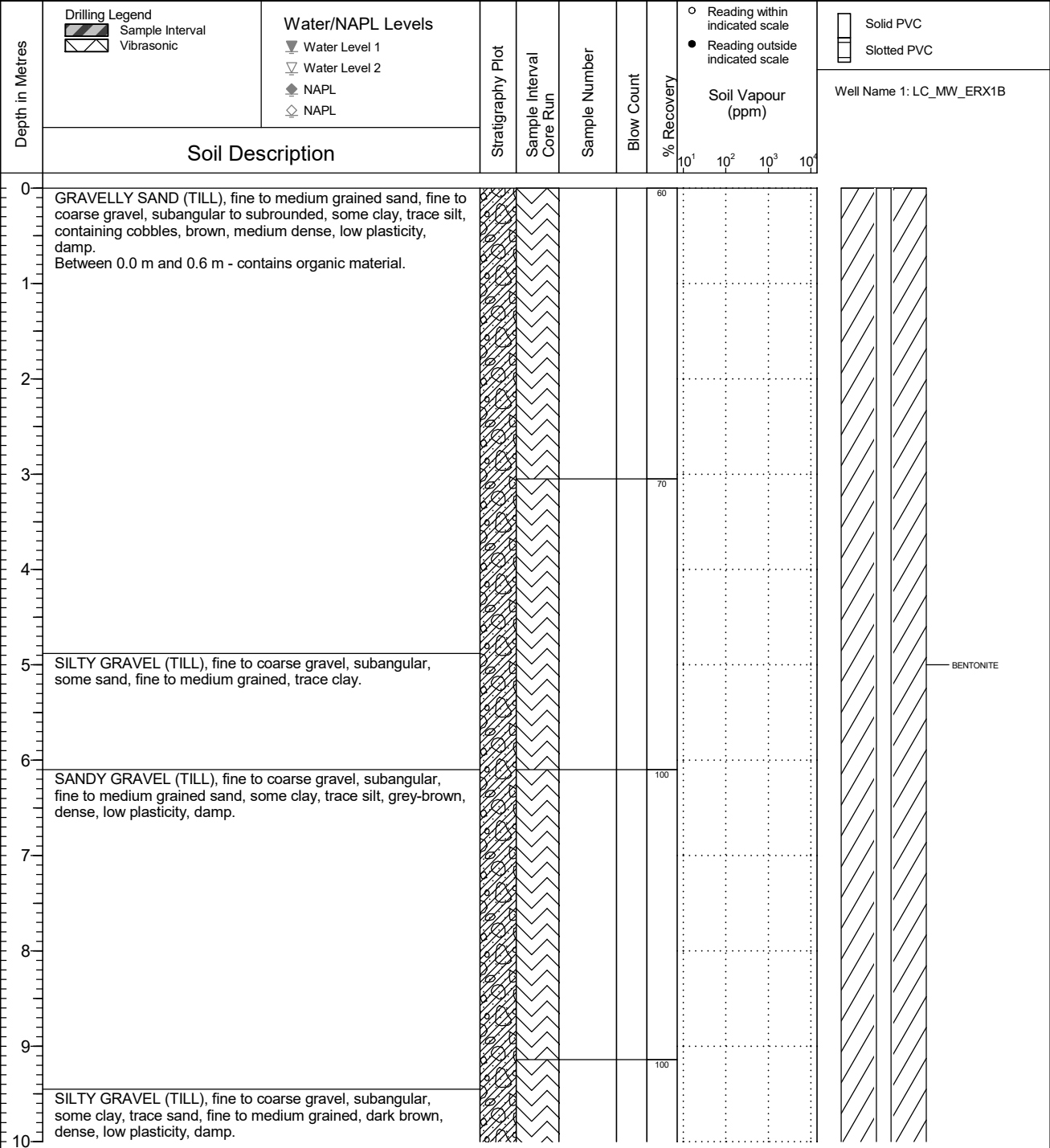


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.856 Top of Casing Elev. (m): n/a Northing: 5526832.015 Easting: 655034.788	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 19 Log Typed By: VL
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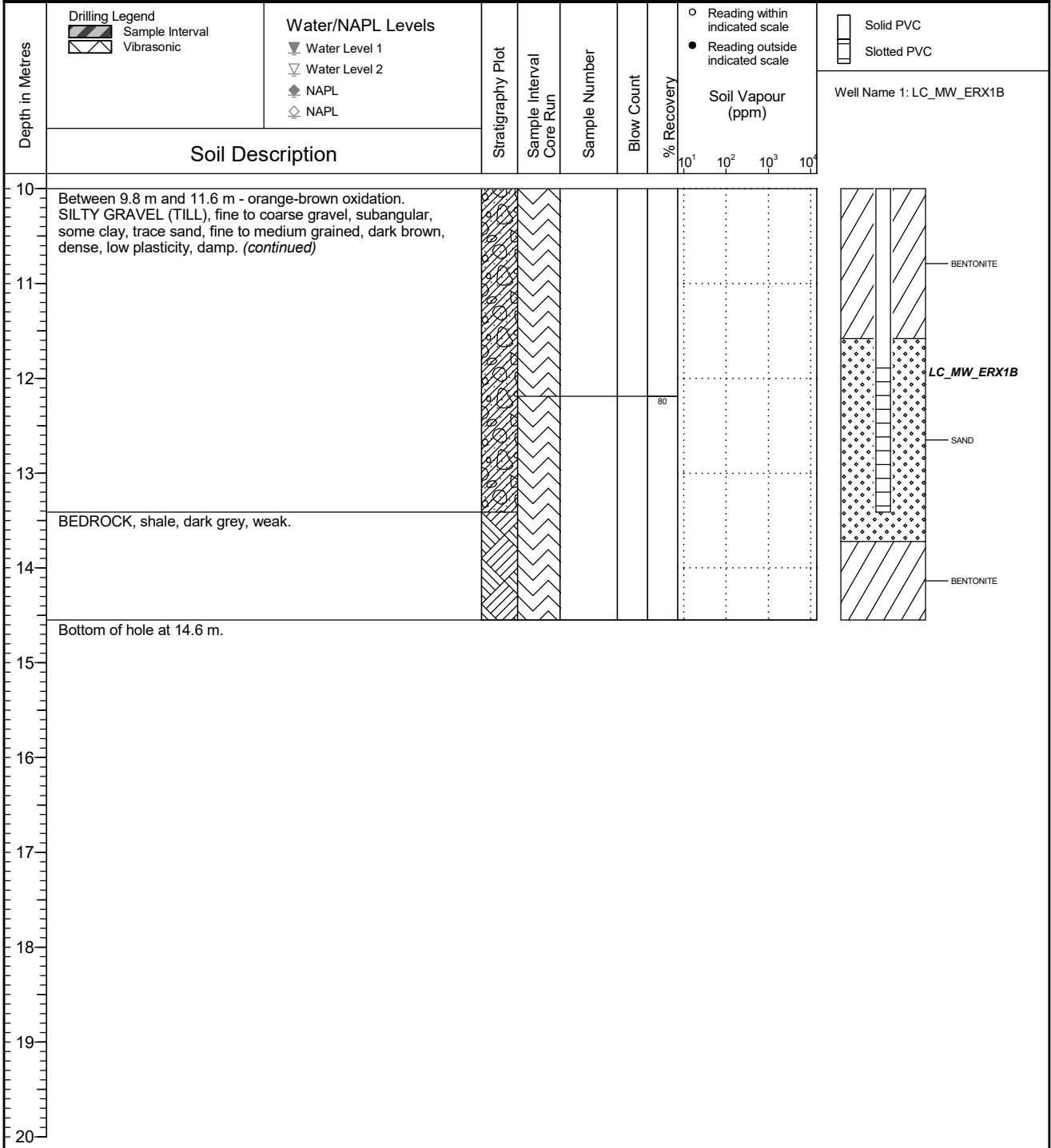
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1B
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.856 Top of Casing Elev. (m): n/a Northing: 5526832.015 Easting: 655034.788	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 19 Log Typed By: VL
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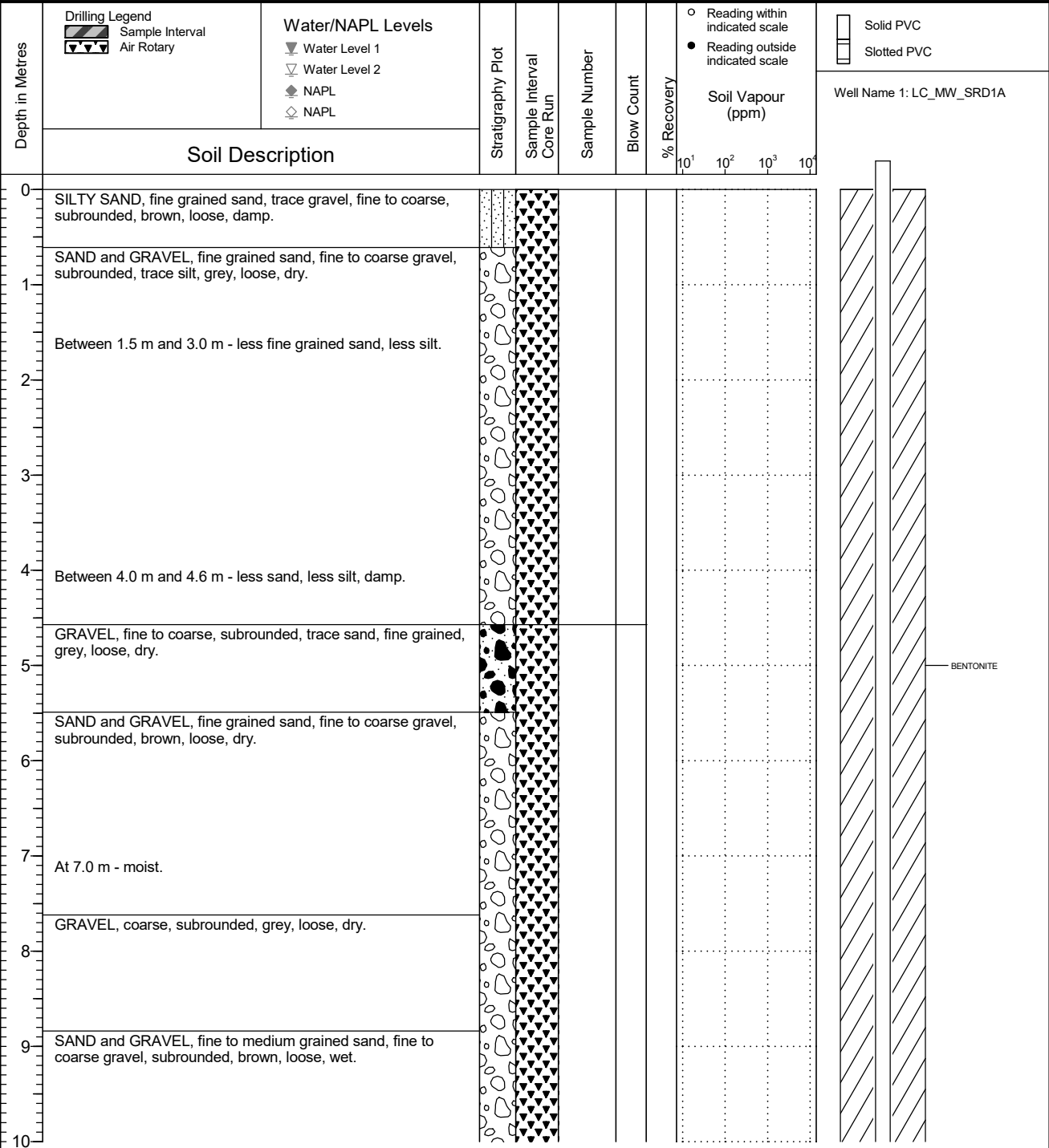


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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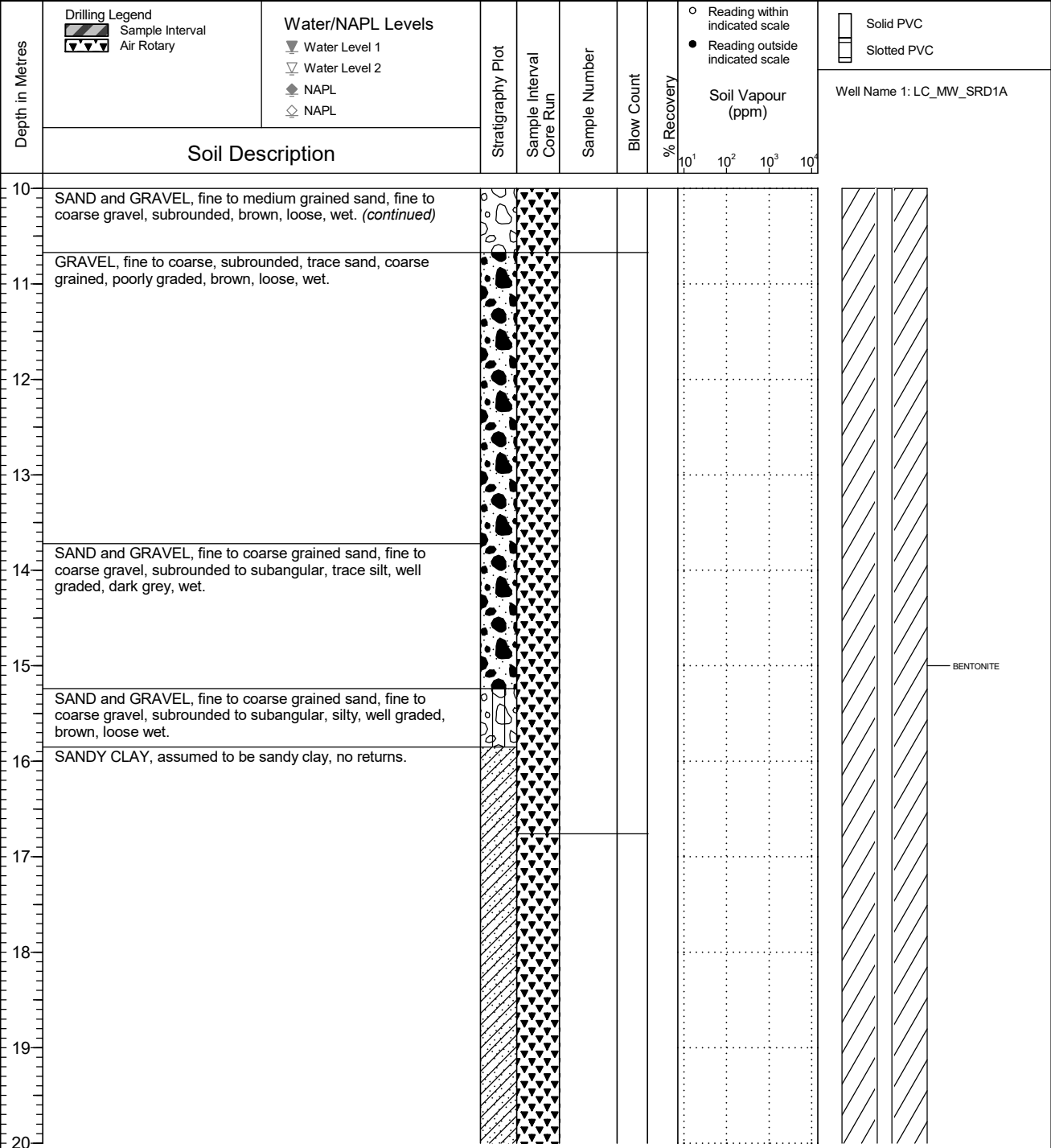
NOTES

QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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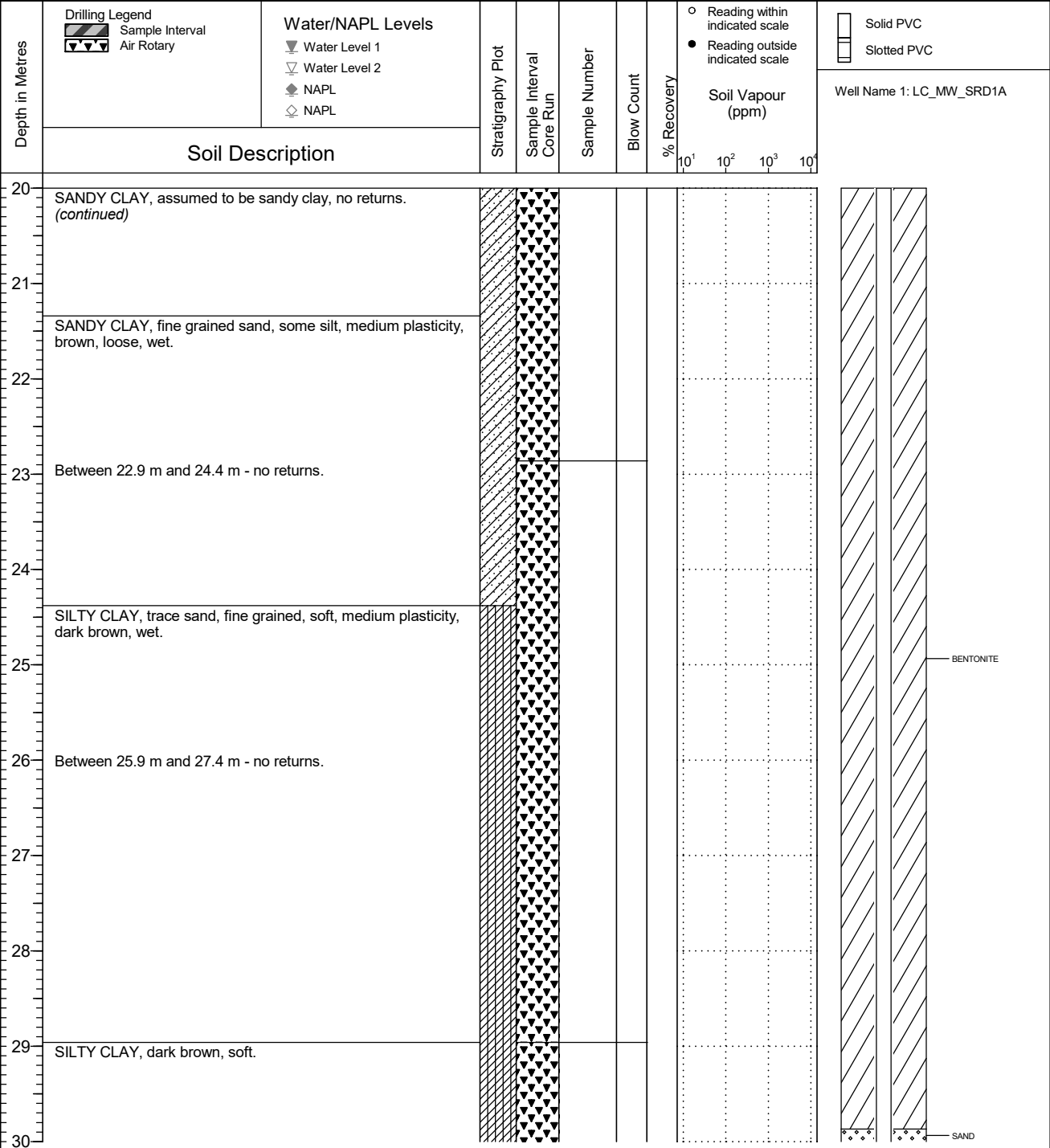


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 3 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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NOTES

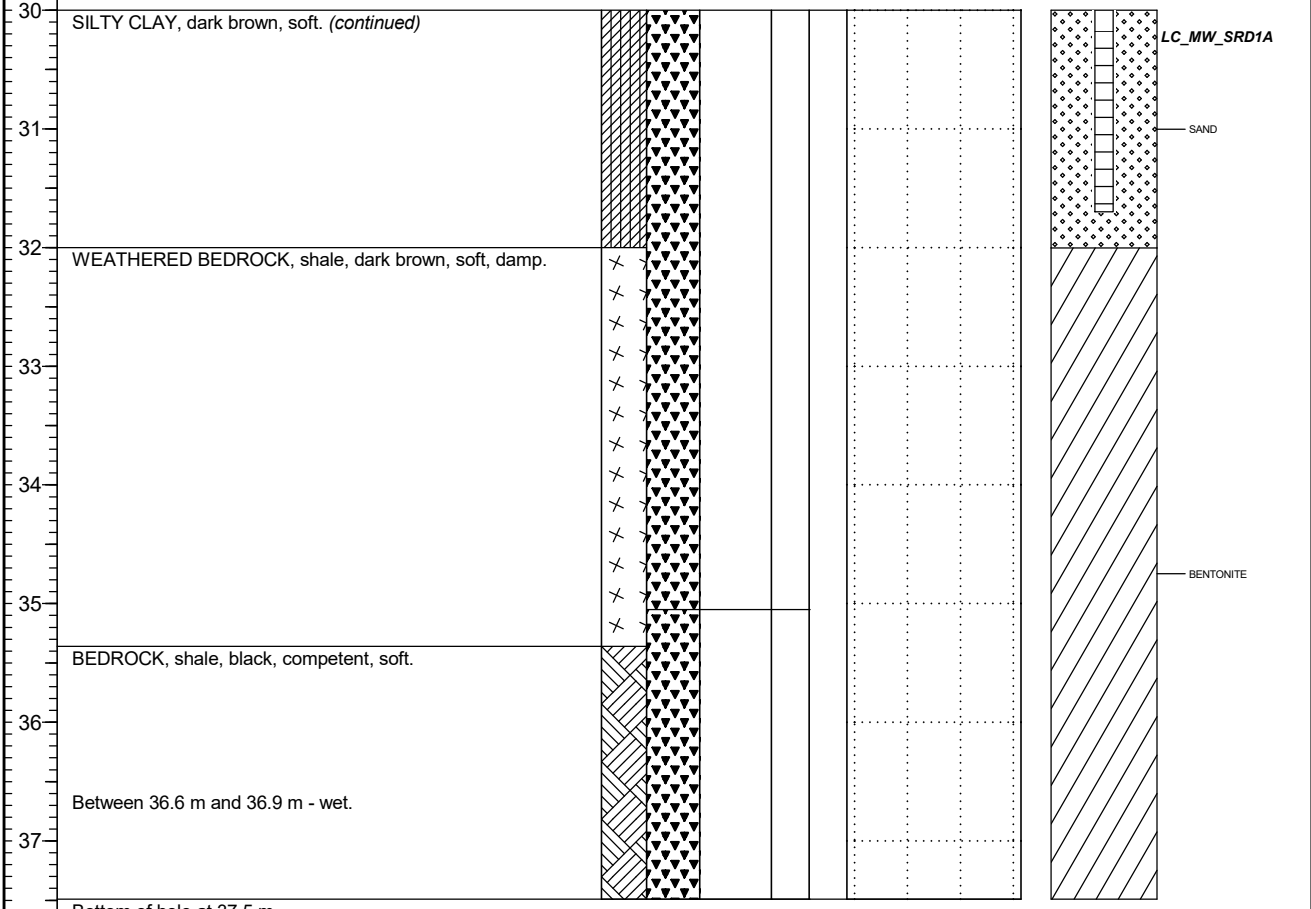
QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 4 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	○ Solid PVC □ Slotted PVC Well Name 1: LC_MW_SRD1A
	Soil Description								



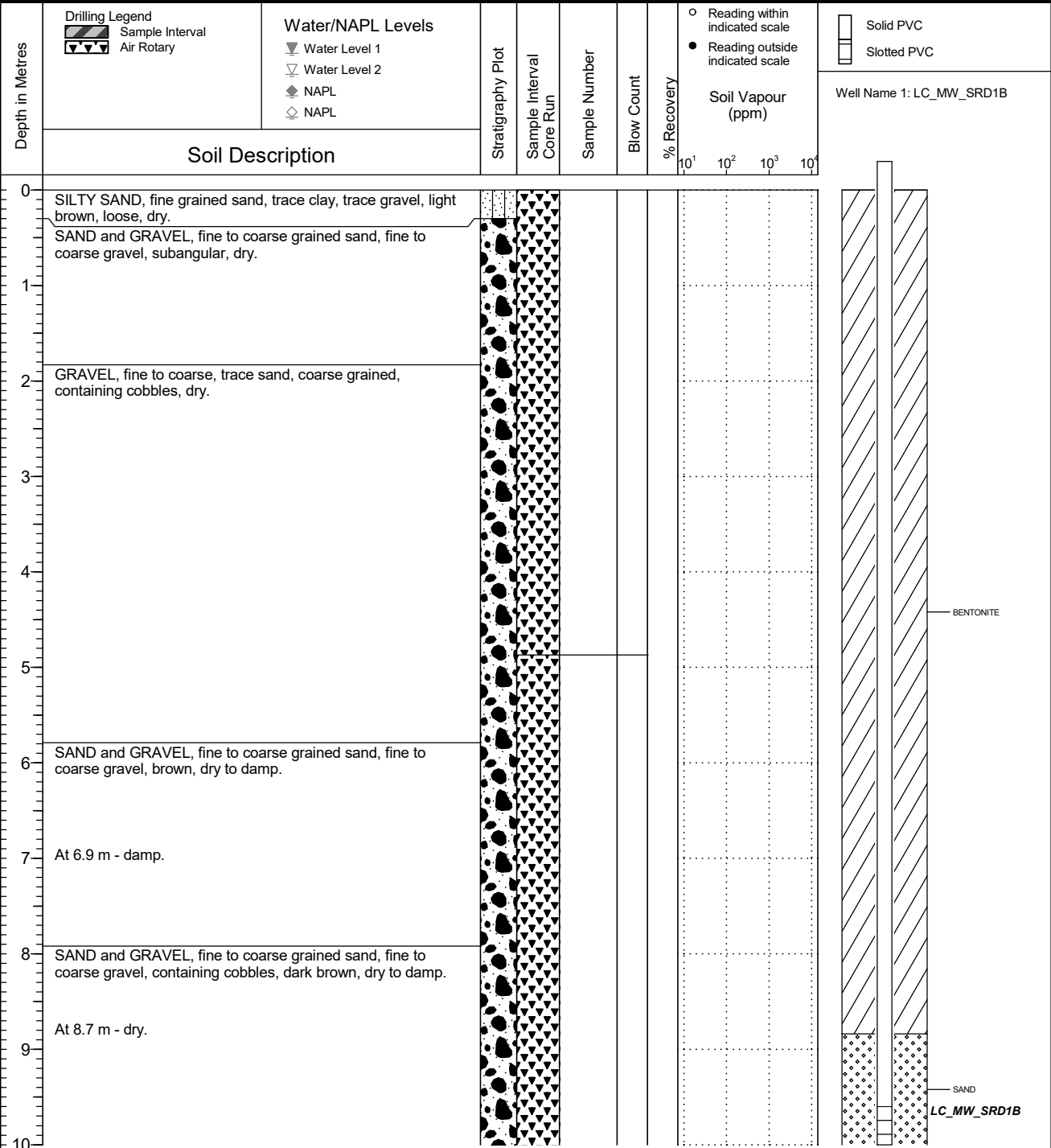
QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.469 Top of Casing Elev. (m): 1203.159 Northing: 5526819.661 Easting: 653601.314	Project Number: 631283 Borehole Logged By: SE Date Drilled: 2021 08 16 Log Typed By: VL
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NOTES

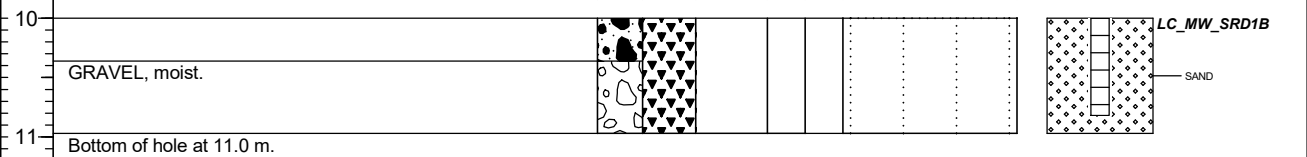
QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1B
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.469 Top of Casing Elev. (m): 1203.159 Northing: 5526819.661 Easting: 653601.314	Project Number: 631283 Borehole Logged By: SE Date Drilled: 2021 08 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description								Well Name 1: LC_MW_SRD1B

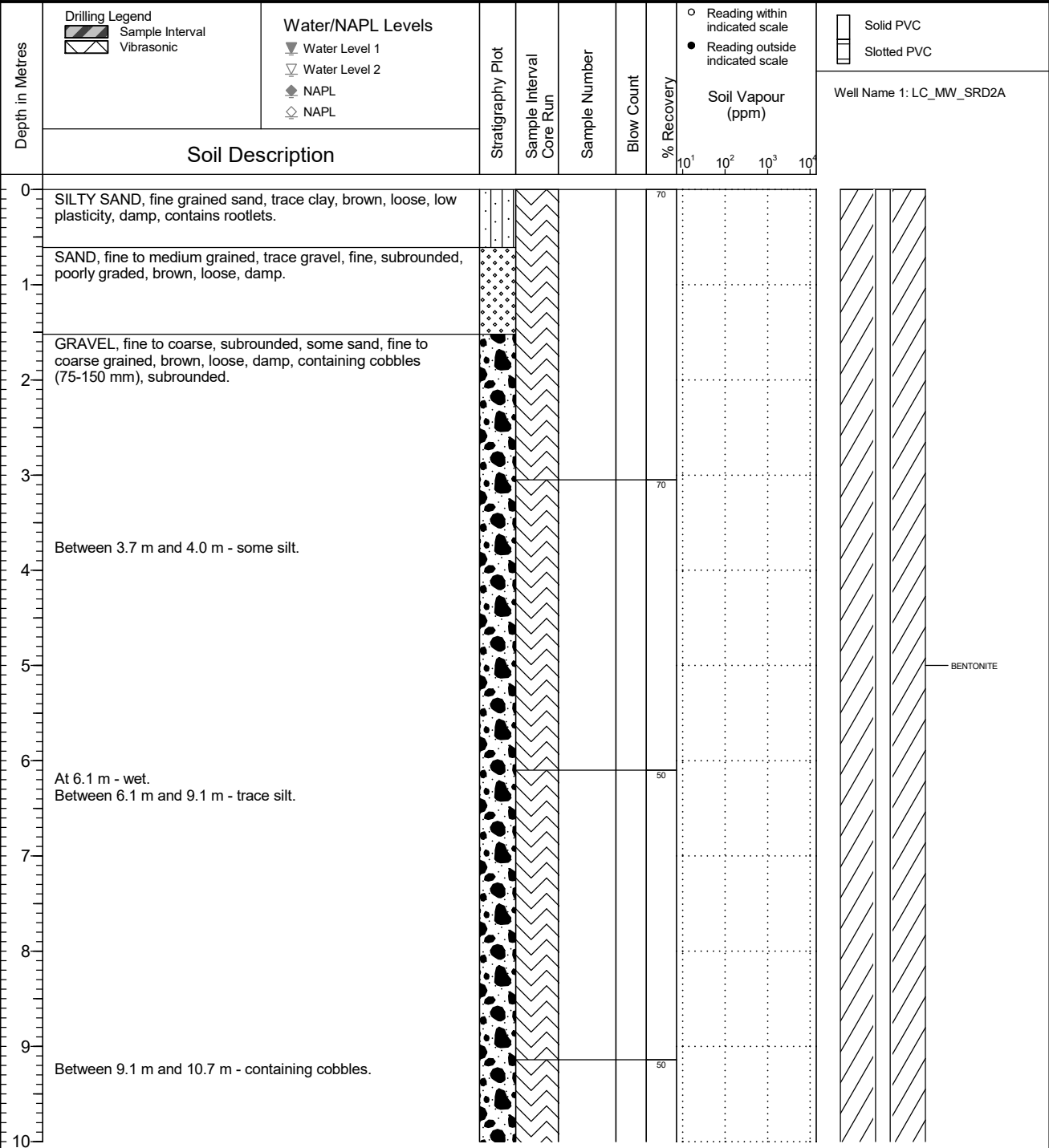


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.216 Top of Casing Elev. (m): n/a Northing: 5525984.264 Easting: 653884.634	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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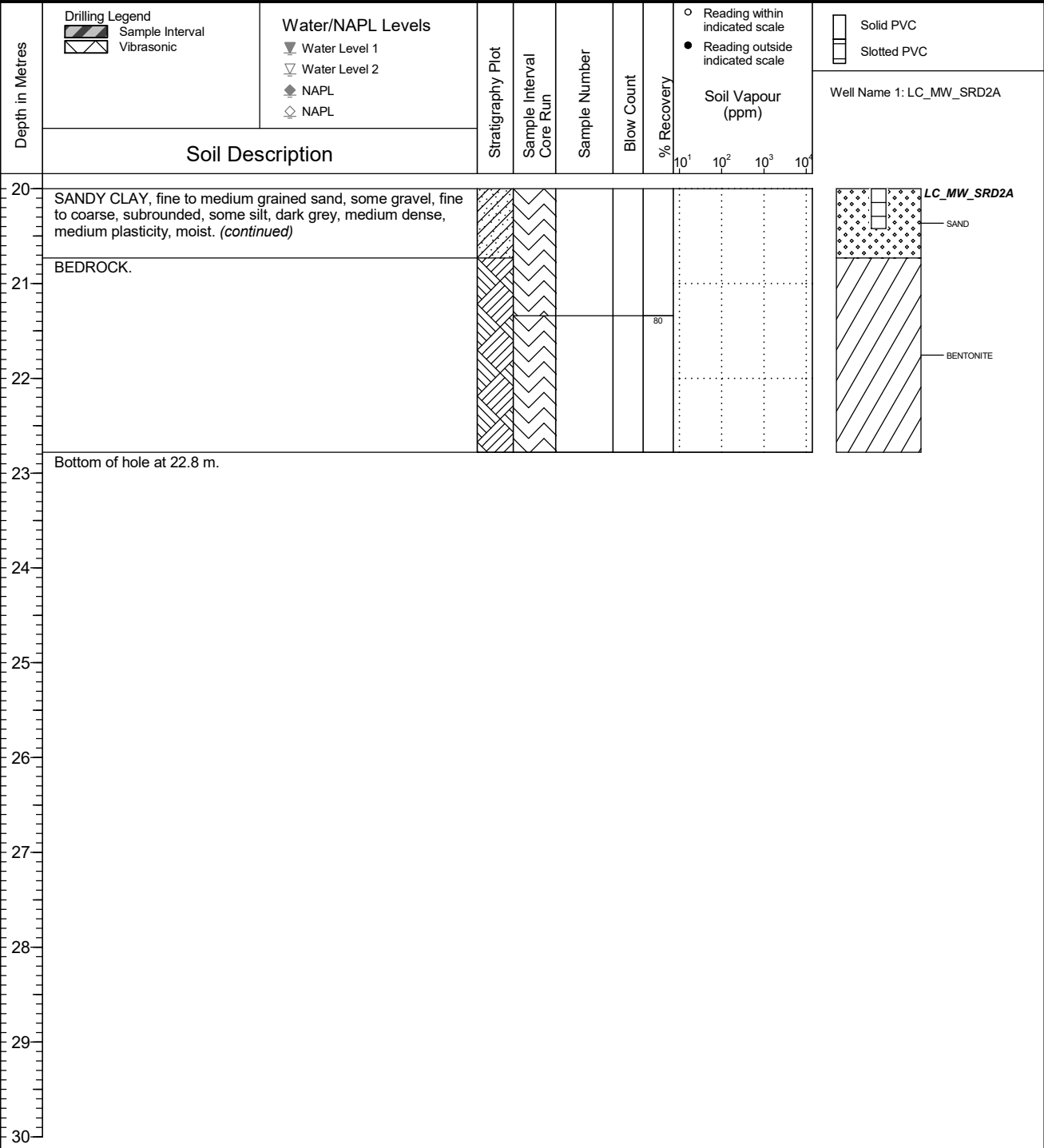
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.216 Top of Casing Elev. (m): n/a Northing: 5525984.264 Easting: 653884.634	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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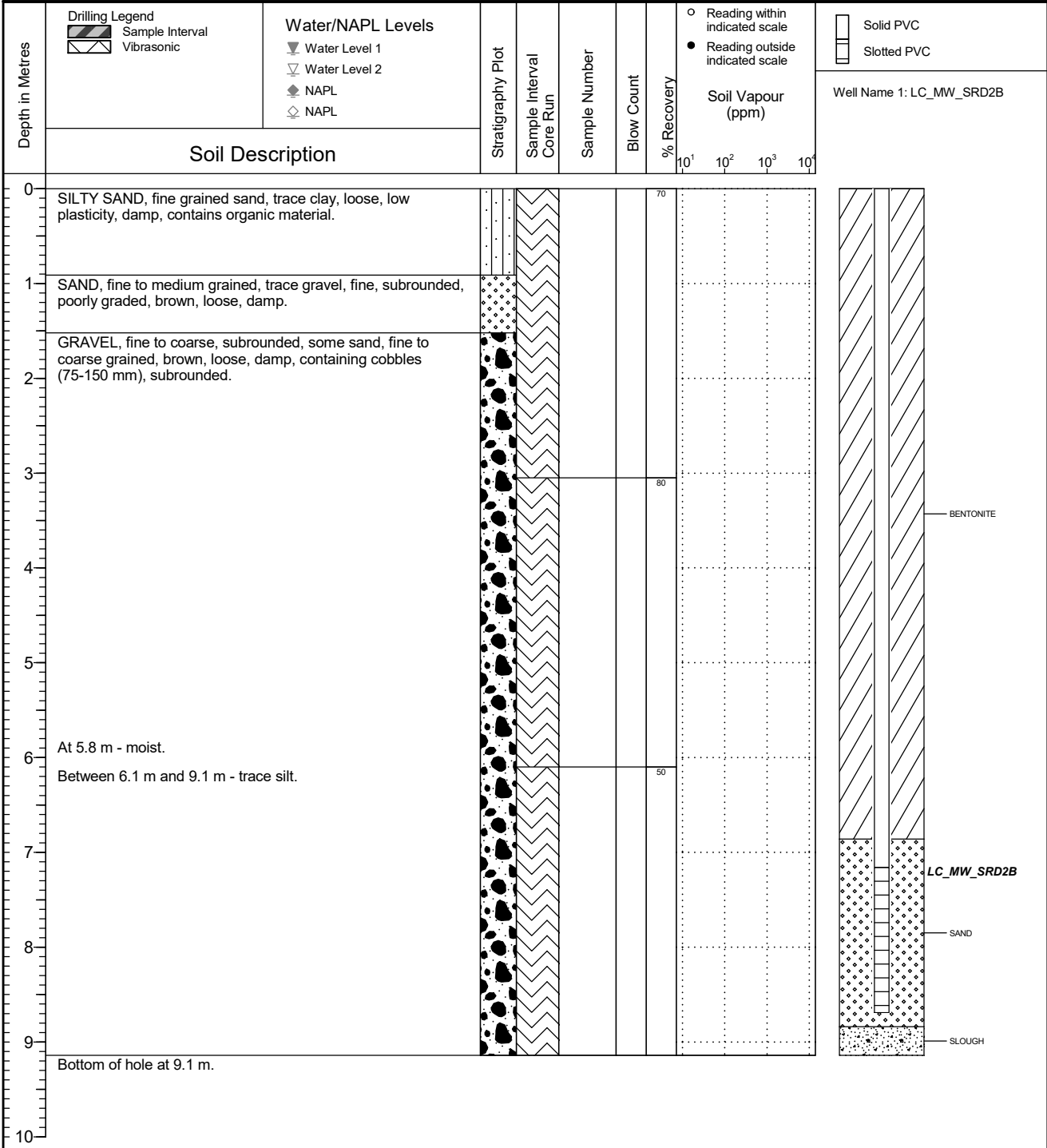


NOTES

FINAL

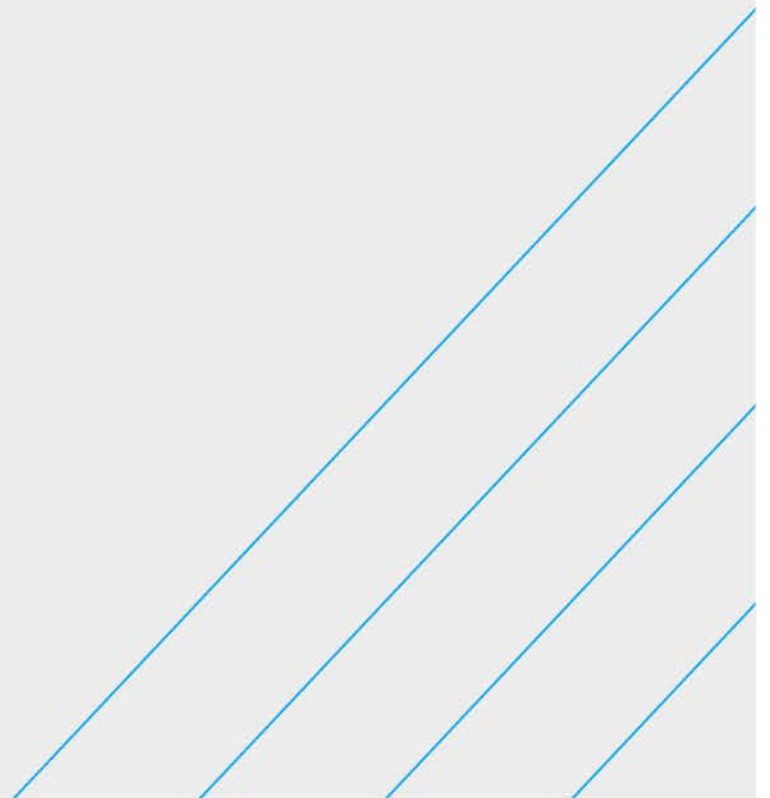
	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.215 Top of Casing Elev. (m): n/a Northing: 5525982.579 Easting: 653884.742	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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NOTES

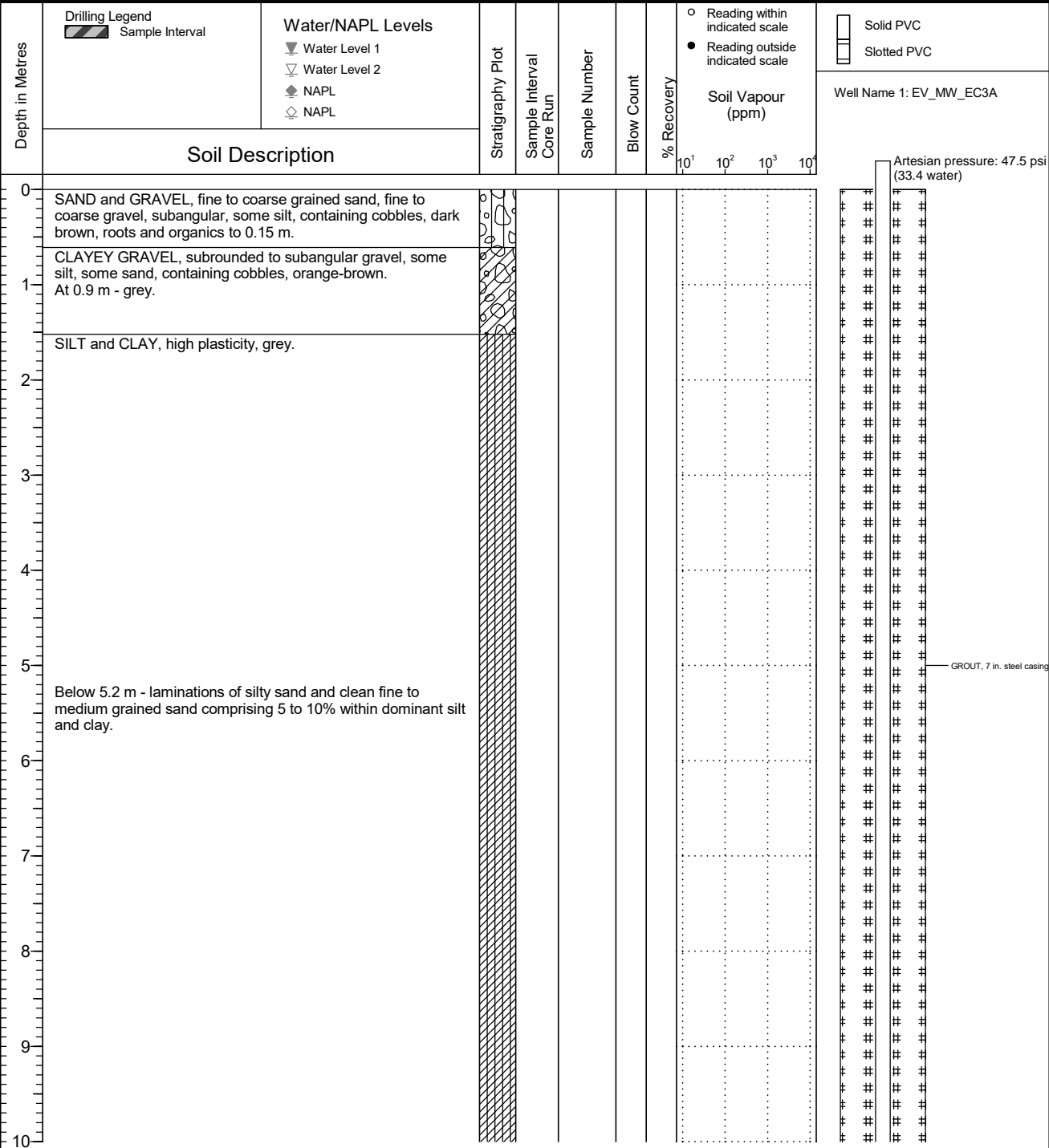
Elkview Operations Borehole Logs – Wells for Evaluation



FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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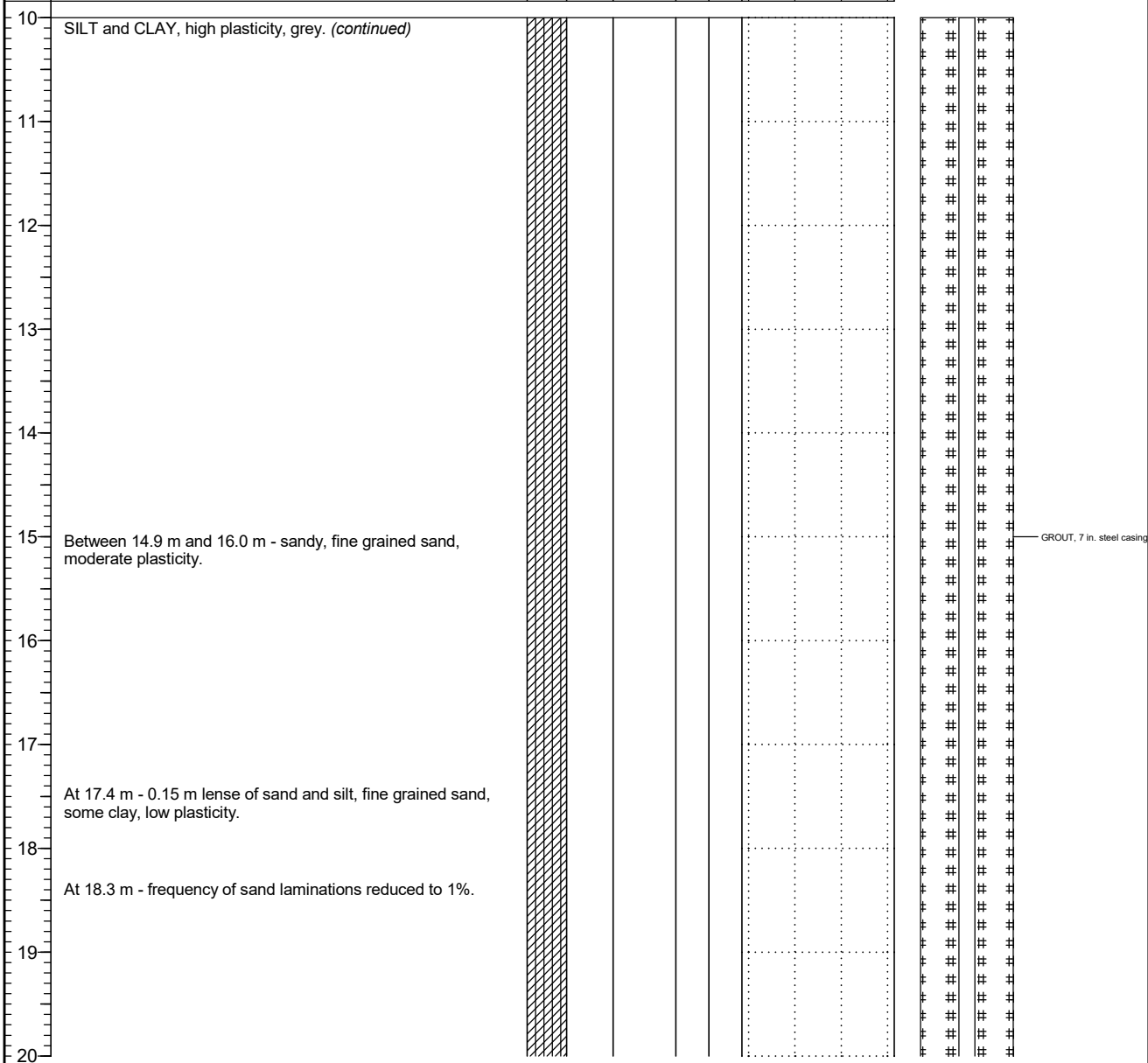
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: EV_MW_EC3A
	Soil Description								

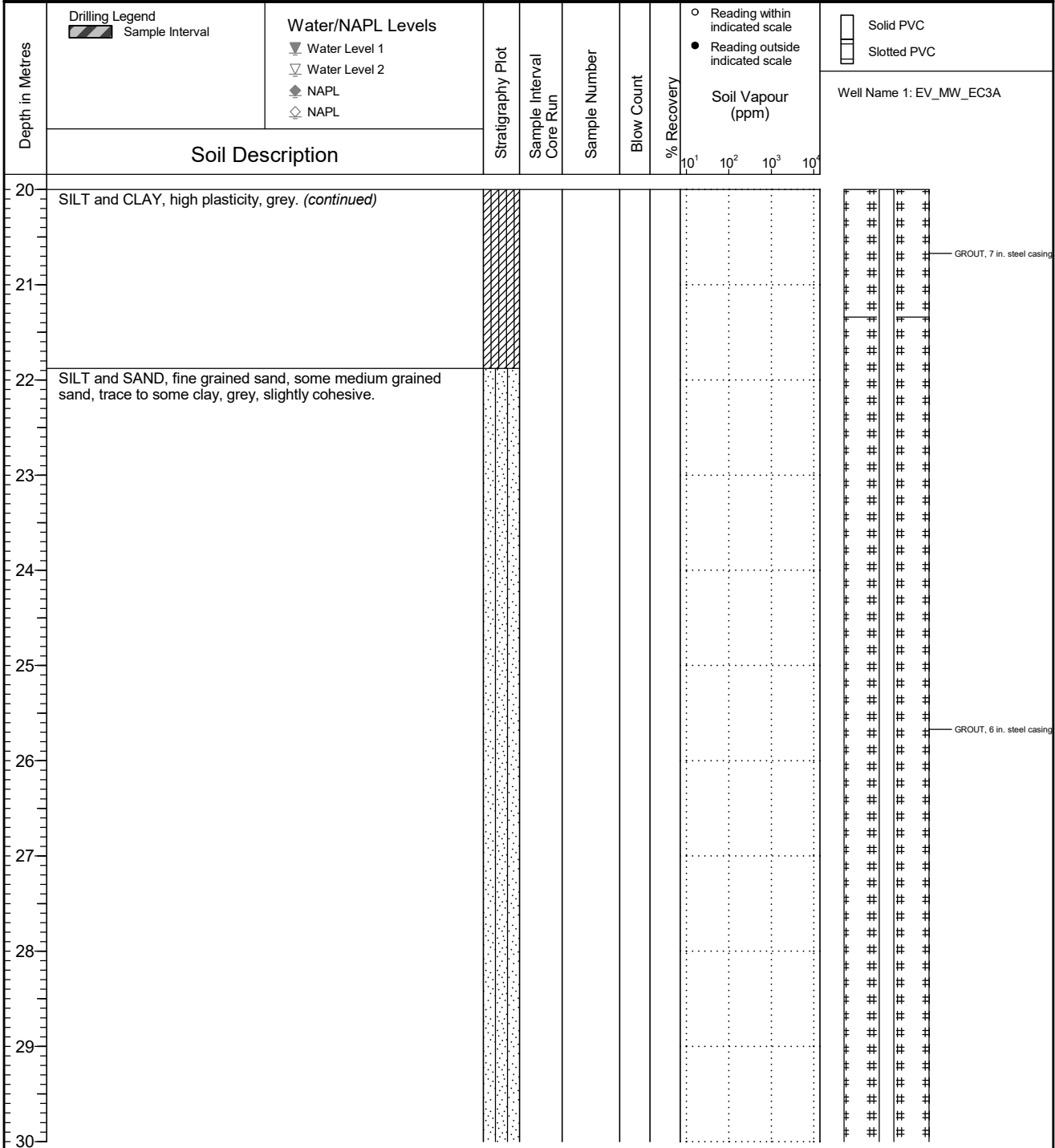


NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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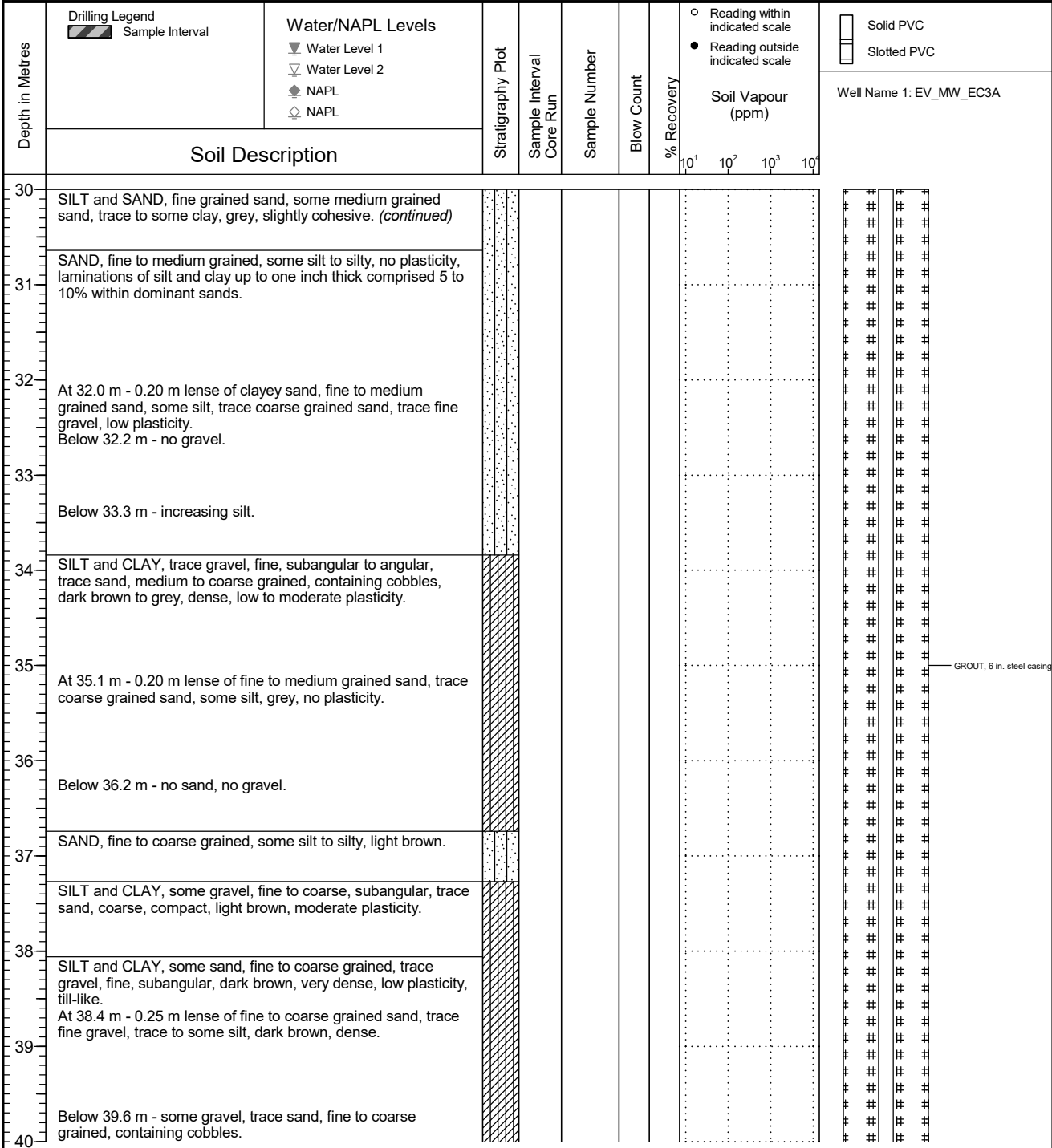
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

QA/QC: TG 2021 10 26 Print Date: 2021-10-26

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 4 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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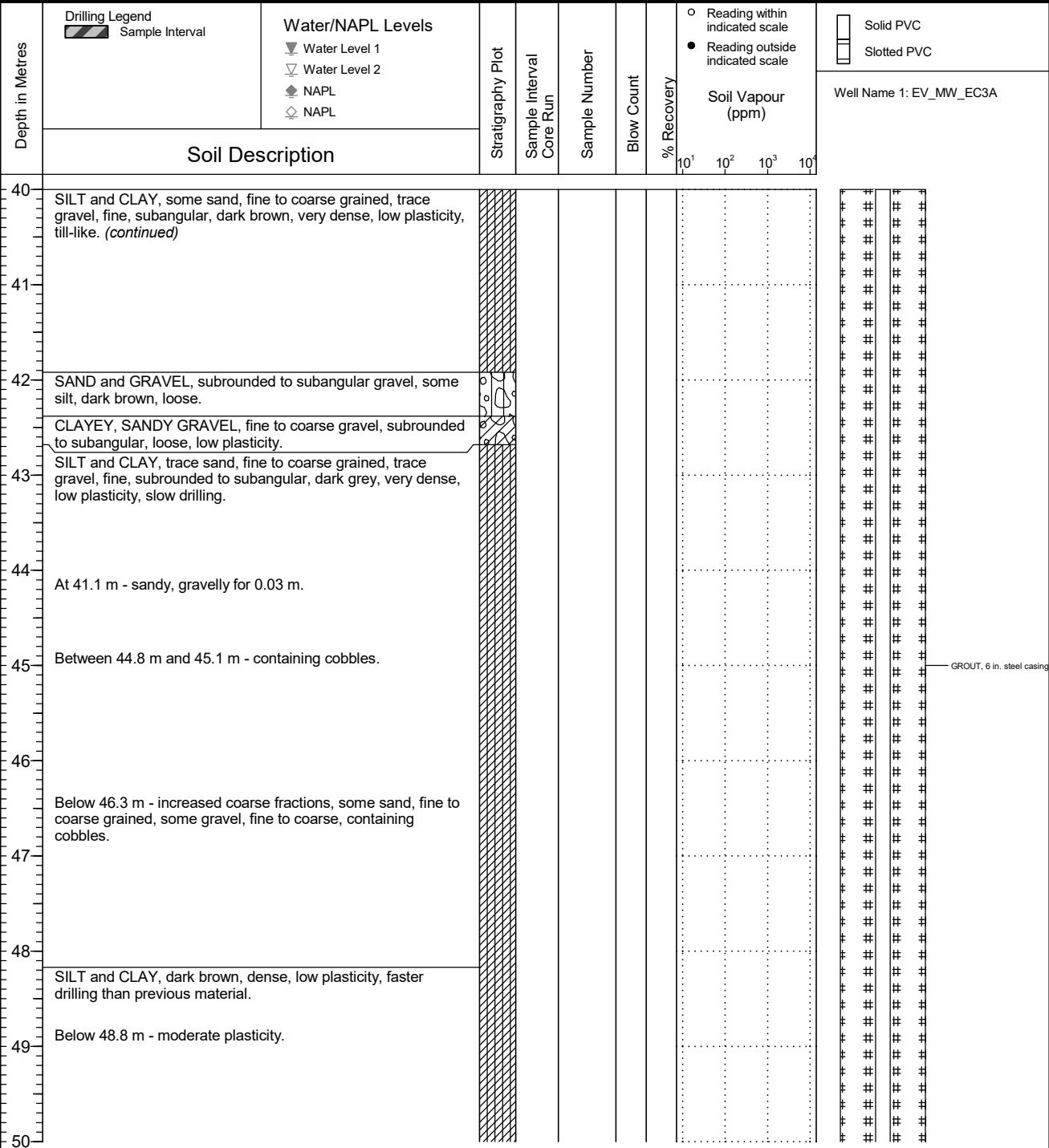
GROUT, 6 in. steel casing

NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

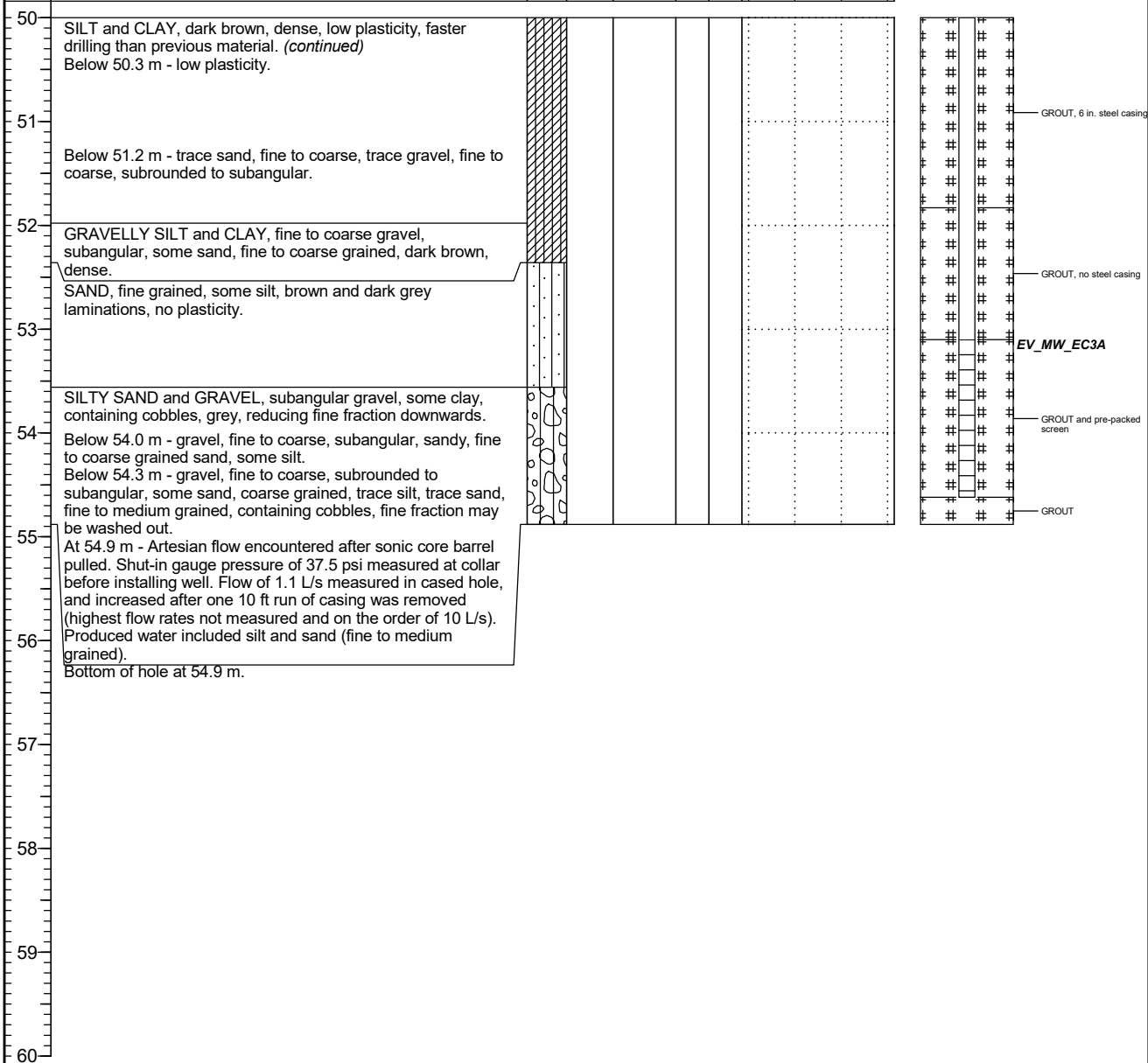
QA/QC: TG 2021.10.26 Print Date: 2021-10-26

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 6 OF 6

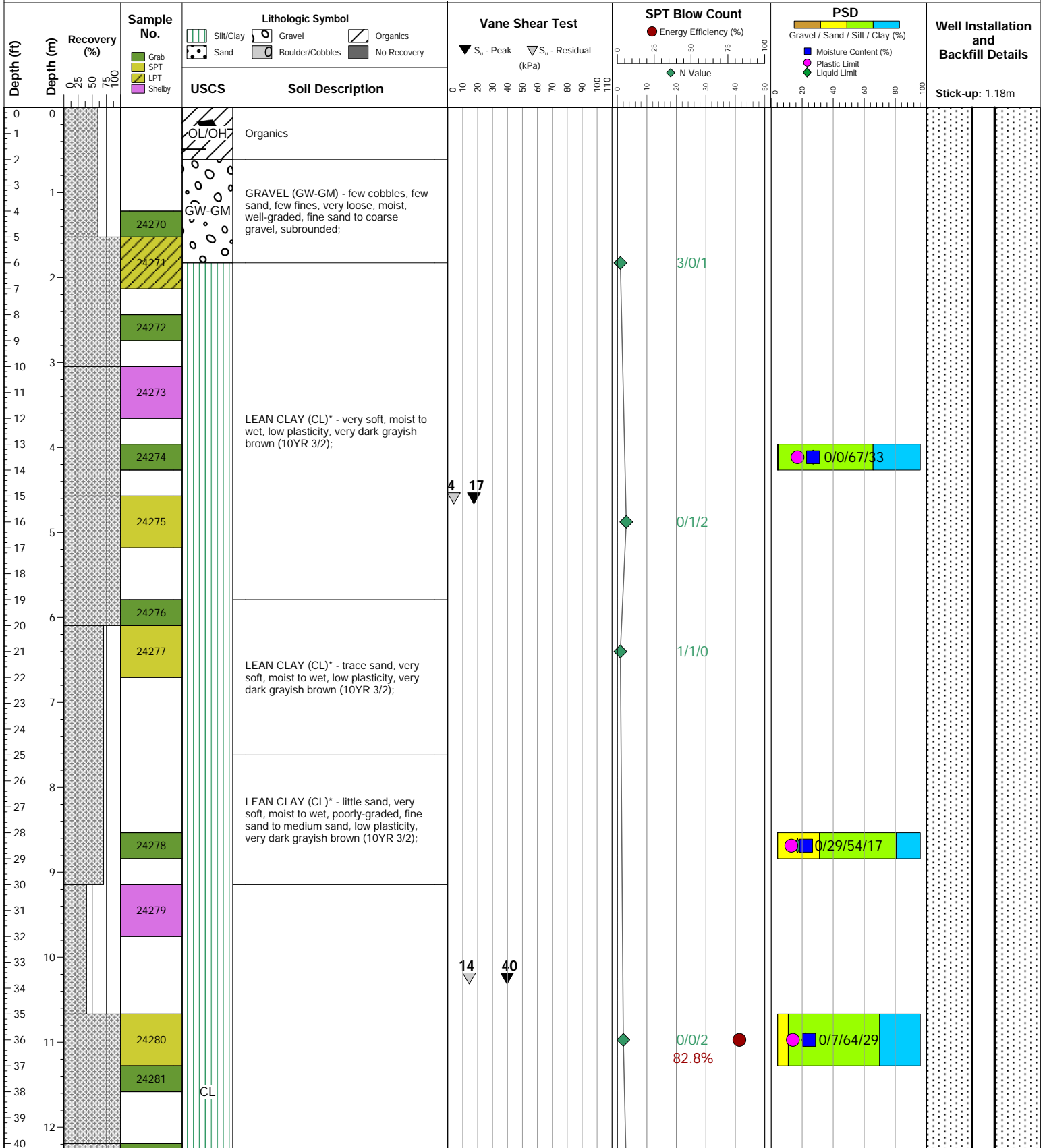
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: EV_MW_EC3A
	Soil Description								



NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

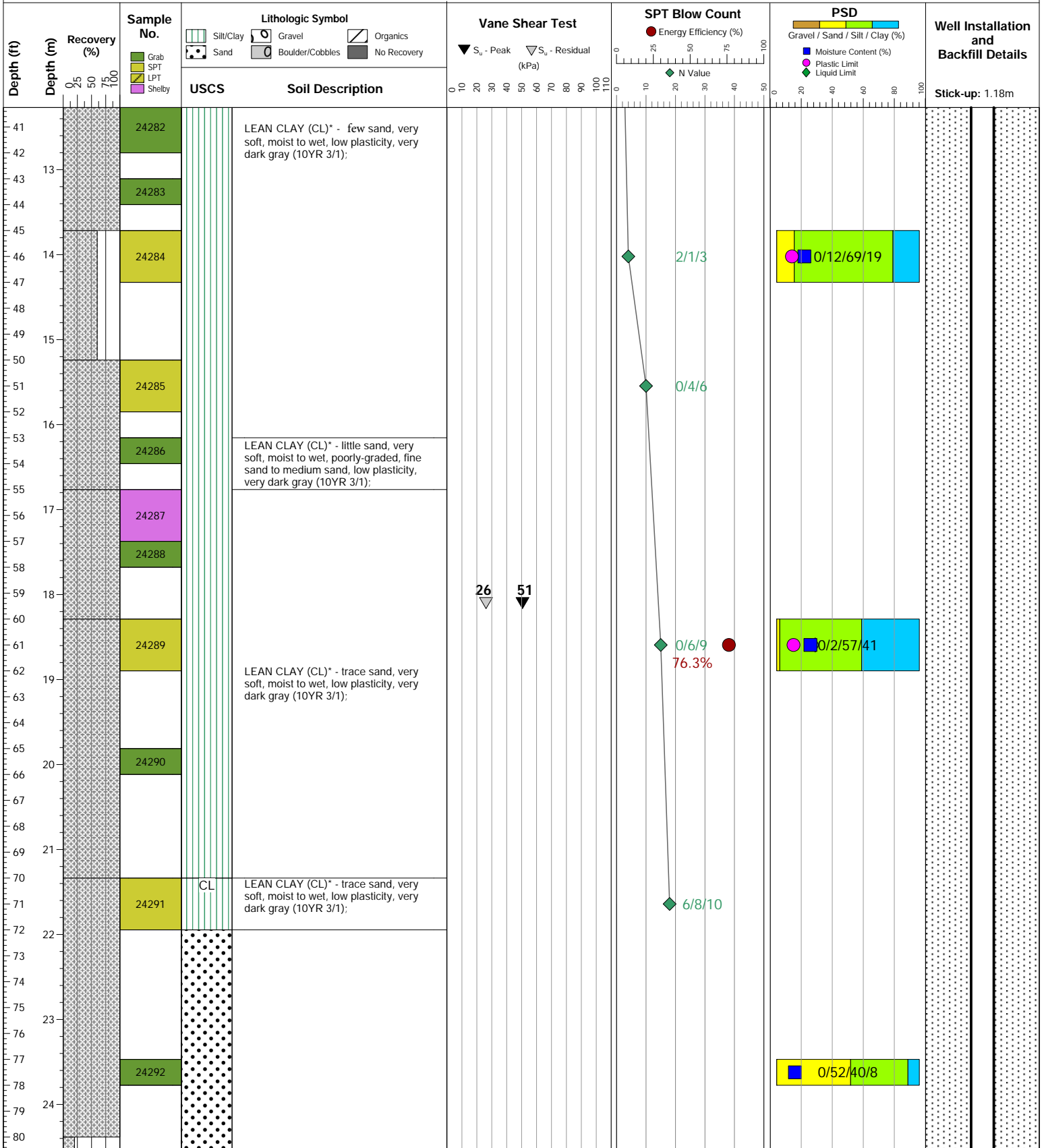
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*Description inferred after reviewing laboratory results

Well Installation Details

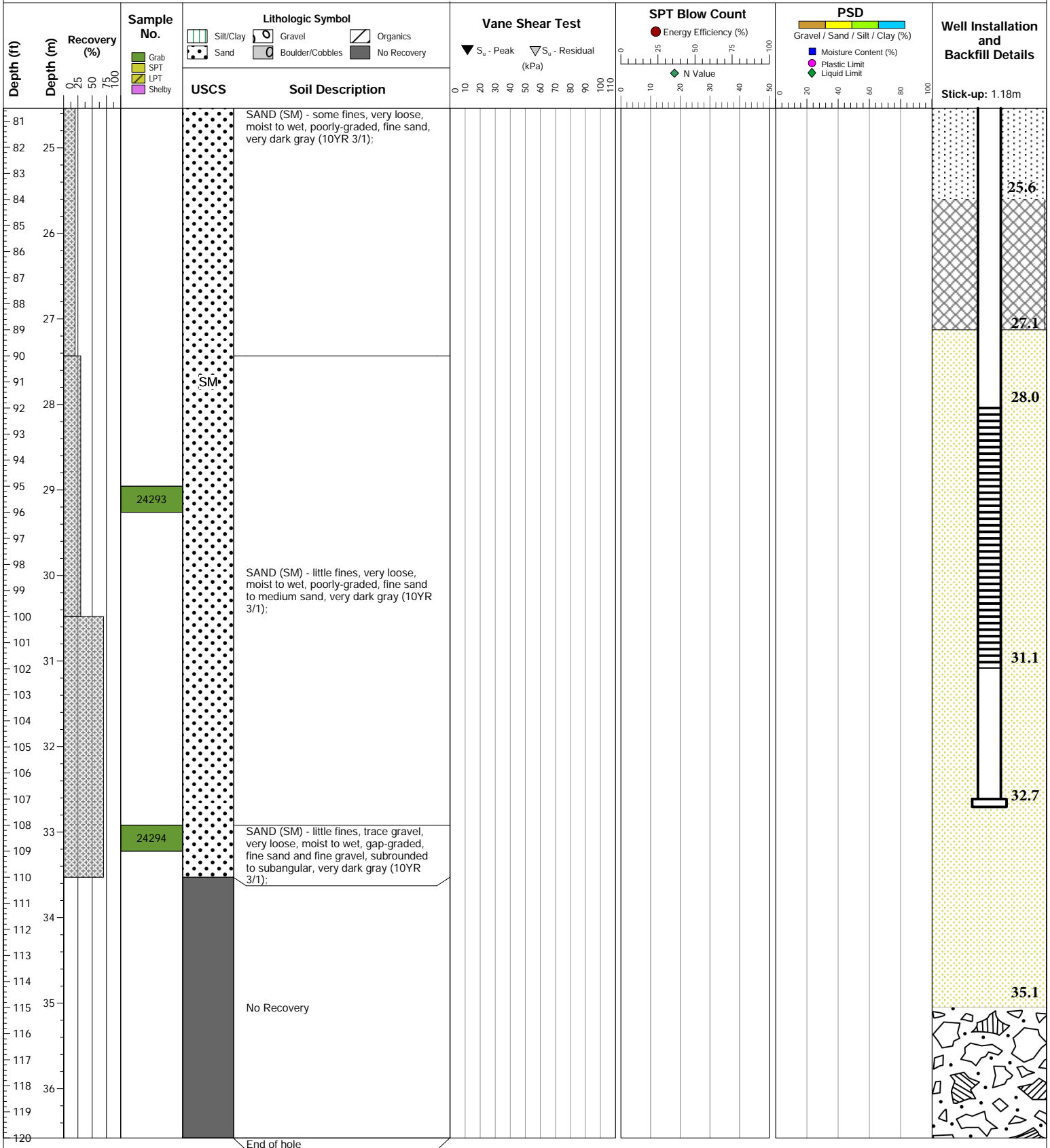
- Sand
- Bentonite
- End Cap
- Grout
- PVC
- Screen
- Slough



*Description inferred after reviewing laboratory results

Well Installation Details

- Sand
- Bentonite
- End Cap
- Grout
- PVC
- Screen
- Slough

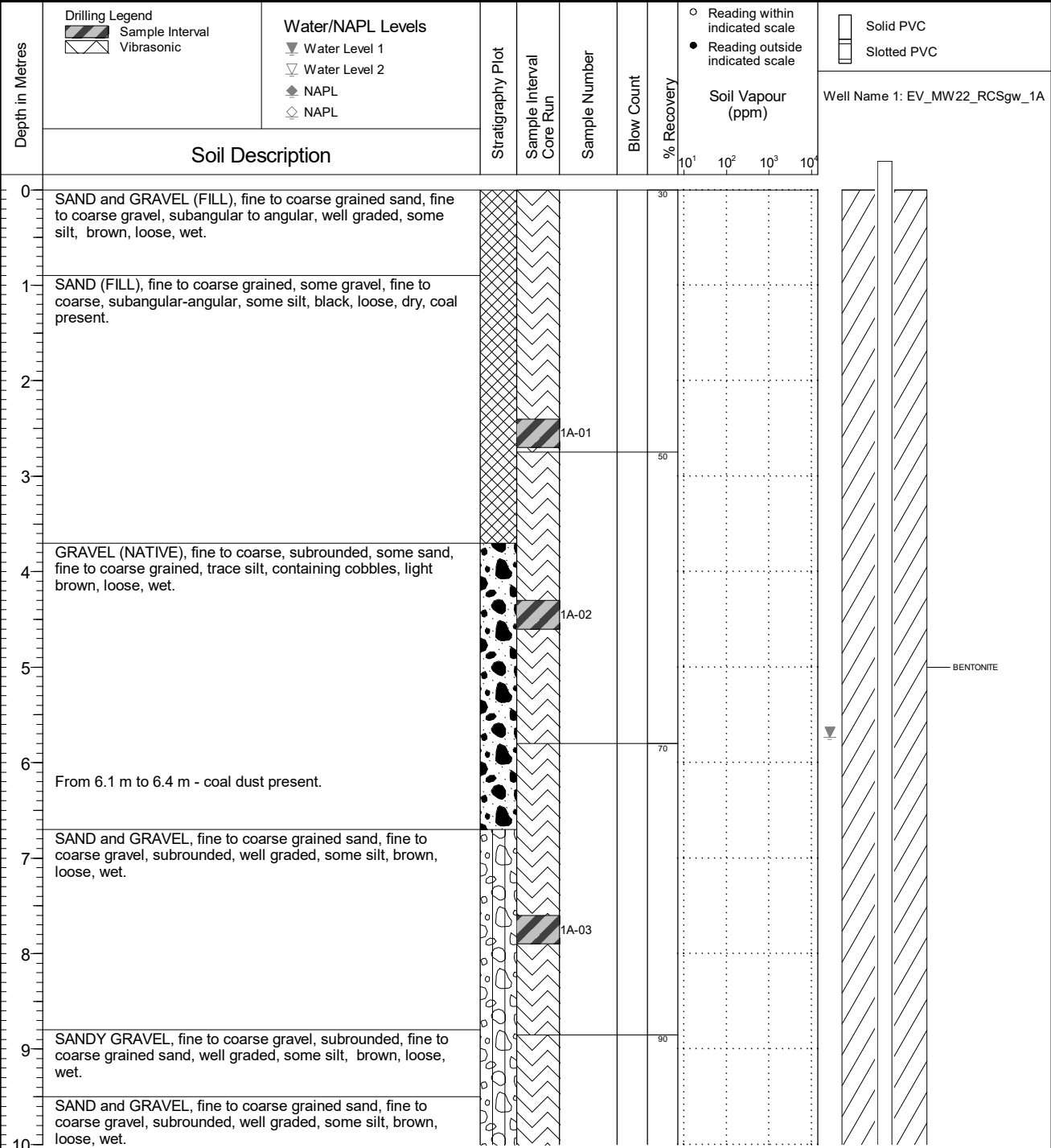


*Description inferred after reviewing laboratory results

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1A
	Location EVO Gate and Bodie Creek	PAGE 1 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF
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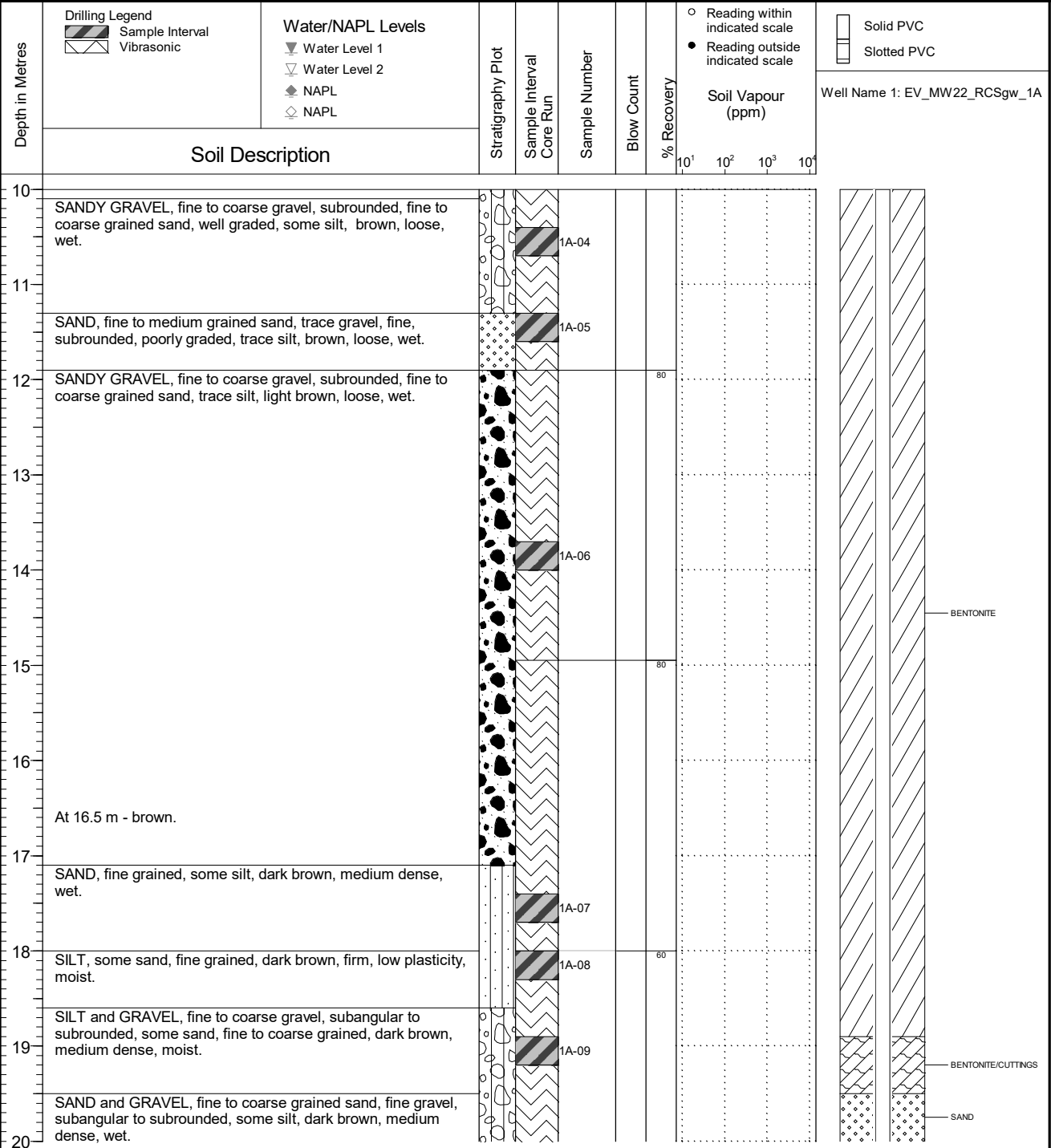


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1A
	Location EVO Gate and Bodie Creek	PAGE 2 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

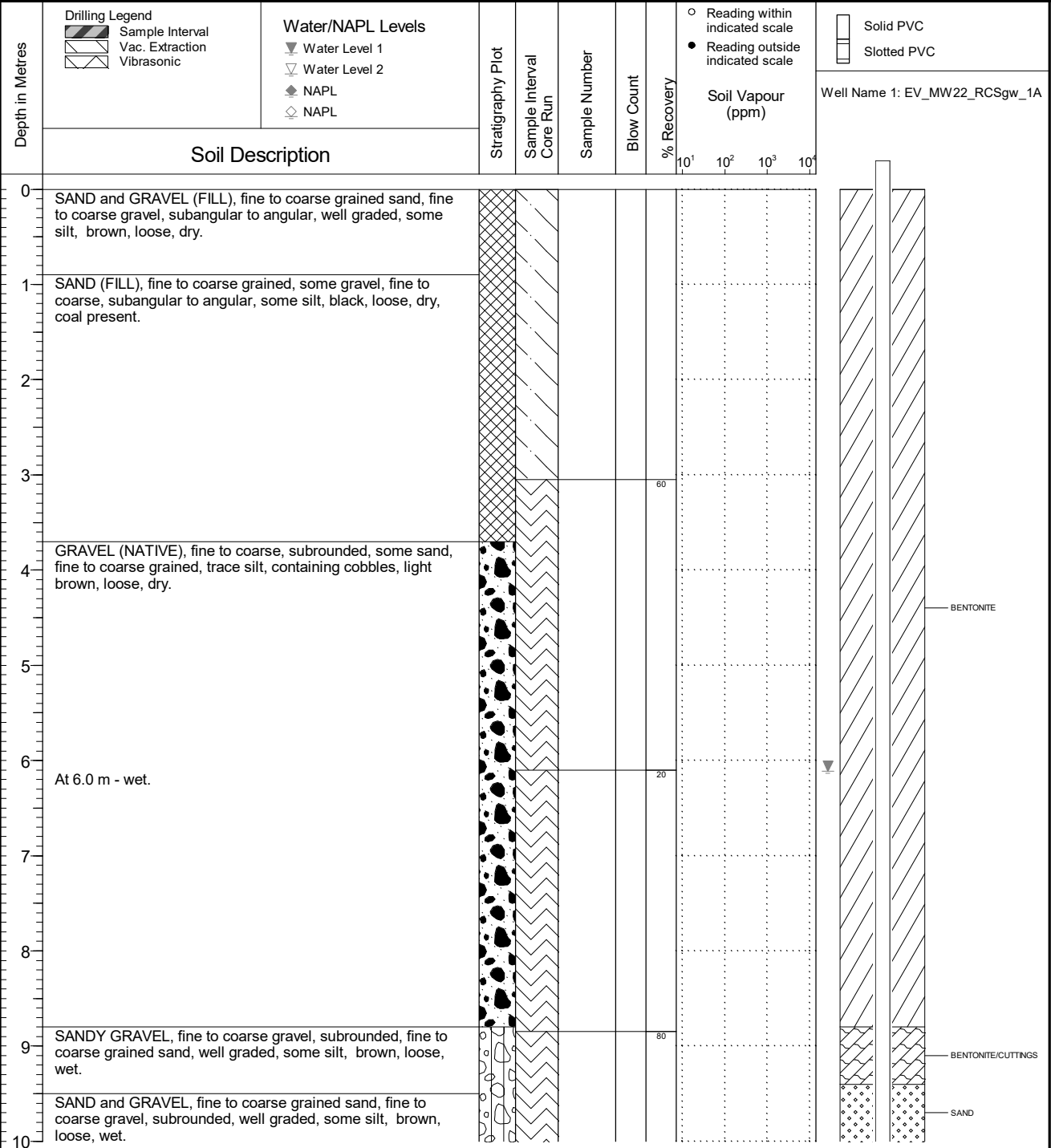
FINAL

		Client Teck Coal Limited		Borehole No. : EV_BH22_RCSgw_1A		
		Location EVO Gate and Bodie Creek		PAGE 3 OF 3		
Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329		Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF		
Depth in Metres 20 21 22 23 24 25 26 27 28 29 30	Drilling Legend Sample Interval Vibrasonic		Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL		Stratigraphy Plot Sample Interval Core Run Sample Number Blow Count % Recovery Reading within indicated scale Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	
	Soil Description		Well Name 1: EV_MW22_RCSgw_1A Solid PVC Slotted PVC			
SAND and GRAVEL, fine to coarse grained sand, fine gravel, subangular to subrounded, some silt, dark brown, medium dense, wet. <i>(continued)</i>		1A-10				
BEDROCK, siltstone, dark grey.		1A-11				
Bottom of hole at 24.1 m.						
NOTES Bold sample denotes sample analyzed.						

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1B
	Location EVO Gate and Bodie Creek	PAGE 1 OF 2

Drilling Contractor: Forged Drilling Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 18 Ground Surface Elev. (m): 1161.535 Top of Casing Elev. (m): 1162.394 1162.394 Northing: 5509281.058 Easting: 655901.577	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

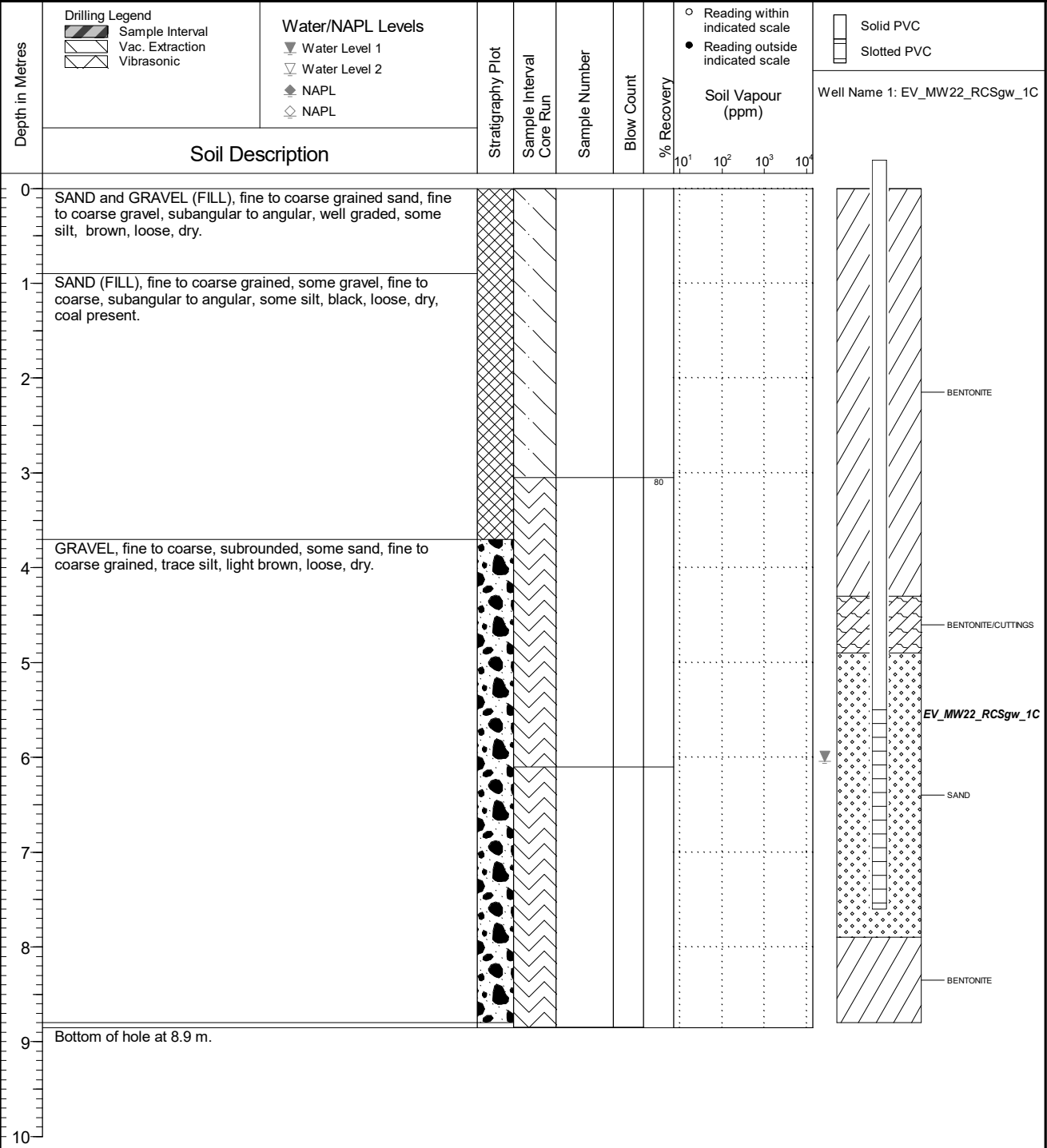
FINAL

		Client Teck Coal Limited		Borehole No. : EV_BH22_RCSgw_1B				
		Location EVO Gate and Bodie Creek		PAGE 2 OF 2				
Drilling Contractor: Forged Drilling Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 07 18 Ground Surface Elev. (m): 1161.535 Top of Casing Elev. (m): 1162.394 1162.394 Northing: 5509281.058 Easting: 655901.577		Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF				
Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description		Well Name 1: EV_MW22_RCSgw_1B					
10	SANDY GRAVEL, fine to coarse gravel, subrounded, fine to coarse grained sand, well graded, some silt, brown, loose, wet.							
11	SAND, fine to medium grained, trace gravel, fine, subrounded, poorly graded, trace silt, brown, loose, wet.							
12	Bottom of hole at 11.9 m.							
13								
14								
15								
16								
17								
18								
19								
20								
NOTES Bold sample denotes sample analyzed.								

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1C
	Location EVO Gate and Bodie Creek	PAGE 1 OF 1

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1161.516 Top of Casing Elev. (m): 1162.423 1161.516 Northing: 5509279.769 Easting: 655902.239	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF
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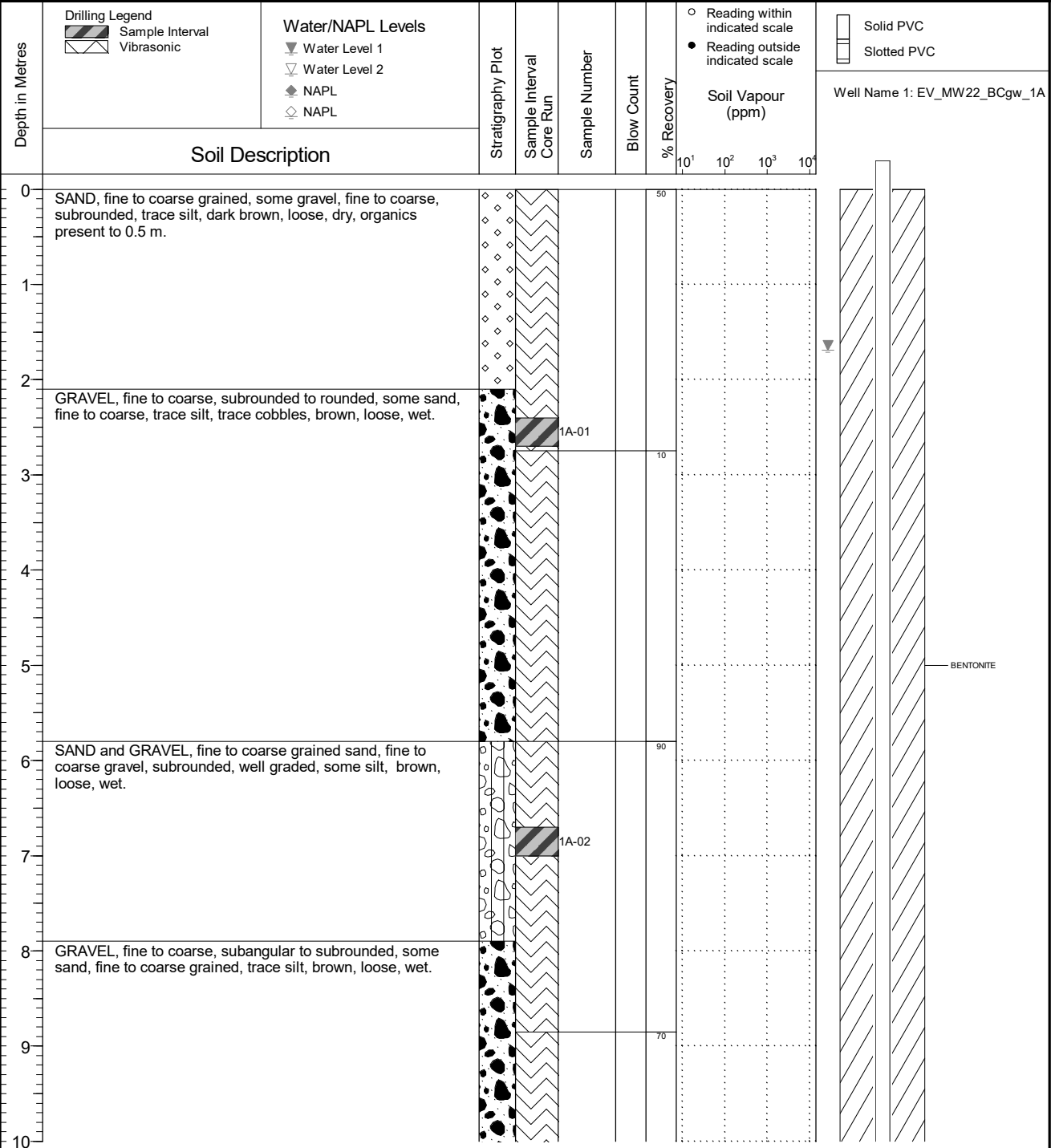


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 1 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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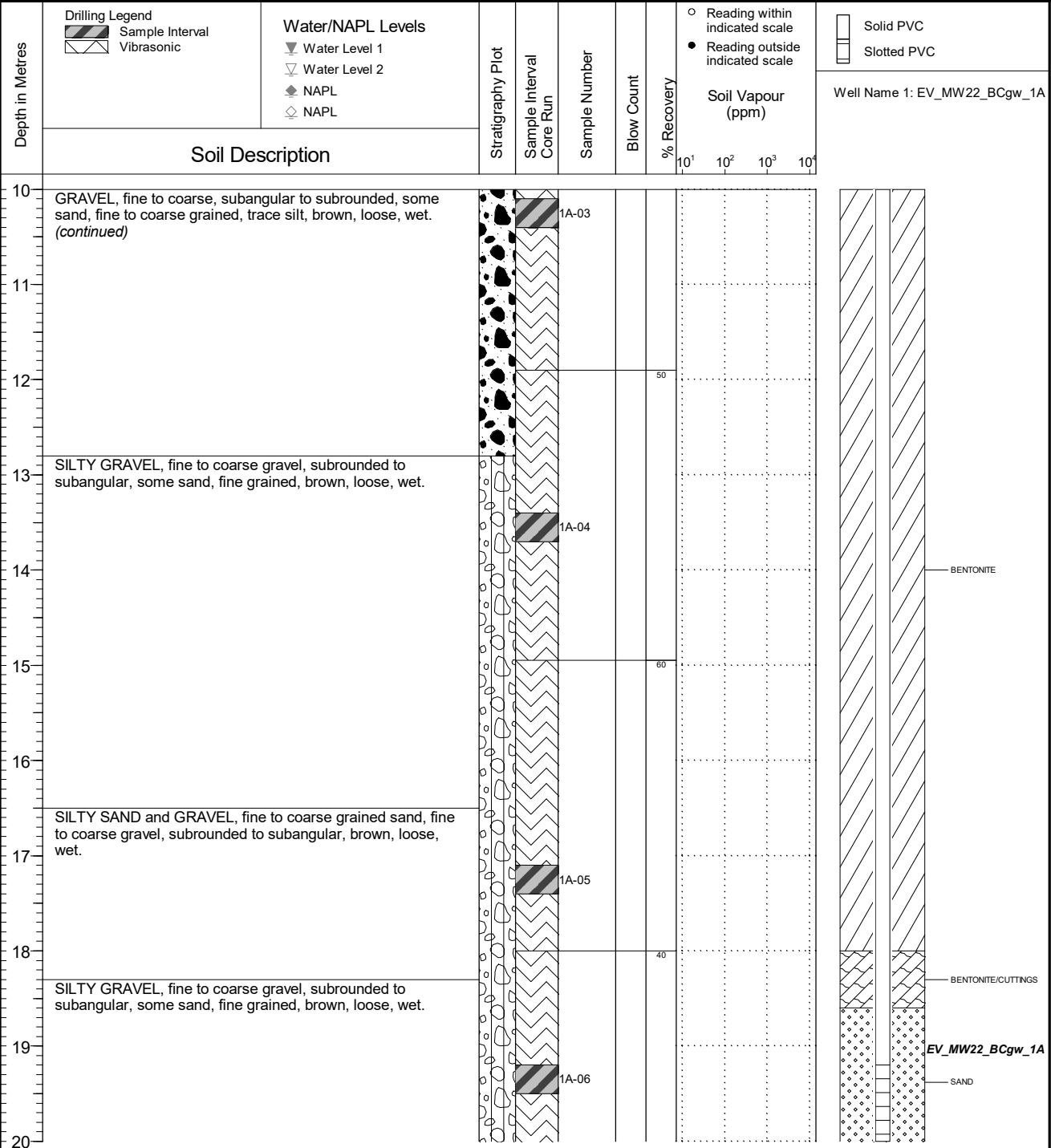


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 2 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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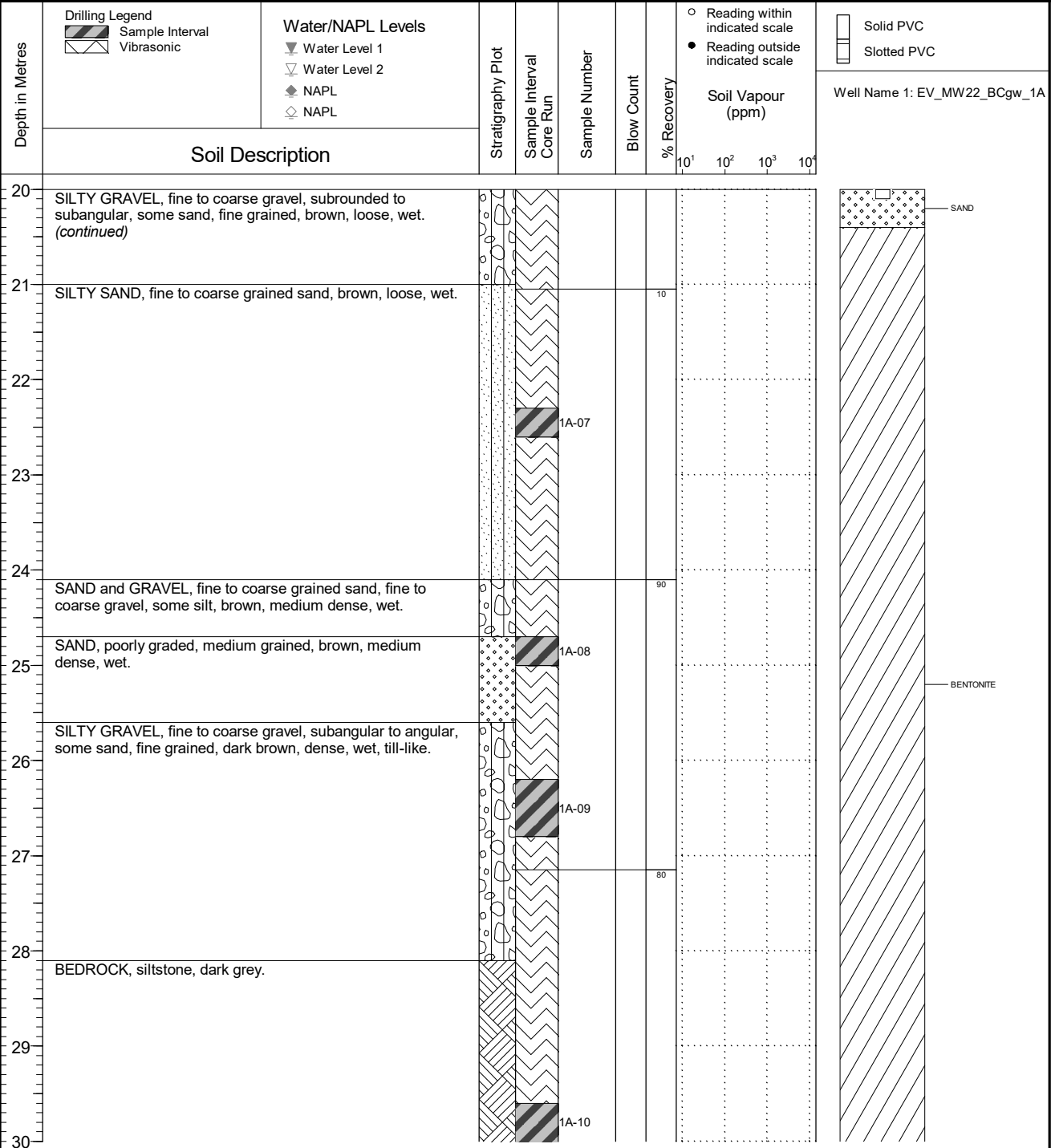


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 3 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

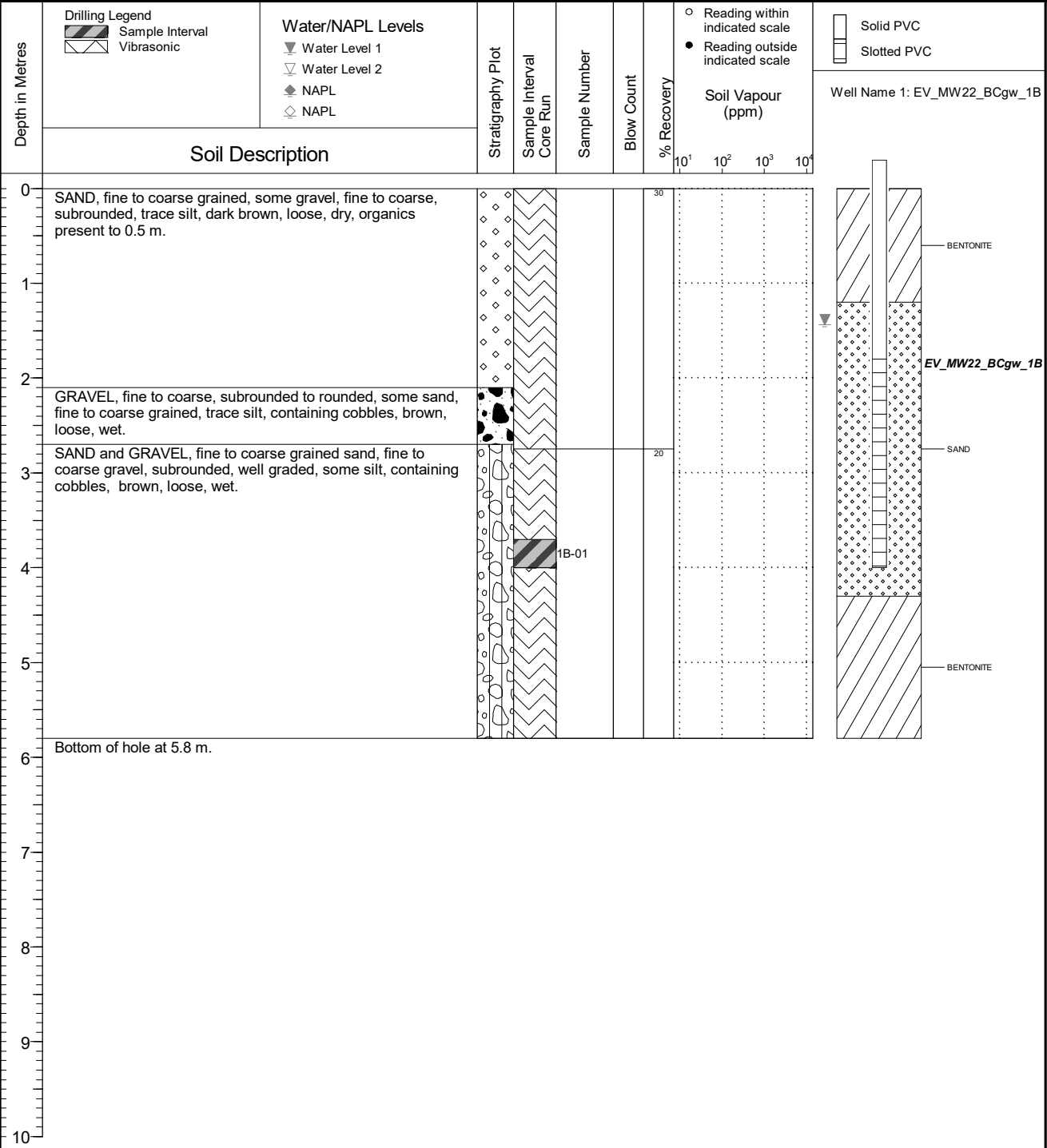
FINAL

		Client Teck Coal Limited		Borehole No. : EV_BH22_BCgw_1A					
		Location EVO Gate and Bodie Creek		PAGE 4 OF 4					
Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172		Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF					
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description		Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴		Well Name 1: EV_MW22_BCgw_1A				
30	Bottom of hole at 30.2 m.			1A-10					— BENTONITE
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
NOTES Bold sample denotes sample analyzed.									

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1B
	Location EVO Gate and Bodie Creek	PAGE 1 OF 1

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.342 Top of Casing Elev. (m): 1154.150 1154.15 Northing: 5509656.356 Easting: 655385.552	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 14 Log Typed By: MF
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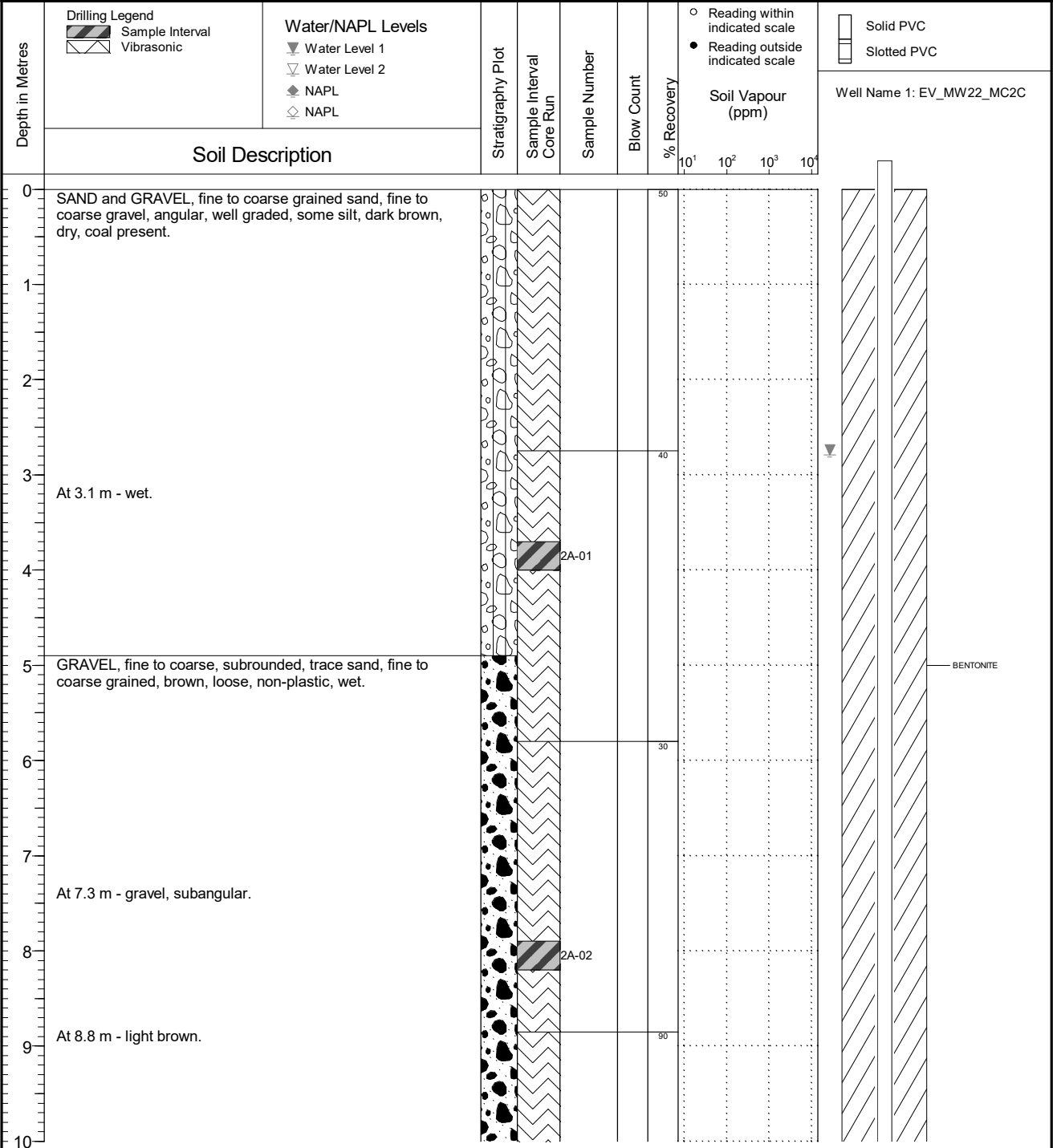


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_MC2C
	Location EVO Michel Creek	PAGE 1 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 15 Ground Surface Elev. (m): 1147.018 Top of Casing Elev. (m): 1147.947 1147.018 Northing: 5510511.068 Easting: 654751.174	Project Number: 631283 Borehole Logged By: MTB Date Drilled: 2022 07 15 Log Typed By: MF
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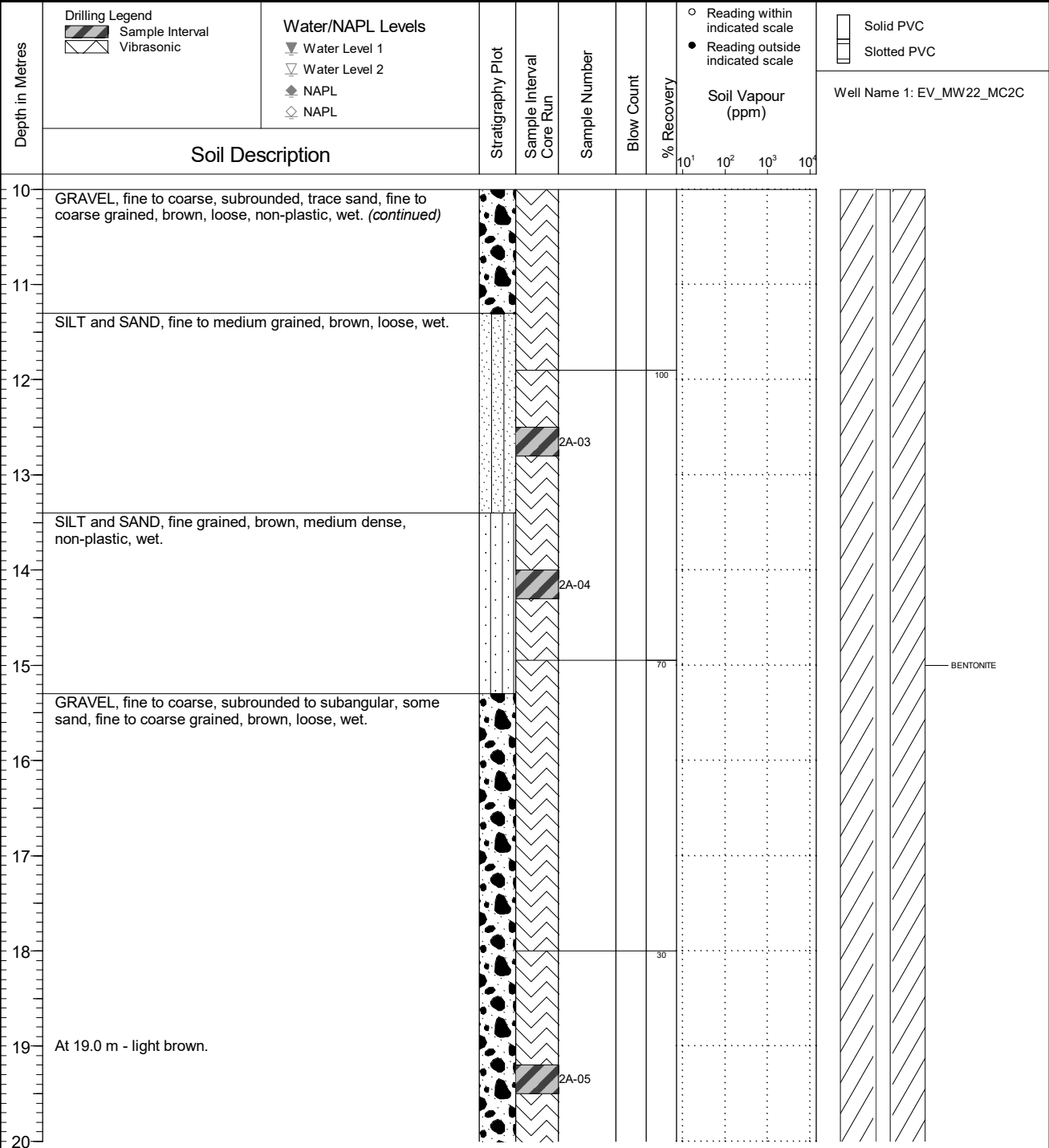


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_MC2C
	Location EVO Michel Creek	PAGE 2 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 15 Ground Surface Elev. (m): 1147.018 Top of Casing Elev. (m): 1147.947 1147.018 Northing: 5510511.068 Easting: 654751.174	Project Number: 631283 Borehole Logged By: MTB Date Drilled: 2022 07 15 Log Typed By: MF
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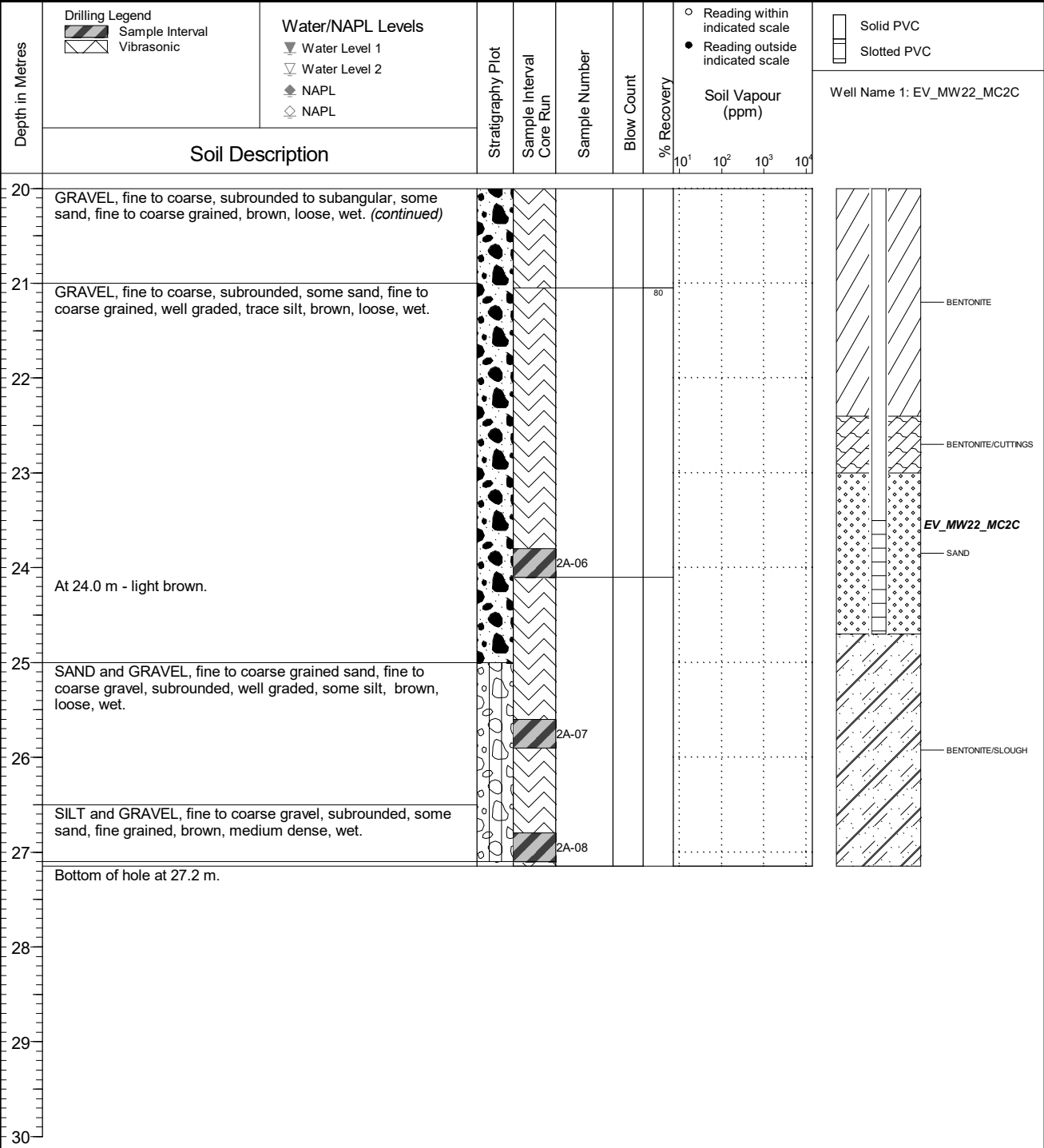


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_MC2C
	Location EVO Michel Creek	PAGE 3 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 15 Ground Surface Elev. (m): 1147.018 Top of Casing Elev. (m): 1147.947 1147.018 Northing: 5510511.068 Easting: 654751.174	Project Number: 631283 Borehole Logged By: MTB Date Drilled: 2022 07 15 Log Typed By: MF
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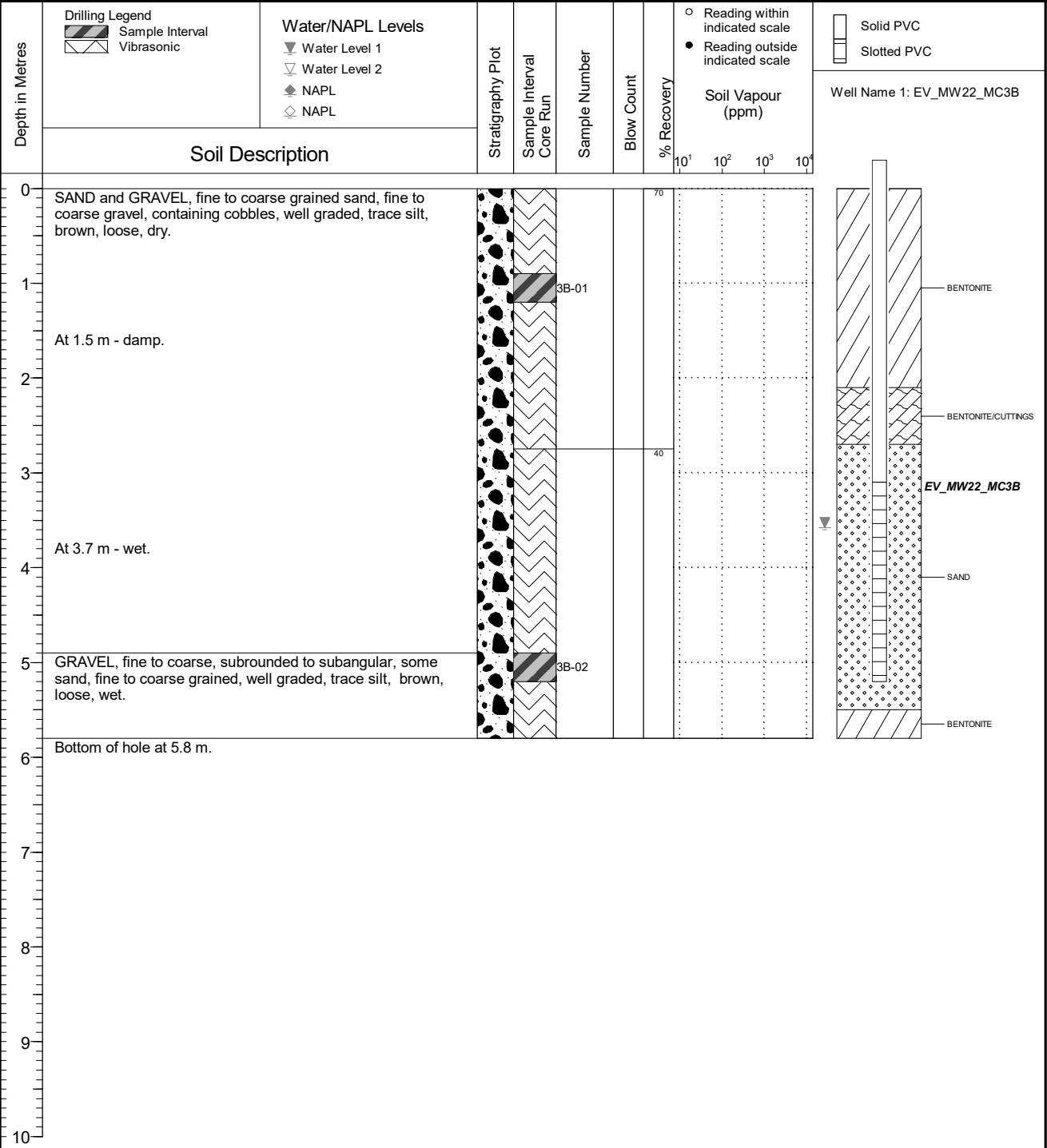


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_MC3B
	Location EVO Michel Creek	PAGE 1 OF 1

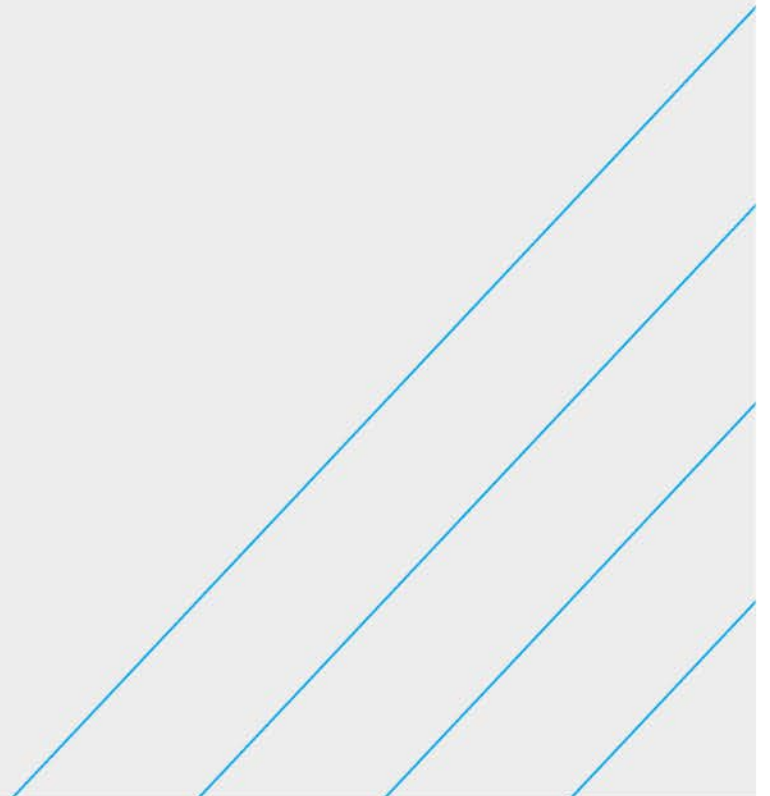
Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 29 Ground Surface Elev. (m): 1137.776 Top of Casing Elev. (m): 1138.758 1137.776 Northing: 5510982.854 Easting: 653659.766	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 23 Log Typed By: MF
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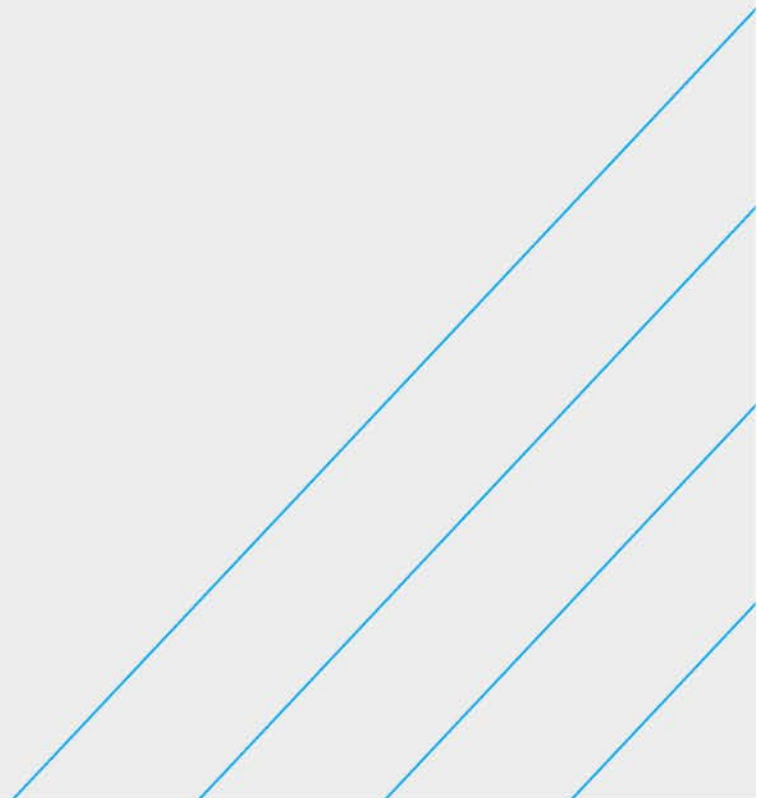
NOTES
 Bold sample denotes sample analyzed.

Borehole Logs

- Background Borehole Logs – Wells for Evaluation
- Fording River Operations Borehole Logs – Wells for Evaluation
- Greenhills Operations Borehole Logs – Wells for Evaluation
- Line Creek Operations Borehole Logs – Wells for Evaluation
- Elkview Operations Borehole Logs – Wells for Evaluation



Background Borehole Logs – Wells for Evaluation



Elkview Operations Borehole Logs – Wells for Evaluation

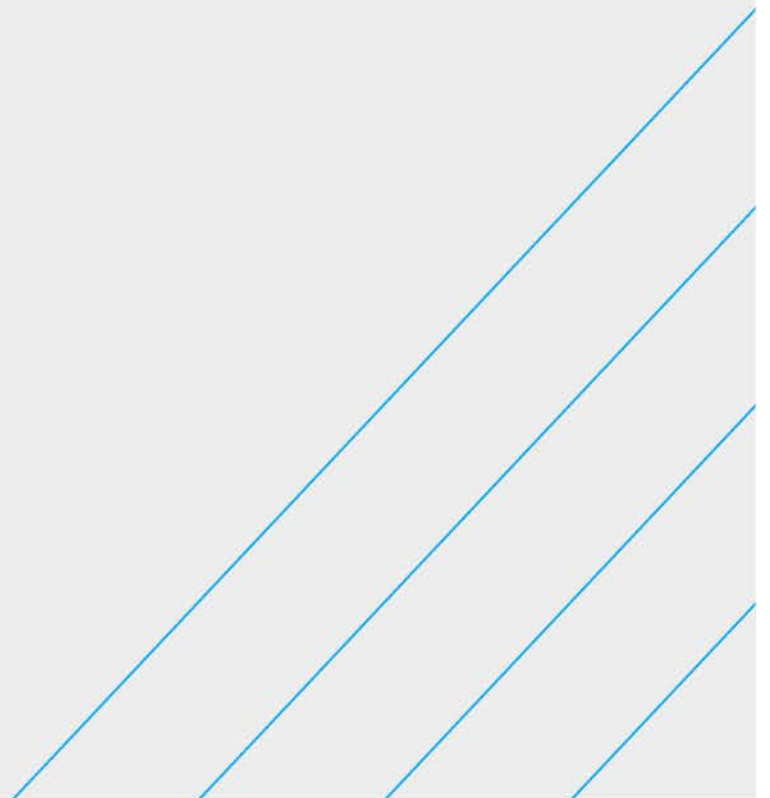


TABLE XIV - A: Summary of "For Evaluation" Wells - Installation Details (Background)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Upgradient of Study Area 1 (FRO)	1	FR_MW22_CH3A	For Evaluation for RGMP	Monitoring	N	658263	5555526	-
	2	FR_MW22_CH3B	For Evaluation for RGMP	Monitoring	N	658262	5555526	-
	3	FR_MW22_FRX3465	For Evaluation for RGMP	Monitoring	N	653635	5558523	-
	4	FR_MW22_FRX3534	For Evaluation for RGMP	Monitoring	N	656260	5554565	-
	5	FR_MW22_KCWD1A	For Evaluation for RGMP	Monitoring	Draft	657212	5560555	Bedrock (Dolostone)
	6	FR_MW22_KCWD1B	For Evaluation for RGMP	Monitoring	Draft	657213	5560555	Sand and Gravel
Upgradient of Study Areas 5/6 (LCO)	7	LC_MW22_LC1-1ABR	For Evaluation for RGMP	Monitoring	Draft	661957	5538175	Bedrock (Shale)
	8	LC_MW_HC-1A	For Evaluation for RGMP	Monitoring	Y	663089	5535742	Gravel
	9	LC_MW_HC-2A	For Evaluation for RGMP	Monitoring	Y	662980	5535814	Cobble and Gravel
	10	LC_MW_HC-3A	For Evaluation for RGMP	Monitoring	Y	662800	5535787	Gravel and Clay
Upgradient of Study Area 7 (EVO)	11	EV_MW22_GV5A	For Evaluation for RGMP	Monitoring	Draft	659300	5523750	Sand and Gravel
	12	EV_MW22_GV5B	For Evaluation for RGMP	Monitoring	Draft	659299	5523749	Sand and Gravel
Upgradient of Study Area 10 (EVO)	13	RG_MW_AC1A	For Evaluation for RGMP	Monitoring	Y	663653	5502845	Silty Clay
	14	RG_MW_AC1B	For Evaluation for RGMP	Monitoring	Y	663654	5502845	Sand and Gravel

Notes:

a: RGMP denotes Regional Groundwater Monitoring Program.

"-" denotes data not available.

Draft borehole data is subject to change.

Also considered For Evaluation for Site-Specific Groundwater Monitoring Program (SSGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Henretta Creek Watershed	1	FR_MW23_HMW2_V2	For Evaluation for SSGMP	Monitoring	N	652643	5566630	-
	2	FR_MW23_HMW2_BR	For Evaluation for SSGMP	Monitoring	N	652643	5566630	-
	3	FR_MW22_HC1_1A	For Evaluation for SSGMP	Monitoring	Y	652233	5566416	Bedrock (Siltstone)
	4	FR_MW-HC1A	For Evaluation for SSGMP	Monitoring	Y	652261	5566589	Sand and Gravel
	5	FR_MW-HC1B	For Evaluation for SSGMP	Monitoring	Y	652262	5566590	Gravel (Waste Rock)
	6	FR_MW-HC2A	For Evaluation for SSGMP	Monitoring	Y	652352	5566598	Gravel
	7	FR_MW-HC2B	For Evaluation for SSGMP	Monitoring	Y	652352	5566597	Gravel and Cobbles (Waste Rock)
	8	FR_MW-HC3A	For Evaluation for SSGMP	Monitoring	Y	652580	5566548	Gravel (Colluvium)
	9	FR_MW-HC3B	For Evaluation for SSGMP	Monitoring	Y	652581	5566547	Gravel (Waste Rock)
Fording River Watershed	10	FR_MW-TB1A	For Evaluation for SSGMP	Monitoring	Draft	650891	5565248	Silt
	11	FR_MW-TB1B	For Evaluation for SSGMP	Monitoring	Draft	650901	5565248	Sand and Gravel
	12	FR_MW-TB2A	For Evaluation for SSGMP	Monitoring	Draft	650908	5565253	Sand and Gravel
	13	FR_MW-TB2B	For Evaluation for SSGMP	Monitoring	Draft	650907	5565251	Sand and Gravel
	14	FR_MW-TB2C	For Evaluation for SSGMP	Monitoring	N	650904	5565252	Gravel
	15	FR_MW-TB3A	For Evaluation for SSGMP	Monitoring	N	651011	5565267	Sandy Clay
	16	FR_MW-TB3B	For Evaluation for SSGMP	Monitoring	N	651009	5565268	Sand
	17	FR_MW-TB3C	For Evaluation for SSGMP	Monitoring	N	651009	5565271	Gravel
	18	FR_MW-TB5A	For Evaluation for SSGMP	Monitoring	N	650872	5565220	Sand and Gravel
	19	FR_MW-TB5B	For Evaluation for SSGMP	Monitoring	N	650871	5565222	Sand and Gravel
	20	FR_MW-TB6A	For Evaluation for SSGMP	Monitoring	N	650860	5565176	Sand and Gravel
	21	FR_MW-TB6B	For Evaluation for SSGMP	Monitoring	N	650857	5565175	Sand
	22	FR_MW-TB8A	For Evaluation for SSGMP	Monitoring	N	650919	5565200	Sand and Gravel
	23	FR_MW-TB8B	For Evaluation for SSGMP	Monitoring	N	650918	5565198	Gravel
	24	FR_MW-TB9A	For Evaluation for SSGMP	Monitoring	N	650848	5565252	Gravelly Clay
	25	FR_MW-TB9B	For Evaluation for SSGMP	Monitoring	N	650846	5565251	Gravel
	26	FR_MW22_TBSTSF1A	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	27	FR_MW22_TBSTSF1B	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	28	FR_MW22_TBSTSF1C	For Evaluation for SSGMP	Monitoring	N	651391	5565345	-
	29	FR_MW22_POTW1A	For Evaluation for SSGMP	Monitoring	Y	651190	5565188	Silty Sand and Silt and Sand
	30	FR_MW22_POTW1B	For Evaluation for SSGMP	Monitoring	Y	651189	5565188	Gravelly Sand and Sand and Silt
	31	FR_MW22_POTW1C	For Evaluation for SSGMP	Monitoring	Y	651189	5565187	Sandy Gravel
	32	FR_MW22_POTW2A	For Evaluation for SSGMP	Monitoring	Y	651040	5565024	Sand
	33	FR_MW22_POTW2B	For Evaluation for SSGMP	Monitoring	Y	651039	5565021	Sand and Gravel and Sand
	34	FR_MW22_POTW3A	For Evaluation for SSGMP	Monitoring	Y	651145	5565041	Siltstone and Weathered Bedrock
	35	FR_MW22_POTW3B	For Evaluation for SSGMP	Monitoring	Y	651148	5565042	Sand and Gravel
	36	FR_MW22_POTW4A	For Evaluation for SSGMP	Monitoring	N	651182	5565097	-
	37	FR_MW22_POTW4B	For Evaluation for SSGMP	Monitoring	N	651182	5565097	-
	38	FR_MW22_POTW5	For Evaluation for SSGMP	Monitoring	N	651099	5565084	-
	39	FR_MW22_POTW6A	For Evaluation for SSGMP	Monitoring	N	651023	5564991	-
	40	FR_MW22_POTW6B	For Evaluation for SSGMP	Monitoring	N	651023	5564991	-
	41	FR_MW22_POTW7	For Evaluation for SSGMP	Monitoring	N	651144	5565129	-
	42	FR_MW22_POTW8A	For Evaluation for SSGMP	Monitoring	N	651077	5565077	-
	43	FR_MW22_POTW8B	For Evaluation for SSGMP	Monitoring	N	651077	5565077	-
	44	FR_MW22_POTW9	For Evaluation for SSGMP	Monitoring	N	651121	5564997	-

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
"- " denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Fording River Watershed	45	FR_MW22_FC1_1A	For Evaluation for SSGMP	Monitoring	Draft	650935	5564677	Bedrock (Siltstone)
	46	FR_MW22_FC1_1B	For Evaluation for SSGMP	Monitoring	Draft	650936	5564677	Sand and Gravel
	47	FR_MW22_CB-1C	For Evaluation for SSGMP	Monitoring	Y	651080	5564422	Gravelly sand and Silt
	48	FR_MW22_CB-7A	For Evaluation for SSGMP	Monitoring	Y	650849	5564165	Bedrock
	49	FR_MW22_CB-7B	For Evaluation for SSGMP	Monitoring	Y	650850	5564162	Silty Sand
	50	FR_MW22_CB-7C	For Evaluation for SSGMP	Monitoring	Y	650851	5564160	Gravel Overlying Clay
	51	FR_MW22_CB-X3A	For Evaluation for SSGMP	Monitoring	Y	650939	5564528	Gravelly Clay
	52	FR_MW22_CB-X3B	For Evaluation for SSGMP	Monitoring	Y	650940	5564530	Silty Sand
	53	FR_LMA-1	For Evaluation for SSGMP	Monitoring	Y	650785	5563845	Bedrock (Fernie Formation)
	54	FR_LMA-2	For Evaluation for SSGMP	Monitoring	Y	650853	5563847	Bedrock (Fernie Formation)
	55	FR_LMA-3	For Evaluation for SSGMP	Monitoring	Y	650780	5563951	Bedrock (Fernie Formation)
	56	FR_GCMW-3A	For Evaluation for SSGMP	Monitoring	Draft	651075	5563962	Bedrock (Fernie Formation)
	57	FR_GCMW-3B	For Evaluation for SSGMP	Monitoring	Draft	651077	5563964	Clay and Cobble
	58	FR_GCMW-3C	For Evaluation for SSGMP	Monitoring	Draft	651078	5563962	Gravel/Silty Clay
	59	FR_GCMW-4A	For Evaluation for SSGMP	Monitoring	Draft	651059	5563798	Bedrock (Fernie Formation)
	60	FR_GCMW-4B	For Evaluation for SSGMP	Monitoring	Draft	651059	5563800	Clay and Gravel
	61	FR_GCMW-4C	For Evaluation for SSGMP	Monitoring	Draft	651057	5563799	Silty Clay
	62	FR_GCMW-5A	For Evaluation for SSGMP	Monitoring	Draft	651094	5563573	Bedrock (Fernie Formation)
	63	FR_GCMW-5B	For Evaluation for SSGMP	Monitoring	Draft	651092	5563576	Silty Clay/Clay
	64	FR_GCMW-5C	For Evaluation for SSGMP	Monitoring	Draft	651090	5563580	Gravel
	65	FR_MW22_GCMW-6A	For Evaluation for SSGMP	Monitoring	Y	651033	5563917	Weathered/Fractured Bedrock
	66	FR_MW22_GCMW-6B	For Evaluation for SSGMP	Monitoring	Y	651033	5563917	Silt and Clay
	67	FR_MW_R41A	For Evaluation for SSGMP	Monitoring	Draft	651291	5563908	Alluvium/Bedrock (Fernie Formation)
	68	FR_MW_R42A	For Evaluation for SSGMP	Monitoring	Draft	651293	5563898	Bedrock (Fernie Formation)
	69	FR_MW_E41A	For Evaluation for SSGMP	Monitoring	Draft	652835	5561944	Bedrock (Kootenay Group)
	70	FR_MW_E42A	For Evaluation for SSGMP	Monitoring	Draft	652829	5561958	Bedrock (Kootenay Group)
	71	FR_MW-EC1A	For Evaluation for SSGMP	Monitoring	N	651261	5562779	Sand and Gravel
	72	FR_MW-EC1B	For Evaluation for SSGMP	Monitoring	N	651261	5562779	Gravel
	73	FR_MW-EC2A	For Evaluation for SSGMP	Monitoring	N	651201	5562878	Gravelly Till
	74	FR_MW-EC2B	For Evaluation for SSGMP	Monitoring	N	651201	5562877	Gravel with Sand
	75	FR_MW-EC3A	For Evaluation for SSGMP	Monitoring	N	651330	5562916	Gravel
	76	FR_MW-EC3B	For Evaluation for SSGMP	Monitoring	N	651331	5562916	Sand and Gravel
	77	FR_MW-EC4A	For Evaluation for SSGMP	Monitoring	N	651420	5562817	Sandy Till
	78	FR_MW-EC4B	For Evaluation for SSGMP	Monitoring	N	651420	5562818	Gravel with Sand
	79	FR_09-03-A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652107	5559996	Gravelly sand
	80	FR_09-03-B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652107	5559996	Gravelly sand
	81	FR_BH-03-16	For Evaluation for RGMP / SSGMP	Monitoring	N	652097	5559837	-
	82	FR_BH-04-16	For Evaluation for RGMP / SSGMP	Monitoring	N	652195	5559886	-
	83	FR_MW22_KCWD1A	For Inclusion in SSGMP ^b	Monitoring	Draft	657212	5560555	Bedrock (Dolostone)
84	FR_MW22_KCWD1B	For Inclusion in SSGMP ^b	Monitoring	Draft	657213	5560555	Sand and Gravel	
85	FR_KB-10MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652650	5559881	Silty Gravel	
86	FR_KB-11MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652698	5559870	Gravel	
87	FR_KB-12PW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652721	5559856	Gravel	
88	FR_KB-13A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652695	5559839	Sand and Gravel	
89	FR_KB-13B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652695	5559840	Gravel	

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
"- " denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - B: Summary of "For Evaluation" Wells - Installation Details (FRO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Fording River Watershed	90	FR_KB-14MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652738	5559753	Sandy gravel
	91	FR_KB-15MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652756	5559695	Gravel
	92	FR_KB-16MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652773	5559643	Clayey sand
	93	FR_KB-17MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652769	5559871	Gravel
	94	FR_KB-18MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652834	5559840	Gravel
	95	FR_KB-19MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652888	5559879	Gravel
	96	FR_KB-20MW	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652949	5559837	Gravel
	97	RG_MW_FR2A	For Evaluation for RGMP	Monitoring	Y	653499	5556756	Sand and Gravel
	98	RG_MW_FR2B	For Evaluation for RGMP	Monitoring	Y	653500	5556755	Gravel
	99	RG_MW_FR3A	For Evaluation for RGMP	Monitoring	Y	653233	5556777	Sand and Gravel
	100	RG_MW_FR3B	For Evaluation for RGMP	Monitoring	Y	653233	5556778	Sand and Gravel
	101	RG_MW_FR4A	For Evaluation for RGMP	Monitoring	Y	653496	5556366	Gravel
	102	RG_MW_FR4B	For Evaluation for RGMP	Monitoring	Y	653496	5556368	Sand
	103	RG_MW_FR5A	For Evaluation for RGMP	Monitoring	Y	653572	5556260	Clayed Sand
	104	RG_MW_FR5B	For Evaluation for RGMP	Monitoring	Y	653573	5556257	Sand and Gravel
	105	RG_MW_FR5C	For Evaluation for RGMP	Monitoring	Y	653570	5556259	Sand and Gravel
	106	RG_MW_FR6A	For Evaluation for RGMP	Monitoring	Y	653598	5556055	Sand and Gravel
	107	RG_MW_FR6B	For Evaluation for RGMP	Monitoring	Y	653596	5556055	Sand and Gravel
	108	RG_MW_FR7A ^c	For Evaluation for RGMP	Monitoring	Y	653634	5555487	Sand
	109	RG_MW_FR7B ^c	For Evaluation for RGMP	Monitoring	Y	653634	5555484	Sand and Gravel
110	RG_MW22_FR12A	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Bedrock (Shale)	
111	RG_MW22_FR12B	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand and Gravel	
112	RG_MW22_FR12C	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand	
113	RG_MW22_FR12D	For Evaluation for RGMP	Monitoring	Draft	653619	5555473	Sand and Gravel	
114	RG_MW22_FR13A	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Bedrock	
115	RG_MW22_FR13B	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Gravelly Silt	
116	RG_MW22_FR13C	For Evaluation for RGMP	Monitoring	Draft	654995	5553975	Sand	
117	RG_MW22_FR14A	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Bedrock	
118	RG_MW22_FR14B	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Sand	
119	RG_MW22_FR14C	For Evaluation for RGMP	Monitoring	Draft	655375	5553124	Gravel	
Swift Creek	120	FR_MW20-01S	For Evaluation for SSGMP	Monitoring	Y	652228	5558245	Unconsolidated material
	121	FR_MW20-01D	For Evaluation for SSGMP	Monitoring	Y	652229	5558243	Bedrock (Spray River Fm)
	122	FR_MW20-02S	For Evaluation for SSGMP	Monitoring	Y	652176	5558374	Unconsolidated material
	123	FR_MW20-02D	For Evaluation for SSGMP	Monitoring	Y	652177	5558373	Bedrock (Spray River Fm)
	124	FR_MW20-03S	For Evaluation for SSGMP	Monitoring	Y	652187	5558166	Unconsolidated material
	125	FR_MW20-03D	For Evaluation for SSGMP	Monitoring	Y	652187	5558167	Bedrock (Spray River Fm)
Cataract Creek	126	FR_MW22_CC1A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652434	5557526	Bedrock (Spray River Fm)
	127	FR_MW22_CC1B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652435	5557525	Silt and Bedrock
	128	FR_MW22_CC2A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652516	5557519	Bedrock (Spray River Fm)
	129	FR_MW22_CC2B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652515	5557520	Bedrock (Spray River Fm)
	130	FR_MW22_CC2C	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652514	5557518	Overburden, Sand and Gravel
	131	FR_MW22_CC3A	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557492	Bedrock (Spray River Fm)
	132	FR_MW22_CC3B	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557491	Bedrock (Spray River Fm)
	133	FR_MW22_CC3C	For Evaluation for RGMP / SSGMP	Monitoring	Draft	652524	5557491	Silt

Notes:
a: SSGMP denotes FRO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.
b: Based on recommendations in 2022 SSGMP/RGMP Annual Report.
c: well decommissioned in 2022
^c denotes data not available.
Draft borehole logs are subject to change.
Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Greenhills Creek Watershed (Fording River Valley)	1	GH_MW_GHC_2A	For Evaluation for SSGMP	Monitoring	Y	653699	5546782	Bedrock
	2	GH_MW_GHC_3B	For Evaluation for SSGMP	Monitoring	Y	653615	5546508	Bedrock
	3	GH_MW_E1_1A	For Evaluation for SSGMP	Monitoring	Y	653158	5546210	Bedrock
	4	GH_POTW06	For Evaluation for RGMP	Supply	Y	653494 ^b	5545826 ^b	Sand and Gravel
	5	GH_MW_FR1A	For Evaluation for RGMP	Monitoring	Y	653461	5545629	Sand and Gravel
	6	GH_MW_FR1B	For Evaluation for RGMP	Monitoring	Y	653460	5545627	Silt and Clay
	7	GH_MW_FR2A	For Evaluation for RGMP	Monitoring	Y	654322	5545366	Sand and Gravel
	8	GH_MW_FR2B	For Evaluation for RGMP	Monitoring	Y	654323	5545365	Sand and Gravel
	9	GH_MW_FR3A	For Evaluation for RGMP	Monitoring	Y	653086	5545568	Bedded Sand and Gravel / Silt and Clay
	10	GH_MW_FR3B	For Evaluation for RGMP	Monitoring	Y	653087	5545568	Bedded Sand and Gravel / Silt and Clay
	11	GH_MW_FR4A	For Evaluation for RGMP	Monitoring	Y	653169	5545821	Gravel, Silt and Clay
	12	GH_MW_FR4B	For Evaluation for RGMP	Monitoring	Y	653171	5545820	Sandy Silt and Clay
	13	GH_MW_FR5A	For Evaluation for RGMP	Monitoring	Y	653288	5545477	Sandy Gravel, some silt
	14	GH_MW_FR5B	For Evaluation for RGMP	Monitoring	Y	653287	5545478	Sand and Gravel, some silt
	15	GH_MW_FR6	For Evaluation for RGMP	Monitoring	Y	653861	5545301	Sand and Gravel, some silt
	16	GH_MW_FR7	For Evaluation for RGMP	Monitoring	Y	653753	5545432	Sand and Gravel, some silt
	17	GH_MW_FR8A	For Evaluation for RGMP	Monitoring	Y	654146	5545205	Sand bedded with fines
	18	GH_MW_FR8B	For Evaluation for RGMP	Monitoring	Y	654146	5545207	Sand and Gravel

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Greenhills Creek Watershed (Fording River Valley)	19	RG_MW_LC3C	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648181	5552738	Clay and Gravel
	20	RG_MW_ER1A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648900	5548591	Sand and Gravel
	21	RG_MW_ER1B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648899	5548590	Gravel
	22	RG_MW_ER2A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	649044	5548451	Sandy Clay/Silty Sand
	23	RG_MW_ER2B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	649043	5548451	Gravel
	24	RG_MW_ER3A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648288	5550080	Sand and Gravel
	25	RG_MW_ER3B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648288	5550080	Sand and Gravel
	26	RG_MW_ER4A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648300	5549330	Sand and Gravel
	27	RG_MW_ER4B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648300	5549329	Sand and Gravel
	28	RG_MW_ER5A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648692	5549074	Bedrock
	29	RG_MW_ER5B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648691	5549074	Sand and Gravel
	30	RG_MW_ER6A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549334	Bedrock
	31	RG_MW_ER6B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel
	32	RG_MW_ER7A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549334	Bedrock
	33	RG_MW_ER7B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel
34	RG_MW_ER8	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648580	5549333	Sand and Gravel	

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - C: Summary of "For Evaluation" Wells - Installation Details (GHO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Elk River Valley	35	RG_MW_ER9A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648386	5551764	Sand, some silt
	36	RG_MW_ER9B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648392	5551766	Sand and Gravel
	37	RG_MW_ER10A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648928	5548902	Sandy Gravel
	38	RG_MW_ER10B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648928	5548903	Sandy Gravel
	39	RG_MW_ER11A	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648840	5548753	Gravelly Silt
	40	RG_MW_ER11B	For Evaluation for SSGMP (MBI Well)	Monitoring	Y	648840	5548754	Sand and Gravel
	41	GH_MW_LC1-A	For Evaluation for SSGM/RGMP	Monitoring	Y	648131	5552871	Silty Gravel
	42	GH_MW_LC1-B	For Evaluation for SSGM/RGMP	Monitoring	Y	648131	5552870	Sand and Gravel
	43	GH_MW_LC2-A	For Evaluation for SSGM/RGMP	Monitoring	Y	648158	5552978	Sand and Gravel
	44	GH_MW_LC2-B	For Evaluation for SSGM/RGMP	Monitoring	Y	648159	5552979	Sand and Gravel
	45	GH_MW_WC1-A	For Evaluation for SSGM/RGMP	Monitoring	Y	647987	5552217	Sand and Gravel
	46	GH_MW_WC1-B	For Evaluation for SSGM/RGMP	Monitoring	Y	647987	5552217	Sand and Gravel
	47	GH_MW_WC1-C	For Evaluation for SSGM/RGMP	Monitoring	Y	647985	5552218	Sand and Gravel

Notes:

a: SSGMP denotes GHO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

TABLE XIV - D: Summary of "For Evaluation" Wells - Installation Details (LCO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
LCO Phase II Dry Creek	1	LC_MW22_DCDS-1A	For Evaluation for SSGMP	Monitoring	N	-	-	-
	2	LC_MW22_DCDS-1C	For Evaluation for SSGMP	Monitoring	N	-	-	-
LCO Phase I Upper Line Creek (Tornado Creek)	3	LC_MW_LC1-1A	For Evaluation for SSGMP	Monitoring	Y	661955	5538176	Gravel
	4	LC_MW22_LC1-1ABR	For Evaluation for SSGMP	Monitoring	Draft	661957	5538175	Bedrock (Shale)
	5	LC_MW_LC1-2A	For Evaluation for SSGMP/RGMP	Monitoring	Y	662008	5538214	Gravel, Sand, Cobbles and Sand
	6	LC_MW_LC1-3A	For Evaluation for SSGMP	Monitoring	Y	661990	5538247	Gravel, Sand
West Line Creek	7	LC_MW_WLC-1A	For Evaluation for SSGMP	Monitoring	Y	659753	5532228	Gravel
	8	LC_MW_WLC-2A	For Evaluation for SSGMP	Monitoring	Y	659869	5532370	Gravel
	9	LC_MW_WLC-3A	For Evaluation for SSGMP	Monitoring	Y	659583	5532281	Gravel
Process Plant	10	RG_MW_LC4A	For Evaluation for RGMP	Monitoring	Y	655533	5528823	Bedrock - shale
	11	RG_MW_LC4B	For Evaluation for RGMP	Monitoring	Y	655535	5528823	Sand and Gravel
	12	LC_MW_ERX1A	For Evaluation for SSGMP	Monitoring	Y	655036	5526827	Bedrock - shale
	13	LC_MW_ERX1B	For Evaluation for SSGMP	Monitoring	Y	655035	5526832	Silty Gravel
	14	LC_MW_SRD1A	For Evaluation for SSGMP	Monitoring	Y	653604	5526818	Silty Clay
	15	LC_MW_SRD1B	For Evaluation for SSGMP	Monitoring	Y	653601	5526820	Sand and Gravel
	16	LC_MW_SRD2A	For Evaluation for SSGMP	Monitoring	Y	653885	5525984	Sandy Clay
	17	LC_MW_SRD2B	For Evaluation for SSGMP	Monitoring	Y	653885	5525983	Gravel

Notes:

a: SSGMP denotes LCO Site-Specific Groundwater Monitoring Program; RGMP denotes Regional Groundwater Monitoring Program.

"-" denotes data not available.

Draft borehole data is subject to change.

Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

TABLE XIV - E: Summary of "For Evaluation" Wells - Installation Details (EVO)

Area	Count	Well ID	Monitoring Program ^a	Well Type	Final Borehole Log (Y/N/Draft)	Coordinates (UTM NAD 83)		Screened Formation
						Easting	Northing	
Erickson Creek and Michel Creek Downstream of Erickson Creek (Study Area 10)	1	EV_MW_EC3A	For Evaluation for SSGMP	Monitoring	Y	660840	5506540	Sand and Gravel
	2	EV_MW_EC3B	For Evaluation for SSGMP	Monitoring	Y	660842	5506516	Sand
Road Crew Shop	3	EV_MW22_RCSgw_1A	For Evaluation for SSGMP	Monitoring	Draft	655899	5509281	Sand
	4	EV_MW22_RCSgw_1B	For Evaluation for SSGMP	Monitoring	Y	655902	5509281	Sand
	5	EV_MW22_RCSgw_1C	For Evaluation for SSGMP	Monitoring	Y	655902	5509280	Sand
Near BCgw	6	EV_MW22_BCgw_1A	For Evaluation for SSGMP	Monitoring	Y	655385	5509655	Gravel
	7	EV_MW22_BCgw_1B	For Evaluation for SSGMP	Monitoring	Y	655386	5509656	Sand and Gravel
Near MC2B	8	EV_MW22_MC2C	For Evaluation for SSGMP	Monitoring	Y	654751	5510511	Gravel
MC3 (D1)	9	EV_MW22_MC3B	For Evaluation for SSGMP	Monitoring	Y	653660	5510983	Sand and Gravel
Grave Creek	10	EV_MW22_GV5A	For Evaluation for SSGMP	Monitoring	Draft	659300	5523750	Sand and Gravel
	11	EV_MW22_GV5B	For Evaluation for SSGMP	Monitoring	Draft	659299	5523749	Sand and Gravel

Notes:

a: SSGMP denotes EVO Site-Specific Groundwater Monitoring Program

Draft borehole data is subject to change.

Also considered For Evaluation as a Background well for the Regional Groundwater Monitoring Program (RGMP)

Borehole Logs

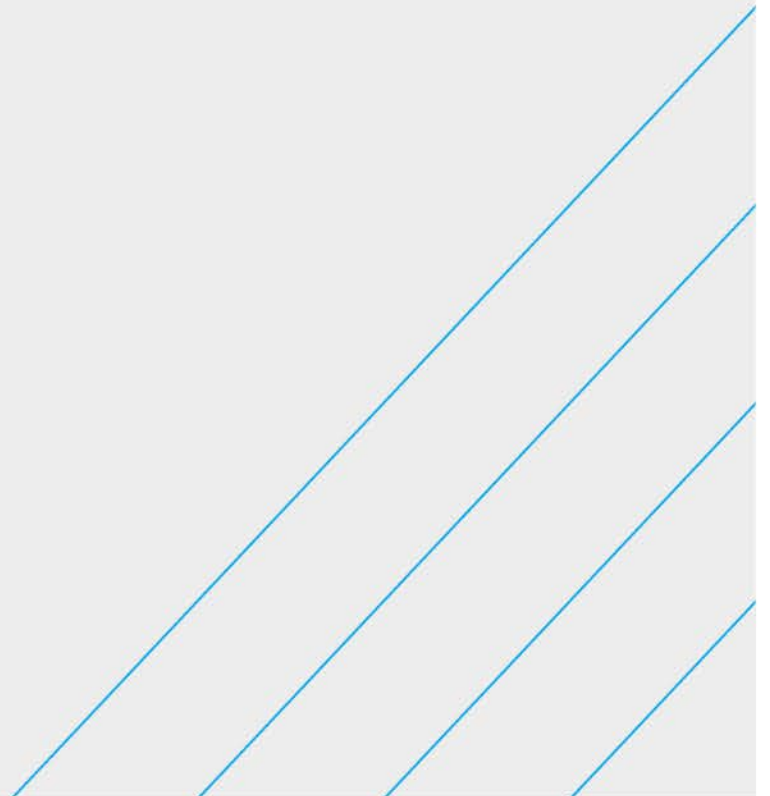
Background Borehole Logs – Wells For Evaluation

Fording River Operations Borehole Logs – Wells For Evaluation

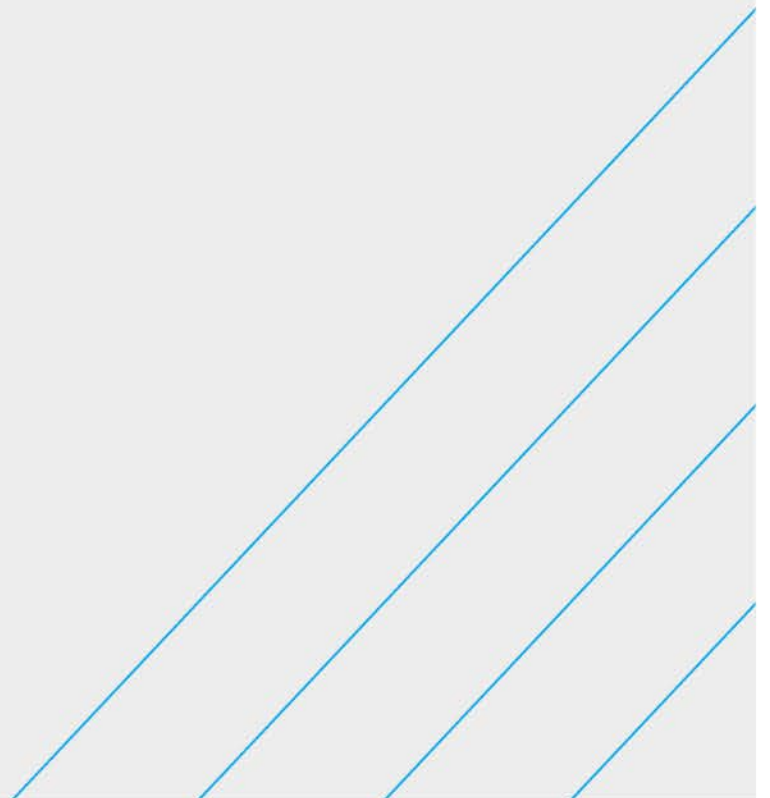
Greenhills Operations Borehole Logs – Wells For Evaluation

Line Creek Operations Borehole Logs – Wells For Evaluation

Elkview Operations Borehole Logs – Wells For Evaluation



Background Borehole Logs – Wells for Evaluation



Teck Coal Limited

Borehole No: LC_MW_HC-1A

Project: LCO Phase 2 Water Treatment

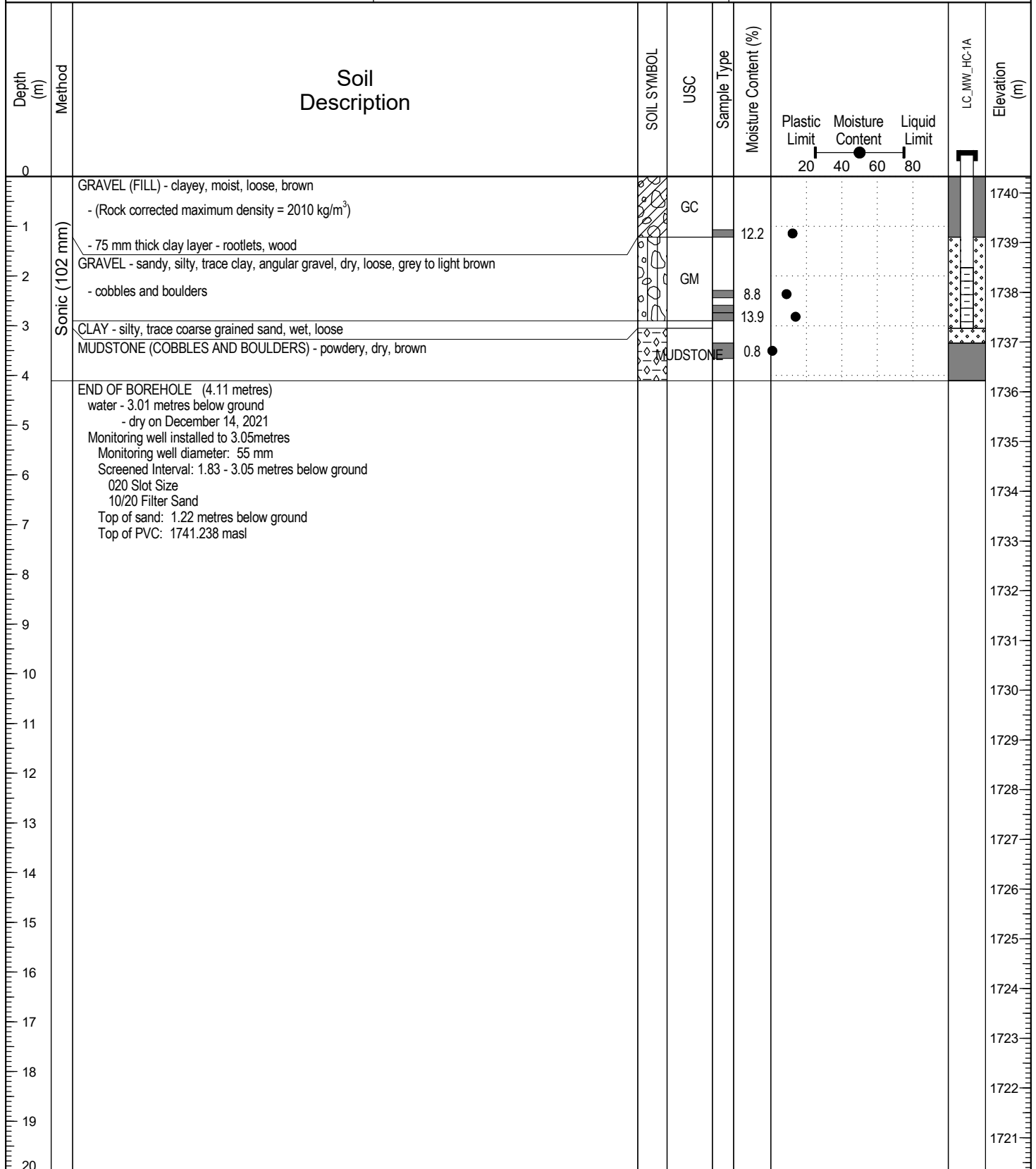
Project No: ENW.GENV03056-01

Location: Horseshoe Creek

Ground Elev: 1740.33 m

Elk Valley, British Columbia

UTM: 663089.16 E; 5535741.73 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 4.11 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 7

Logged By: Carl Forkheim

Completion Date: 2021 December 7

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_HC-2A

Project: LCO Phase 2 Water Treatment

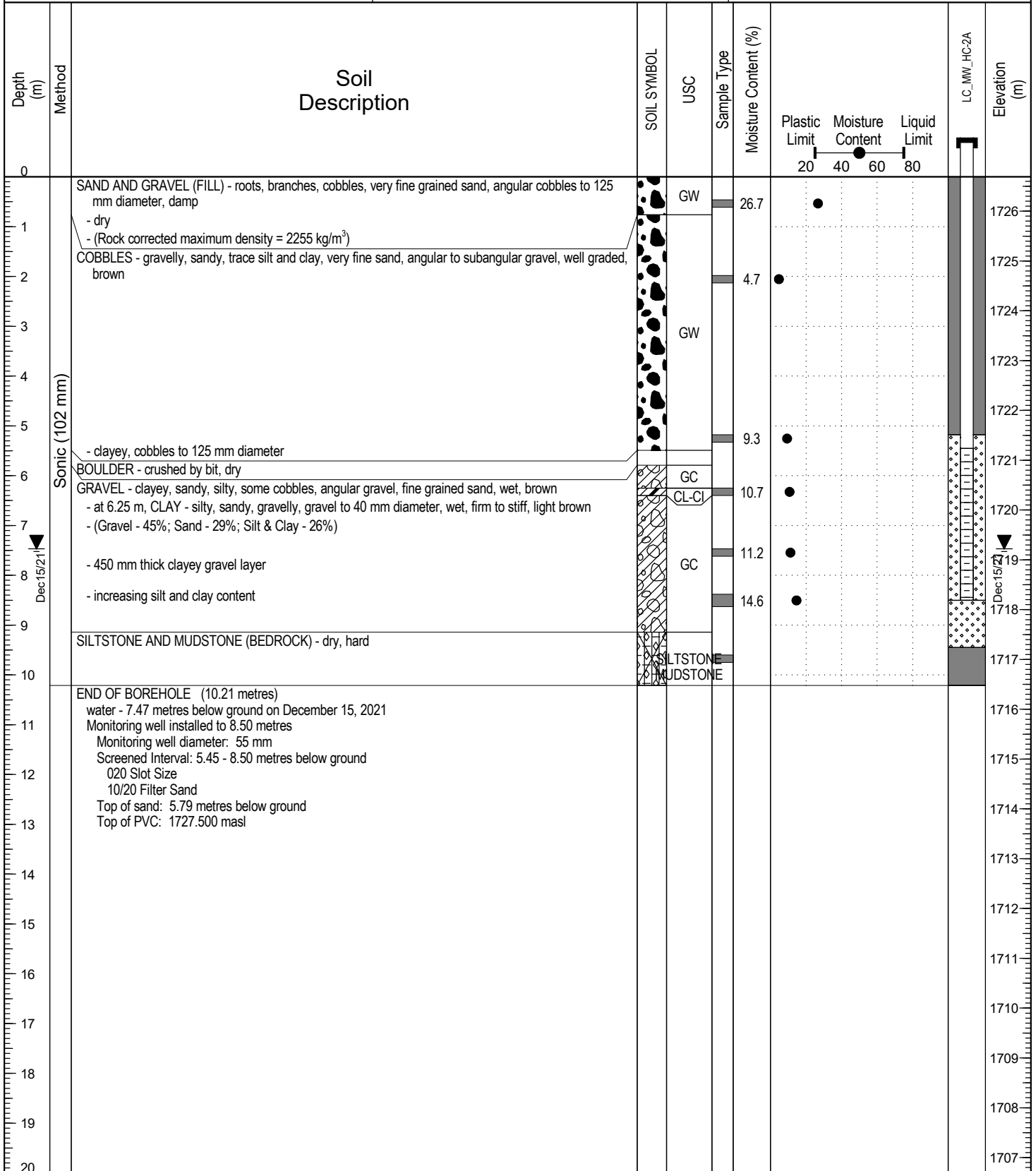
Project No: ENW.GENV03056-01

Location: Horseshoe Creek

Ground Elev: 1726.69 m

Elk Valley, British Columbia

UTM: 662979.57 E; 5535813.54 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 10.21 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 8

Logged By: Carl Forkheim

Completion Date: 2021 December 8

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_HC-3A

Project: LCO Phase 2 Water Treatment

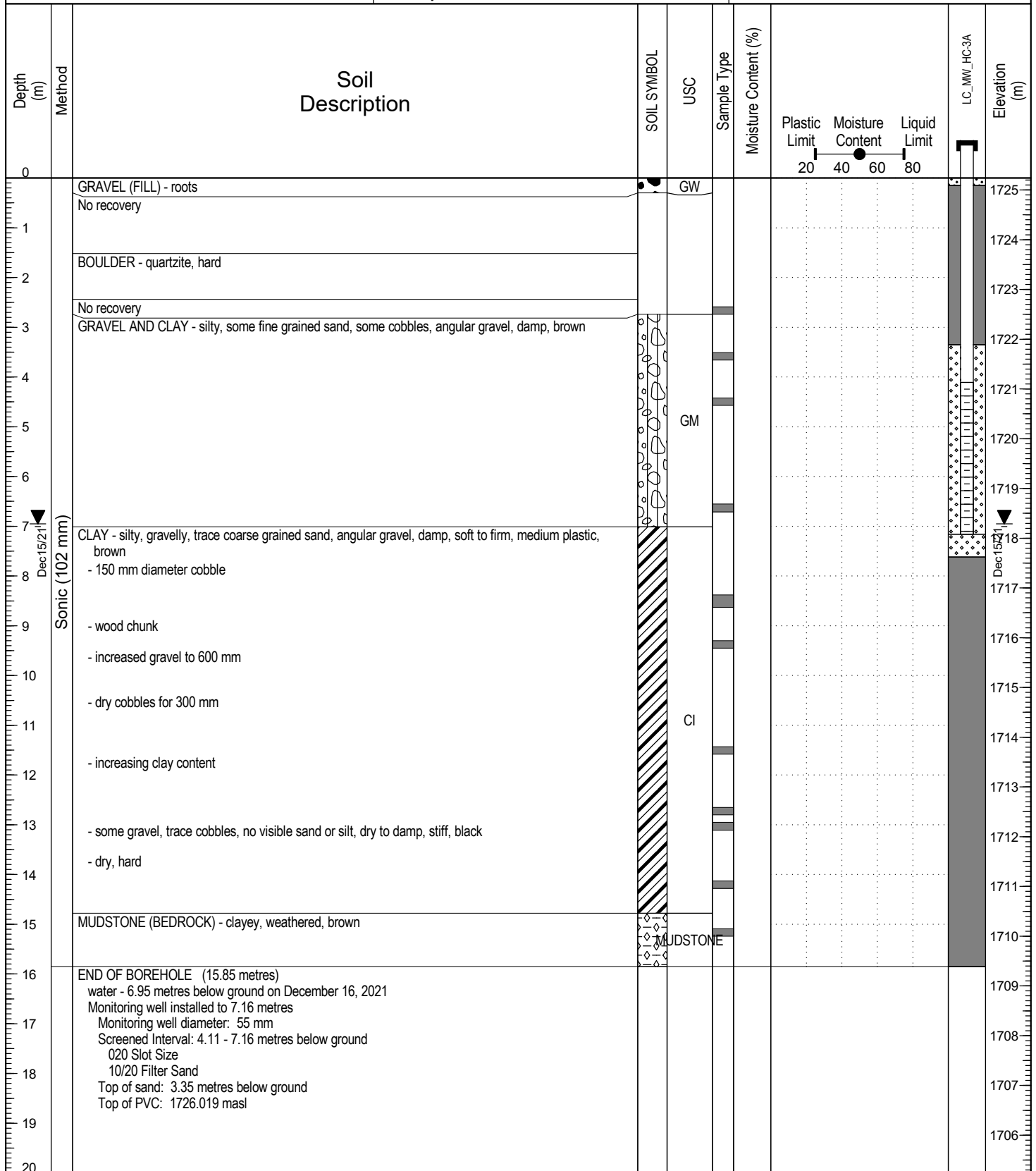
Project No: ENW.GENV03056-01

Location: Horseshoe Creek

Ground Elev: 1725.24 m

Elk Valley, British Columbia

UTM: 662799.92 E; 5535787.26 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 15.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 9

Logged By: Carl Forkheim

Completion Date: 2021 December 9

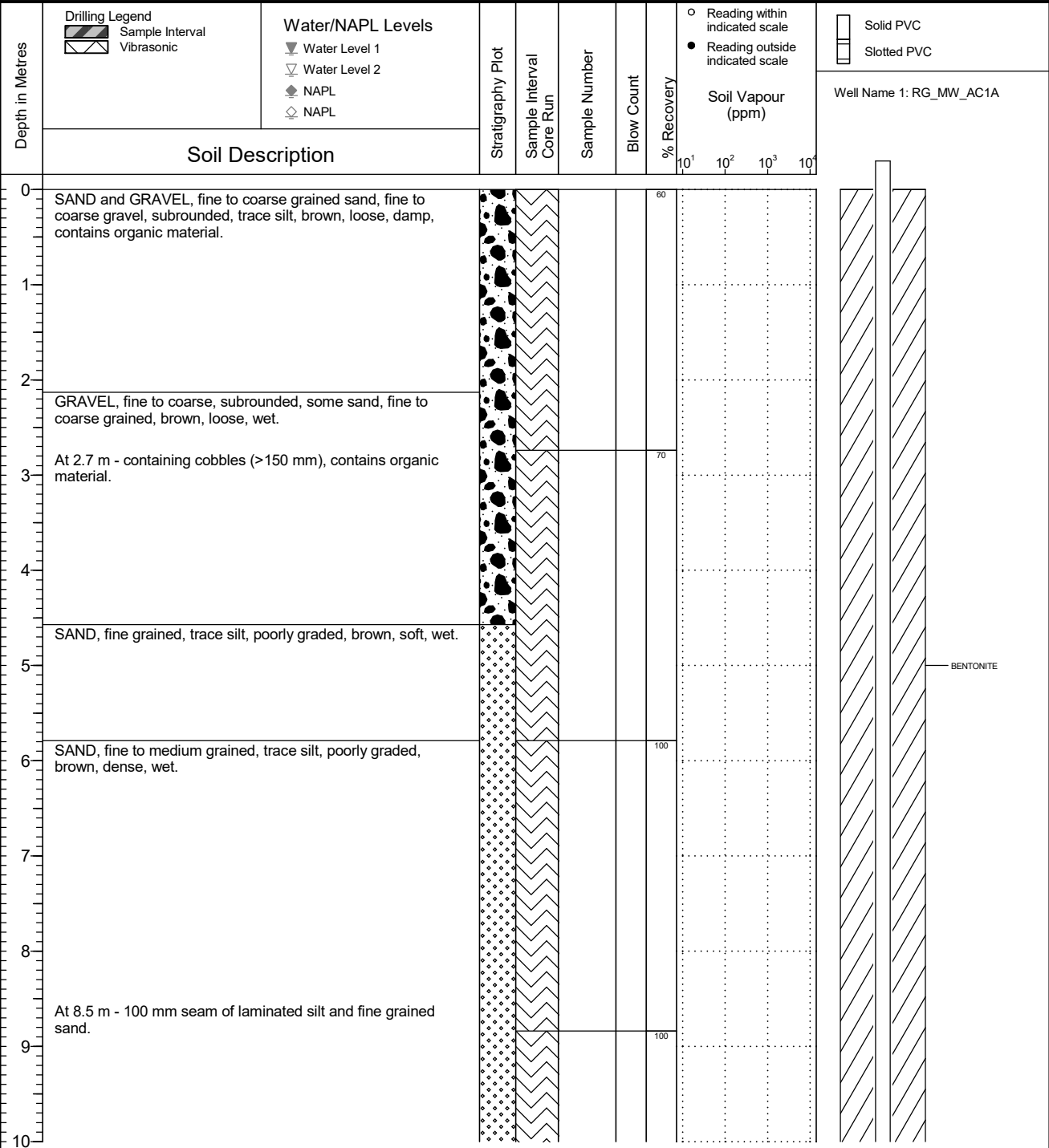
Reviewed By: Stephan Klump

Page 1 of 1

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_AC1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.926 Top of Casing Elev. (m): 1304.821 Northing: 5502845.016 Easting: 663652.864	Project Number: 683032 Borehole Logged By: AH Date Drilled: 2021 09 13 Log Typed By: VL
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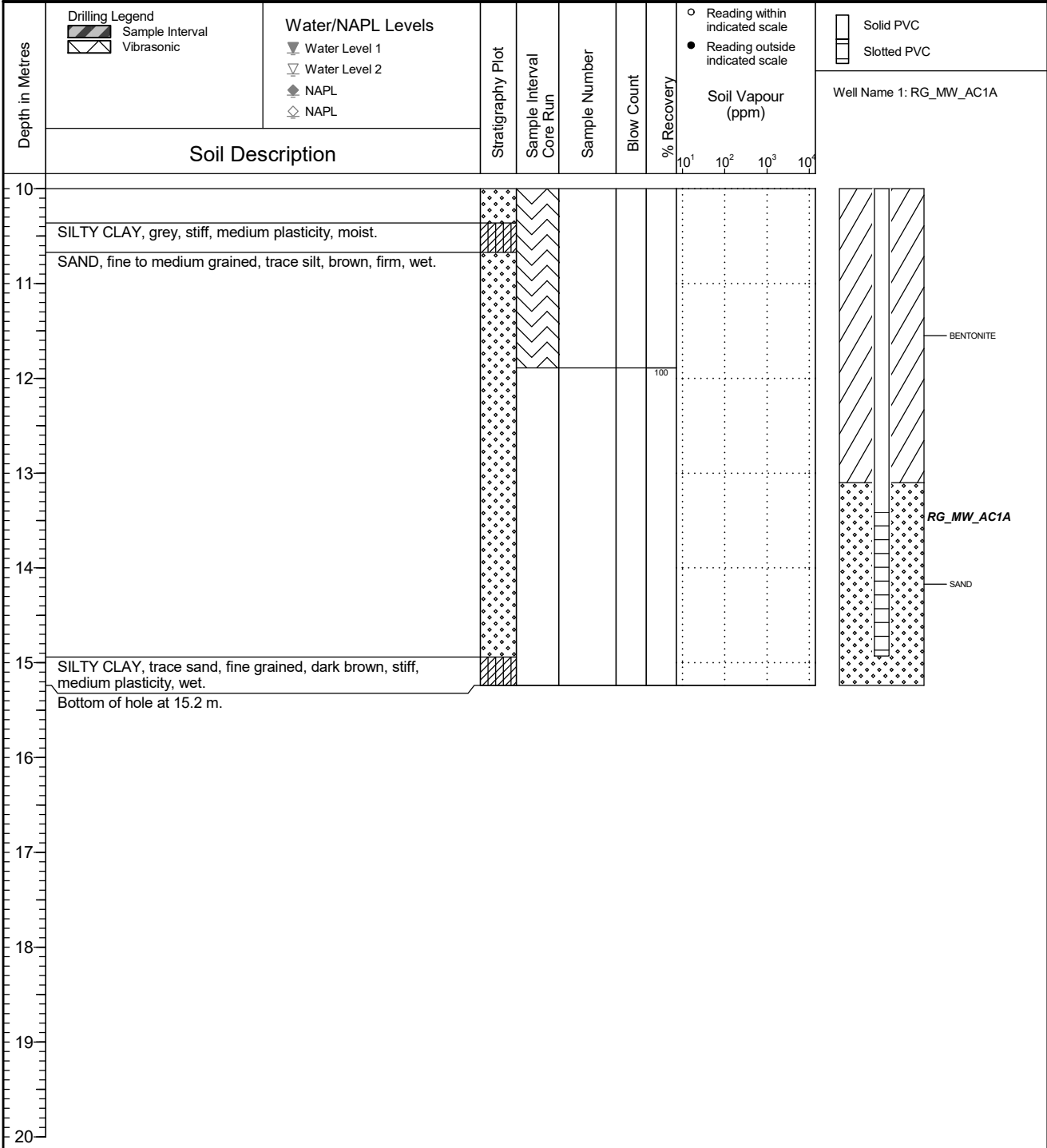


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_AC1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.926 Top of Casing Elev. (m): 1304.821 Northing: 5502845.016 Easting: 663652.864	Project Number: 683032 Borehole Logged By: AH Date Drilled: 2021 09 13 Log Typed By: VL
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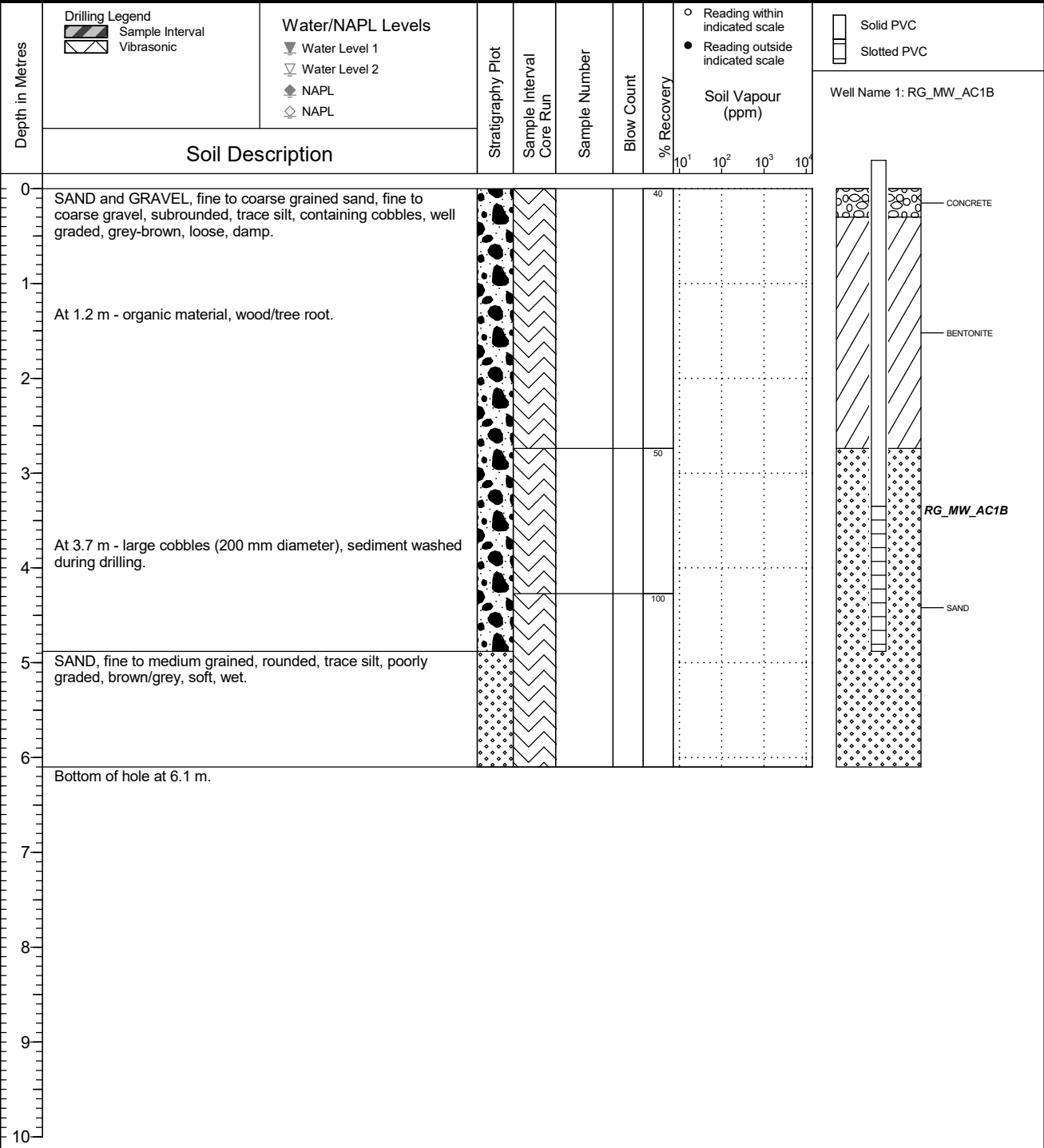


NOTES

FINAL

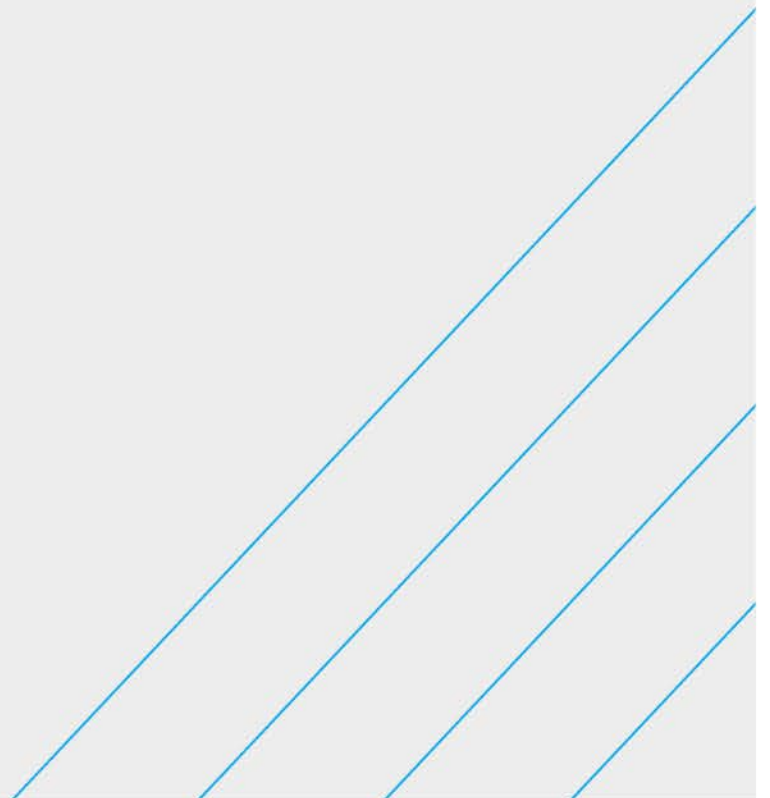
	Client Teck Coal Limited	Borehole No. : RG_BH_AC1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1303.989 Top of Casing Elev. (m): 1304.831 Northing: 5502844.815 Easting: 663654.387	Project Number: 683032 Borehole Logged By: MM/AH Date Drilled: 2021 09 14 Log Typed By: VL
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NOTES

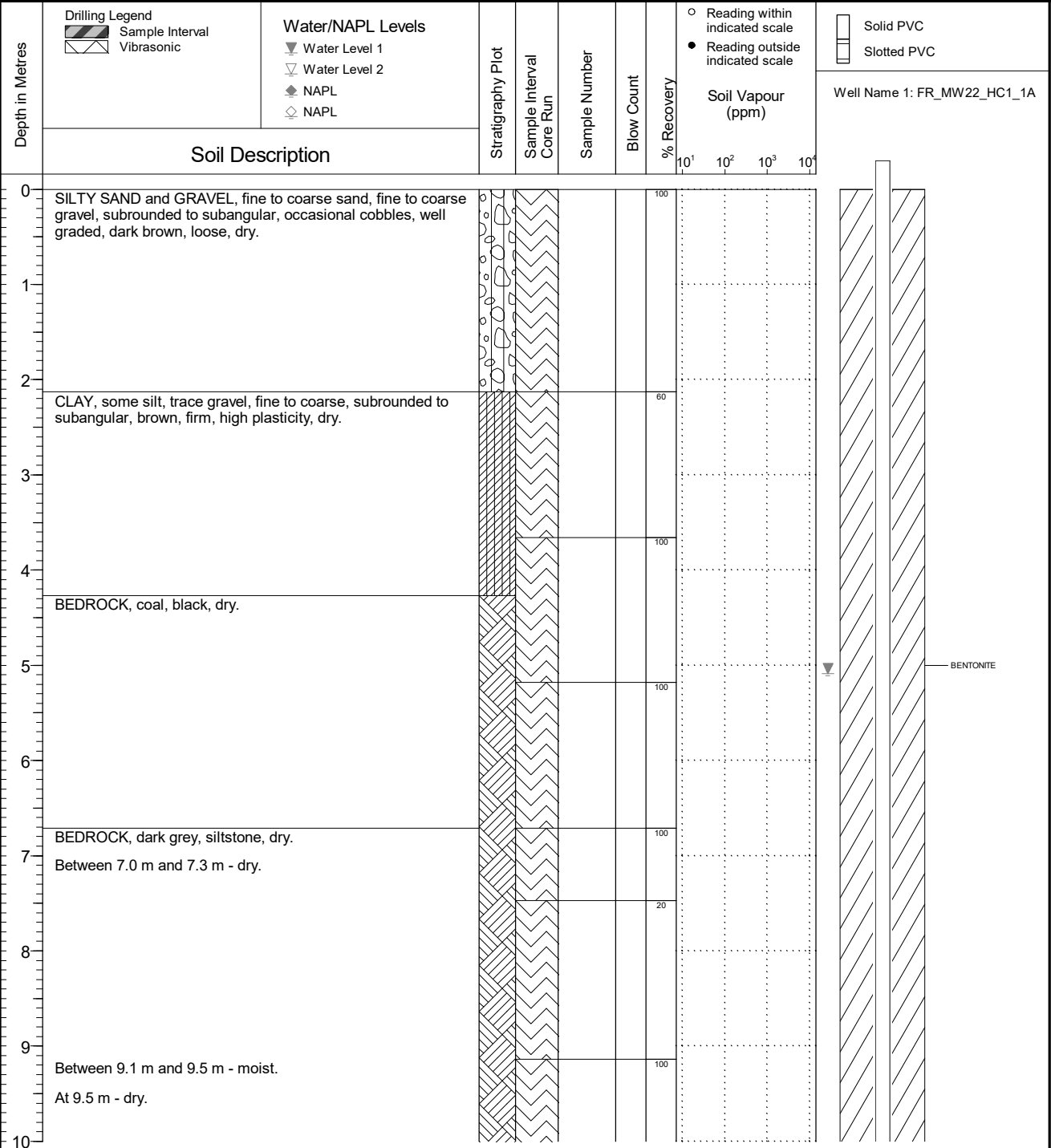
Fording River Operations Borehole Logs – Wells for Evaluation



FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_HC1_1A
	Location FRO - Henretta Creek Valley	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 19 Ground Surface Elev. (m): 1718.443 Top of Casing Elev. (m): 1719.269 Northing: 5566416.227 Easting: 652232.660	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 18 Log Typed By: LC
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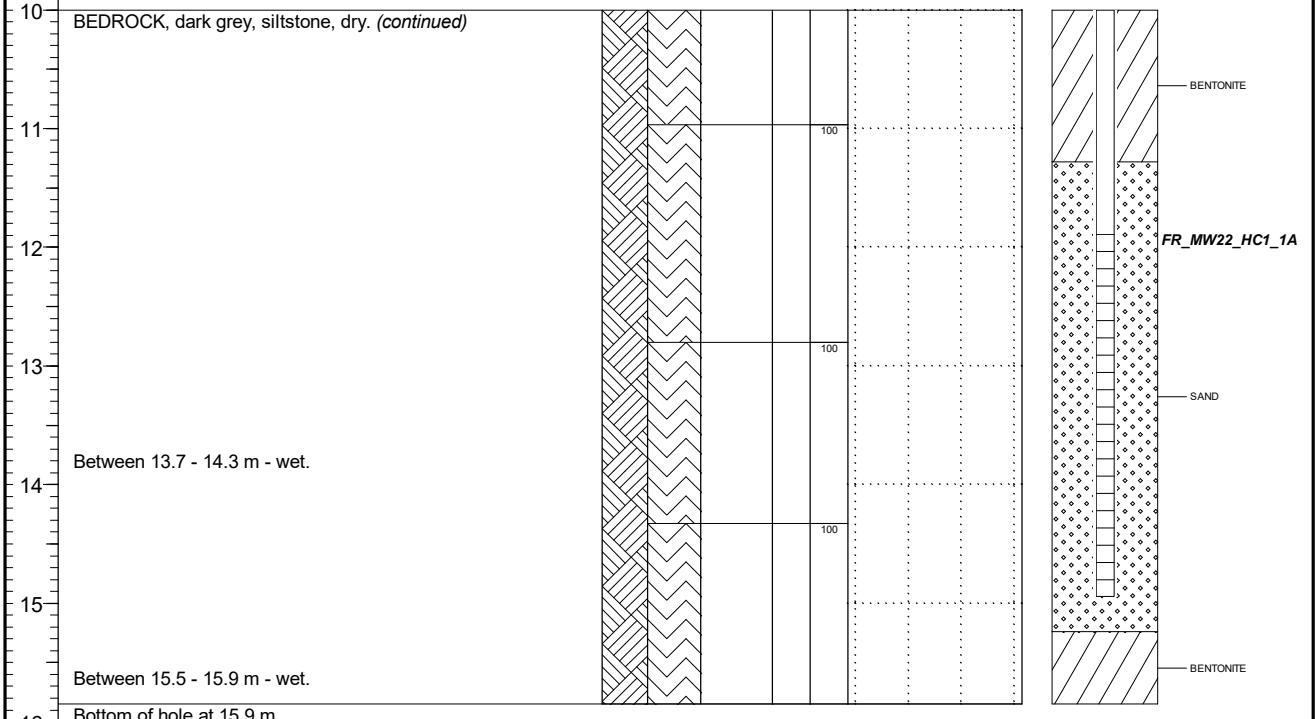
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_HC1_1A
	Location FRO - Henretta Creek Valley	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 19 Ground Surface Elev. (m): 1718.443 Top of Casing Elev. (m): 1719.269 Northing: 5566416.227 Easting: 652232.660	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 18 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_HC1_1A
	Soil Description								



NOTES

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				COBBLES (0.0 m to 1.5 m) Gravelly, some silt, well graded, loose, angular, brown, dry, trace coal. [WASTE ROCK]							
1				0.8 m to 1.1 m - COAL Fractured, low grade, black, dry.							
2				GRAVEL (1.5 m to 4.3 m) Some silt, trace sand, well graded, angular to subangular, brown, dry, trace coal. [WASTE ROCK]							
3				3.0 m - Becomes GRAVEL, trace clay, trace cobble, dark grey.							
4				COAL (4.3 to 4.6 m) Fractured, black, dry, friable.							
5				SAND (4.6 m to 6.5 m) Gravelly, trace silt, well graded, angular, brown, dry. [WASTE ROCK]							
6		G01		COAL (6.5 m to 7.6 m) Pulverized, loose, dry, black.							
7				BOULDER (7.6 m to 9.4 m) Pulverized, loose, brown to grey, dry. [WASTE ROCK]							
8				GRAVEL (9.4 m to 11.9 m) Trace sand, trace cobble, trace silt, well graded, brown to grey, angular, dry, trace staining. [WASTE ROCK]							

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
10				GRAVEL (9.4 m to 11.9 m) Trace sand, trace cobble, trace silt, well graded, brown to grey, angular, dry, trace staining. [WASTE ROCK]							
11				11.5 m - Some cobbles.							
12				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]							
13		G02									
14				14.5 m - Becomes brown.							
15				15.7 m - Becomes some clay, subrounded, trace staining.							
16		G03									
17				16.7 m - Some cobbles.							
18											
19											
20											

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
20				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]								
21												
22												
23				22.7 m - Becomes sandy, some silt, trace cobble, subrounded to subangular, compact.								
24		G04										
25				25.1 m - Fractured boulder, dry, grey.								
26												
27												
28				28.3 m - Becomes black, some coal.								
29												
30												

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,261E, 5,566,589N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 44.2

Start Date: 30/07/2021
 Finish Date: 31/07/2021
 Final Depth of Hole (m): 44.2
 Depth to Top of Rock (m): 41.1
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				GRAVEL (11.9 m to 30.7 m) Some sand, trace silt, trace cobble, well graded, black, moist, trace coal. [WASTE ROCK]							
31				BOULDER (30.7 m to 31.2 m) Fractured, dry, grey.							
32				SAND AND GRAVEL (31.2 m to 32.0 m) Trace cobble, trace silt, well graded, loose, subangular, brown grey, dry, some coal. [WASTE ROCK]							
33				GRAVEL (32.0 m to 37.3 m) Trace cobble, some sand, well graded, angular to subangular, dark brown, wet. [WASTE ROCK]							
34											
35											
36		G05								Sample G05 (35.9 m to 36.1 m): Grain size analysis - Gravel 86%, Sand 14%, Fines 0%.	
37											
38				GRAVEL (37.3 m to 39.0 m) Silty, trace cobble, trace sand, rounded to subrounded, black, moist, some orange, brown and yellow staining, humus rich. [POSSIBLE ORIGINAL GROUND SURFACE]							
39				BOULDER (39.0 m to 39.9 m) Pulverized, grey to white, dry.							
40											

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,261E, 5,566,589N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 44.2

Start Date: 30/07/2021
Finish Date: 31/07/2021
Final Depth of Hole (m): 44.2
Depth to Top of Rock (m): 41.1
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
40		G06		SAND AND GRAVEL (39.9 m to 41.1 m) Silty, subrounded to subangular, loose, black, wet, trace weathering, humus rich.						Sample G06 (40.7 m to 40.9 m): Grain size analysis - Gravel 37%, Sand 40%, Fines 22%.	
41				BEDROCK (41.1 m to 44.2 m) Dry, friable, grey.							
42											
43											
44											
45				END OF DRILL HOLE AT 44.2 m Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC1A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 39.5 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 39.5 mbgs to 41.0 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 39.2 m bgs to 41.5 m bgs, bentonite chips from surface to 39.2 m bgs, and from 41.5 m bgs to 44.2 m bgs. 6. The monitoring well was completed at surface with 0.85 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 30.1 m bgs on August 2, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
46											
47											
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49											
50											

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
0				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.							
1											
2											
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4											
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6											
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10											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,262E, 5,566,590N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 36.3

Start Date: 01/08/2021
 Finish Date: 01/08/2021
 Final Depth of Hole (m): 36.3
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.								
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,262E, 5,566,590N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 36.3

Start Date: 01/08/2021
 Finish Date: 01/08/2021
 Final Depth of Hole (m): 36.3
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
20				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.							
21											
22											
23											
24											
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29											
30											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,262E, 5,566,590N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 36.3

Start Date: 01/08/2021
Finish Date: 01/08/2021
Final Depth of Hole (m): 36.3
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				[WASTE ROCK] Refer to twin hole FR_MW-HC1A log for detailed lithological description.	▼ 02/08/21						
31											
32											
33											
34											
35											
36											
37				END OF DRILL HOLE AT 36.3 m							
38				Notes: 1. Monitoring well (FR_MW-HC1B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 32.9 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 32.9 m bgs to 36 m bgs. 2. The monitoring well was completed with 10-20 filter sand from 32.6 m bgs to 36.3 m bgs, and bentonite chips from surface to 32.6 m bgs. 3. The monitoring well was completed at surface with 0.79 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 30.3 m bgs on August 2, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
39											
40											

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				GRAVEL (0.0 m to 2.1 m) Some sand, trace cobble, trace silt, well graded, loose, angular, grey to brown, dry, homogeneous, trace weathering, trace coal. [WASTE ROCK]							
1											
2		G01		GRAVEL AND SAND (2.1 m to 4.6 m) Trace cobble, some silt, well graded, loose, angular to subangular, dry, brown grey. [WASTE ROCK]							
3											
4				4.3 m - Becomes GRAVEL, some sand, compact, brown, moist.							
5				SAND (4.6 m to 7.0 m) Gravelly, well graded, subangular, loose, grey, dry, homogeneous. [WASTE ROCK]							
6											
7				GRAVEL (7.0 m to 13.7 m) Some sand, trace silt, trace cobble, well graded, angular, dark brown, dry, some coal. [WASTE ROCK]							
8		G02									
9											
10				9.9 m - Boulder, fractured, loose, dry, grey.							

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,598N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 64.0

Start Date: 27/07/2021
Finish Date: 29/07/2021
Final Depth of Hole (m): 64.0
Depth to Top of Rock (m): 62.3
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p ,% X	W _L ,% O	W _U ,% X		
10				GRAVEL (7.0 m to 13.7 m) Some sand, trace silt, trace cobble, well graded, angular, dark brown, dry, some coal. [WASTE ROCK]							
11											
12				12.0 m to 13.1 m - COAL Low grade, fractured, loose, black, dry.							
13											
14				SAND (13.7 m to 18.5 m) Some gravel, angular to subangular, brown, dry. [WASTE ROCK]							
15		G03									
16				15.4 m to 16.0 m - COAL Low grade, fractured, loose, black, dry.							
17				17.3 m - Boulders, fractured, dry.							
18											
19				GRAVEL (18.5 m to 26.9 m) Trace silt, trace sand, trace clay, well graded, friable, angular to subangular, grey, moist. [WASTE ROCK]							
20		G04									

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
20				GRAVEL (18.5 m to 26.9 m) Trace silt, trace sand, trace clay, well graded, friable, angular to subangular, grey, moist. [WASTE ROCK]							
21				20.8 m - Becomes some cobbles, dry.							
22											
23											
24											
25				25.2 m to 26.0 m - COAL Low grade, loose, moist, black.							
26				26.0 m - Fractured boulders.							
27				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK]							
28				28.3 m to 28.8 m - COAL Low grade, dry.							
29				28.8 m - Becomes GRAVEL, silty, some sand, trace cobble, compact, subangular, brown, moist, trace weathering. [WASTE ROCK]							
30											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
30				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK]							
31				30.9 m - Trace woody debris.							
32	G05			31.8 m - Becomes moist to wet. 32.0 m - Becomes GRAVEL AND SAND, some clay, trace silt, trace cobbles, well graded, compact, rounded to subrounded, brown, moist, multilithic, trace wood debris, trace weathering.							
33											
34											
35				35.0 m - Becomes SAND, gravelly, angular, some woody debris (sticks and possible weathered lumber)							
36											
37				37.0 m - Becomes GRAVEL, sandy, trace silt, poorly graded, subrounded, grey, moist to wet, trace weathering.							
38	G06			38.1 m - Becomes silty.							
39											
40	G07			39.3 m - Becomes wet.						Sample G07 (39.5 m to 39.7 m): Grain size analysis - Gravel 45%, Sand 34%, Fines 21%.	

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
40				GRAVEL AND COBBLES (26.9 m to 49.7 m) Trace sand, well graded, angular, loose, grey, dry, some white staining. [WASTE ROCK] 40.4 m - Becomes silty, some sand.								
41				41.0 m - Becomes sandy.								
42				42.3 m - Becomes SILT, gravelly, some clay, trace cobble, grey, moist to dry, compact, trace roots and woody debris.								
43	☞	G08										
44												
45												
46												
47												
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49												
50												

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
50				SILT (49.7 m to 50.6 m) Gravelly, trace sand, well graded, dense, rapid dilatency, low plasticity, brown, wet, white and orange staining, trace coal, organic debris / roots present. [POSSIBLE ORIGINAL GROUND SURFACE]							
51		G09		GRAVEL (50.6 m to 62.3 m) Some silt, trace sand, trace cobble, well graded, very dense, subrounded to subangular, grey brown, dry to moist, stratified. [TILL]							
52				52.0 m to 52.3 m - Becomes SILT, gravelly, moist.							
53											
54											
55											
56											
57		G10		56.4 m - Becomes GRAVEL, silty, some cobbles.							
58											
59											
60				59.4 m - Becomes GRAVEL, some silt, some sand, trace clay, trace cobble, dark brown, moist, trace weathering.							

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,598N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 64.0

Start Date: 27/07/2021
 Finish Date: 29/07/2021
 Final Depth of Hole (m): 64.0
 Depth to Top of Rock (m): 62.3
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)	
							W _p %	W _L %	W _u %			
60				GRAVEL (50.6 m to 62.3 m) Some silt, trace sand, trace cobble, well graded, very dense, subrounded to subangular, grey brown, dry to moist, stratified. [TILL]								
61				61.5 m - Boulder, fractured, grey, dry.								
62				BEDROCK (62.3 m to 64.0 m) Pulverized, grey, dry.								
63												
64				END OF DRILL HOLE AT 64.0 m								
65				Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC2A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 50.2 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 50.2 mbgs to 53.3 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 50 m bgs to 53.6 m bgs, bentonite chips from surface to 50 m bgs, and from 53.6 m bgs to 64.0 m bgs. 6. The monitoring well was completed at surface with 0.91 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 35.4 m bgs on August 2, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.								
66												
67												
68												
69												
70												

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,597N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 42.7

Start Date: 30/07/2021
 Finish Date: 30/07/2021
 Final Depth of Hole (m): 42.7
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits				Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _P %	W _U %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.								
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,352E, 5,566,597N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 42.7

Start Date: 30/07/2021
 Finish Date: 30/07/2021
 Final Depth of Hole (m): 42.7
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
20				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
30				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
31											
32											
33											
34											
35											
36					▼ 02/08/21						
37											
38											
39											
40											

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,352E, 5,566,597N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 42.7

Start Date: 30/07/2021
Finish Date: 30/07/2021
Final Depth of Hole (m): 42.7
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
40				[WASTE ROCK] Refer to twin hole FR_MW-HC2A log for detailed lithological description.							
41											
42											
43				END OF DRILL HOLE AT 42.7 m							
44				Notes: 1. Monitoring well (FR_MW-HC2B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 39.3 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 39.3 mbgs to 42.4 mbgs. 2. The monitoring well was completed with 10-20 filter sand from 38.9 m bgs to 42.7 bgs, and bentonite chips from surface to 38.9 m bgs. 3. The monitoring well was completed at surface with 0.91 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 35.8 m bgs on August 2, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
45											
46											
47											
48											
49											
50											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,580E, 5,566,548N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 27.4

Start Date: 02/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 27.4
 Depth to Top of Rock (m): 24.0
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				COAL (0.0 m to 0.8 m) Fractured, low grade, loose, black, dry. [WASTE ROCK]							
1				GRAVEL (0.8 m to 10.0 m) Some sand, trace cobble, well graded, subangular, brown, moist, trace weathering. [WASTE ROCK]							
4				3.9 m to 4.5 m - Boulder, fractured, grey, dry.							
5				5.1 m - Becomes angular to subangular, dry, trace coal.							
7		G01									
9				9.1 m - Boulder, pulverized, grey, dry.							

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,580E, 5,566,548N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 27.4

Start Date: 02/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 27.4
 Depth to Top of Rock (m): 24.0
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
10				GRAVEL (10.0 m to 10.7 m) Some sand, trace silt, some cobbles, trace clay, well graded, subangular, grey, moist to wet. [WASTE ROCK]						Sample G02 (10.3 m to 10.5 m): Grain size analysis - Gravel 80%, Sand 14%, Fines 6%.	
11		G02		GRAVEL (10.7 m to 14.9 m) Some cobbles, trace sand, trace clay, well graded, rounded to subrounded, grey to brown, moist to wet. [FLUVIAL]							
13											
14		G03									
15				GRAVEL (14.9 m to 24.0 m) Trace sand, trace silt, trace cobble, well graded, angular to subangular, brown, wet. [COLLUVIUM]							
16											
17											
18											
19											
20		G04		19.8 m - Becomes angular.						Sample G04 (19.4 m to 19.6 m): Grain size analysis - Gravel 86%, Sand 9%, Fines 5%.	

(Continued on next page)

TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,580E, 5,566,548N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 27.4

Start Date: 02/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 27.4
 Depth to Top of Rock (m): 24.0
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
20				GRAVEL (14.9 m to 24.0 m) Trace sand, trace silt, trace cobble, well graded, angular to subangular, brown, wet. [COLLUVIUM]							
21											
22											
23				22.8 m - Becomes GRAVEL AND SAND, trace clay, trace cobble, well graded, angular to subangular, grey, moist, trace weathering.							
24	G05			BEDROCK (24.0 m to 27.4 m) Pulverized, dry, grey.							
25											
26											
27											
28				END OF DRILL HOLE AT 27.4 m Notes: 1. Drill hole was terminated after encountering bedrock. 2. The moisture content, fines content, and in-situ density of the soil may be altered by heat and vibration generated by the sonic drilling method. 3. Interpretation of bedrock type is not provided as the rock was pulverized by the sonic drilling method. 4. Monitoring well (FR_MW-HC3A) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 18.9 mbgs, and a 0.25 mm slot schedule 40 PVC screen from 18.9 mbgs to 21.9 mbgs. 5. The monitoring well was completed with 10-20 filter sand from 18.6 m bgs to 22.2 m bgs, bentonite chips from surface to 18.5 m bgs, and from 22.2 m bgs to 27.4 m bgs. 6. The monitoring well was completed at surface with 0.83 m PVC stickup and a protective steel monument cemented in place. 7. The water level was measured at 9.3 m bgs on August 3, 2021. 8. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
29											
30											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21

BGC BGC ENGINEERING INC.
 AN APPLIED EARTH SCIENCES COMPANY

Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
 Coordinates (m): 652,581E, 5,566,547N
 Ground Elevation (m):
 Datum: UTM NAD83, Zone 11N
 Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
 Drilling Contractor: Earth Drilling
 Drill Method: Sonic
 Core: 97.9 mm
 Fluid: Water
 Casing: 152.4 mm OD Cased To (m): 14.0

Start Date: 03/08/2021
 Finish Date: 03/08/2021
 Final Depth of Hole (m): 14.0
 Depth to Top of Rock (m): N/A
 Logged by: EK
 Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _U %		
0				[WASTE ROCK] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

▼
03/08/21

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TECKOAL (SOLOONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021



All noted depths are in metres along hole.

Location: Henretta Spoil

Project No.: 0797032

Survey Method: Handheld GPS
Coordinates (m): 652,581E, 5,566,547N
Ground Elevation (m):
Datum: UTM NAD83, Zone 11N
Dip (degrees from horizontal): -90

Drill Designation: Gus Pech Sonicor 50
Drilling Contractor: Earth Drilling
Drill Method: Sonic
Core: 97.9 mm
Fluid: Water
Casing: 152.4 mm OD **Cased To (m):** 14.0

Start Date: 03/08/2021
Finish Date: 03/08/2021
Final Depth of Hole (m): 14.0
Depth to Top of Rock (m): N/A
Logged by: EK
Reviewed by: TKW

Depth (m)	Sample Type	Sample No.	Symbol	Lithological Description	Backfill Details	SPT/LPT Blows Per 150mm	Moisture Content & Atterberg Limits			Lab Tests and Comments	Elevation (m)
							W _p %	W _L %	W _u %		
10				[WASTE ROCK] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
11				[FLUVIAL] Refer to twin hole FR_MW-HC3A log for detailed lithological description.							
12											
13											
14				END OF DRILL HOLE AT 14.0 m							
15				Notes: 1. Monitoring well (FR_MW-HC3B) was installed with a 50.8 mm diameter, schedule 40 solid PVC from surface to 10.1 m bgs, and a 0.25 mm slot schedule 40 PVC screen from 10.1 mbgs to 13.1 mbgs. 2. The monitoring well was completed with 10-20 filter sand from 9.8 m bgs to 14.0 bgs, and bentonite chips from surface to 9.8 m bgs. 3. The monitoring well was completed at surface with 0.80 m PVC stickup and a protective steel monument cemented in place. 4. The water level was measured at 9.3 m bgs on August 3, 2021. 5. Borehole collar coordinates are from handheld GPS (Garmin GPSmap 64x), uncertainty +/- 3 m.							
16											
17											
18											
19											
20											

TECKOAL (SOLID ONLY) TECKOAL.GDL BGC.GDT 9/23/21



Print Date: 23/09/2021

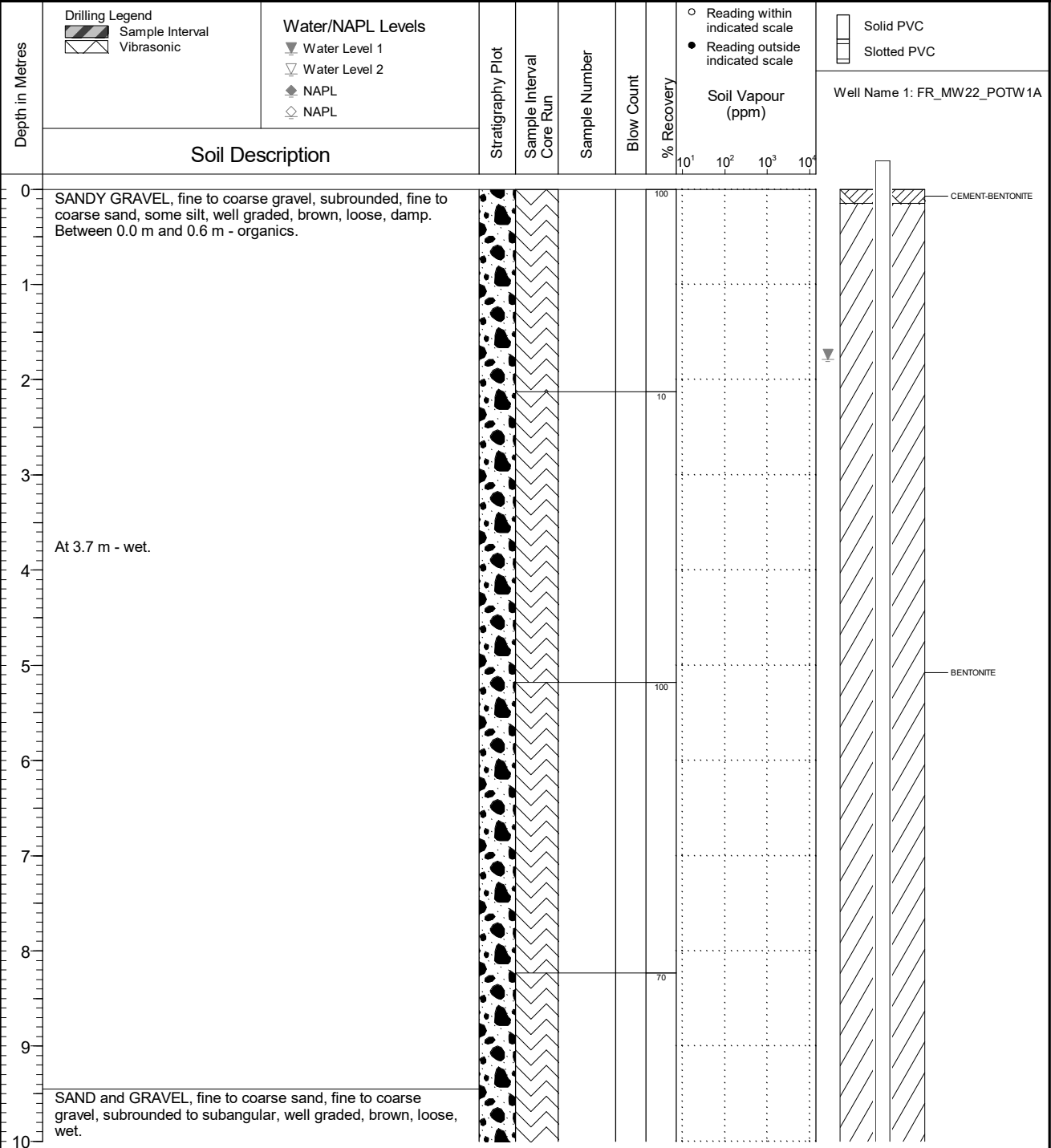


All noted depths are in metres along hole.

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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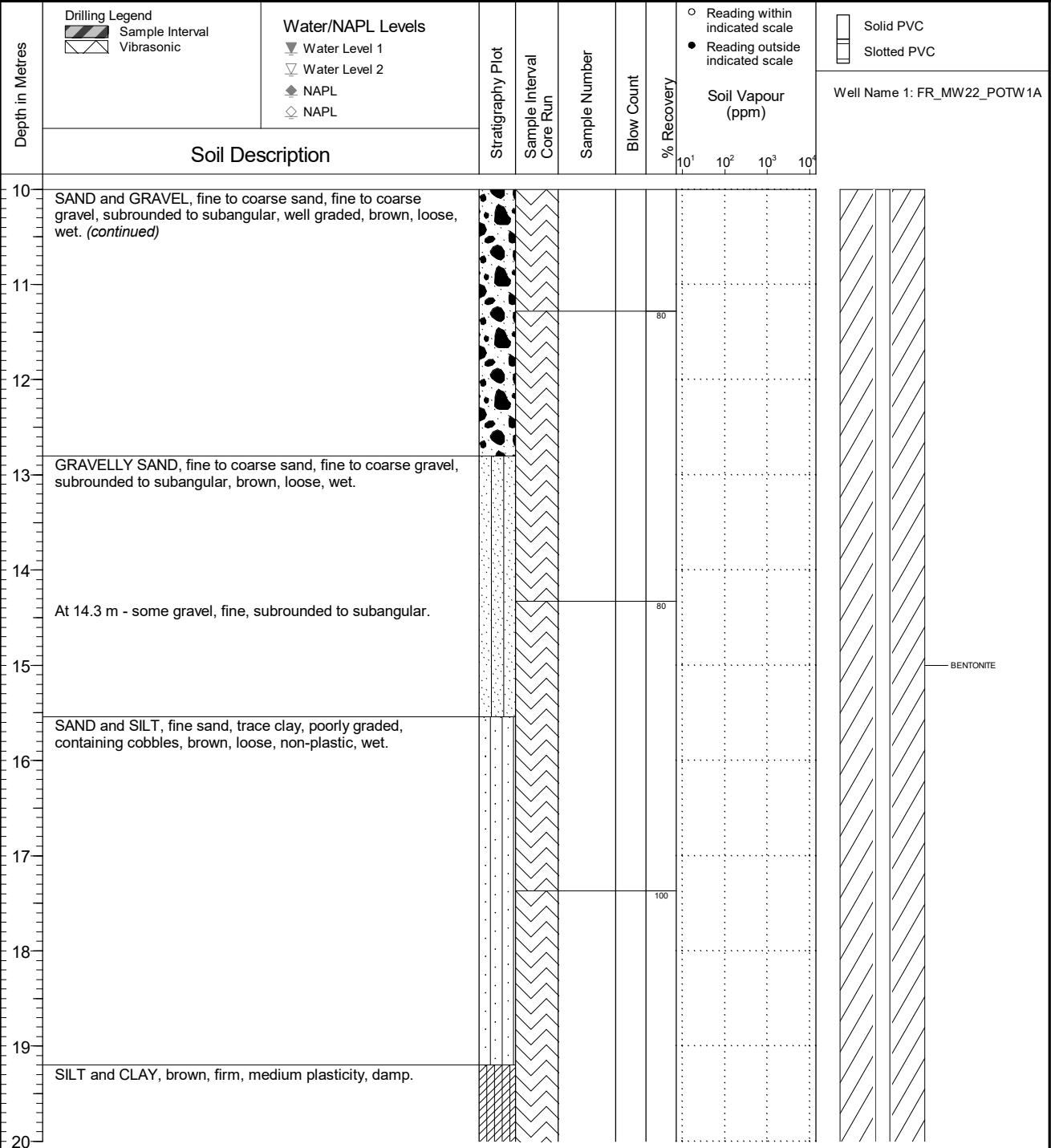


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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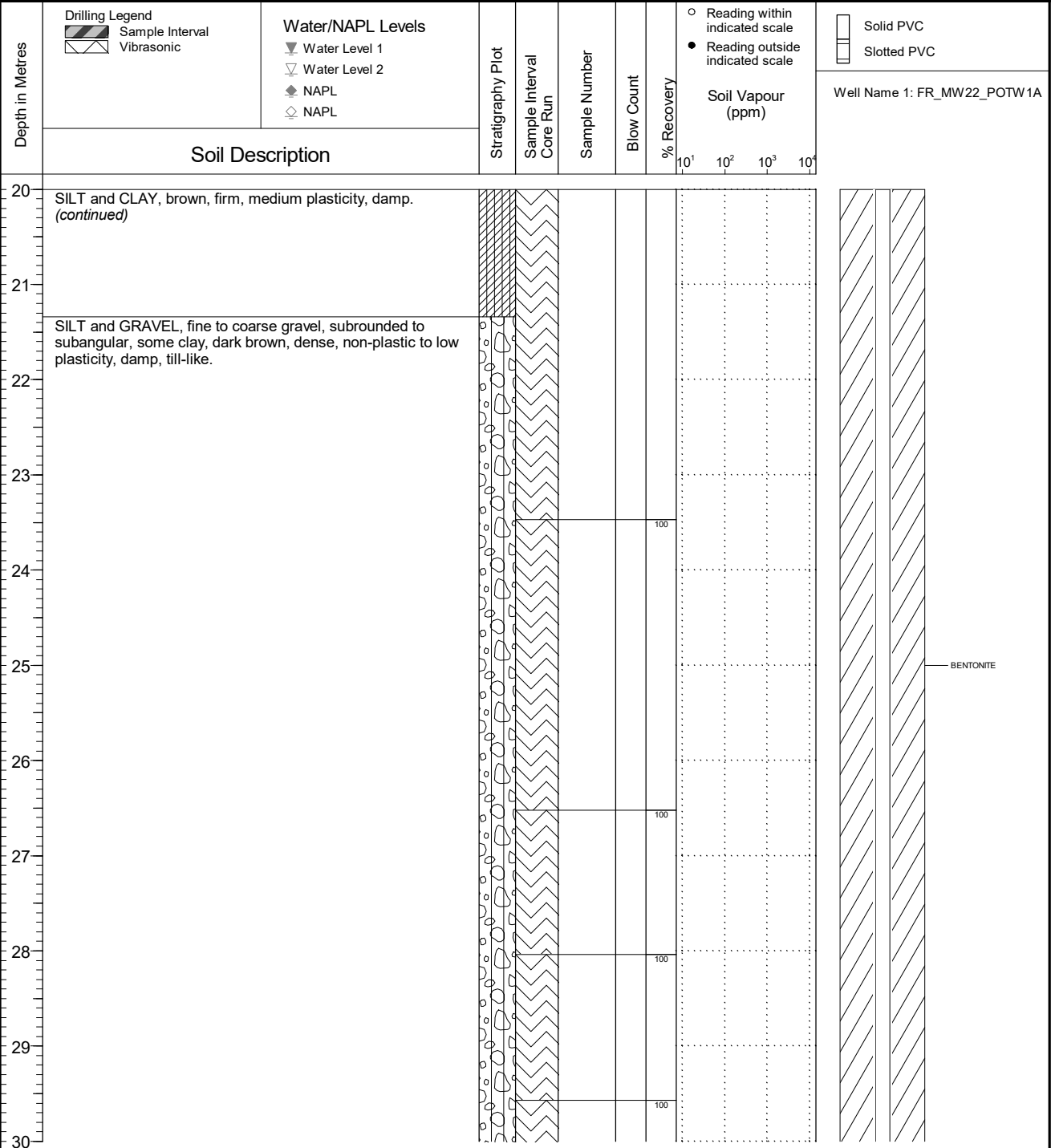


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW1A	
		Location FRO - Potwells		PAGE 4 OF 6	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 18		Project Number: 692207	
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1684.332		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1685.324		Date Drilled: 2022 08 13	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565188.275		Easting: 651189.554	
Drilling Legend		Water/NAPL Levels		Soil Vapour (ppm)	
Sample Interval Vibrasonic		Water Level 1 Water Level 2 NAPL NAPL		○ Reading within indicated scale ● Reading outside indicated scale	
Solid PVC Slotted PVC		Well Name 1: FR_MW22_POTW1A			
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count
					% Recovery
					10 ¹ 10 ² 10 ³ 10 ⁴
30	SILT and GRAVEL, fine to coarse gravel, subrounded to subangular, some clay, dark brown, dense, non-plastic to low plasticity, damp, till-like. <i>(continued)</i>				
31					
32					
33	SILTY SAND, fine to coarse sand, some gravel, fine, subrounded to subangular, some clay, well graded, dark brown, loose, wet.				100
34	SILT and SAND, fine sand, some clay, trace gravel, fine, subrounded to subangular, dark brown, soft, low plasticity, moist. At 33.8 m - some gravel.				
35	SILTY, GRAVELLY SAND, fine to coarse sand, fine to coarse gravel, subrounded to subangular, some clay, well graded, dark brown, loose, wet.				100
36					
37	SAND and SILT, fine sand, poorly graded, dark brown, loose, non-plastic, moist.				100
38					
39					
40					
NOTES					

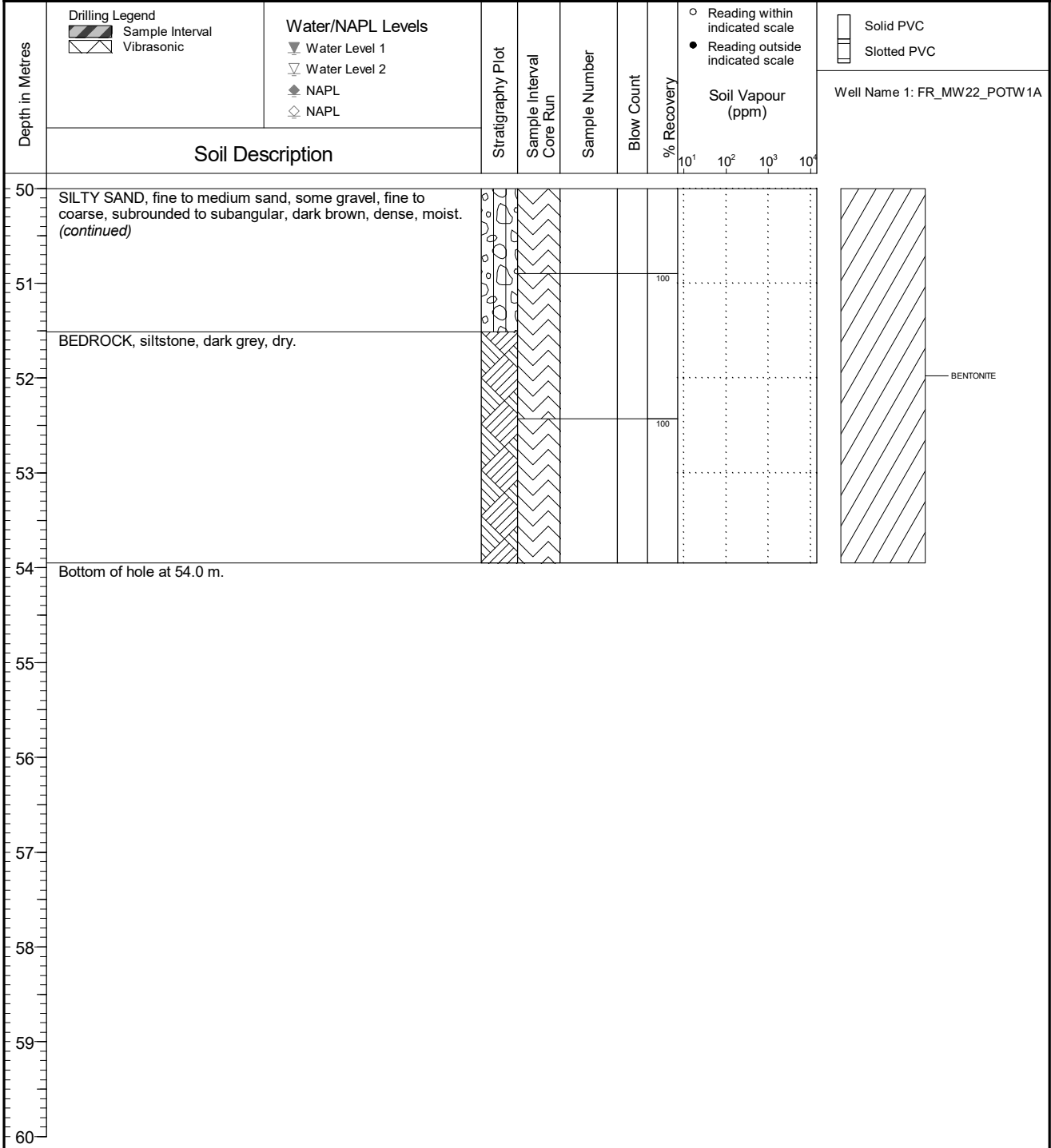
FINAL

		Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A					
		Location FRO - Potwells		PAGE 5 OF 6				
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 18	Project Number: 692207					
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1684.332	Borehole Logged By: MTB					
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1685.324	Date Drilled: 2022 08 13					
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565188.275	Easting: 651189.554					
Drilling Legend		Water/NAPL Levels		○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴				
▨ Sample Interval ▩ Vibrasonic		▼ Water Level 1 ▽ Water Level 2 ◆ NAPL ◇ NAPL						
Depth in Metres	Soil Description		Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	▭ Solid PVC ▭ Slotted PVC
								Well Name 1: FR_MW22_POTW1A
40	SAND and SILT, fine sand, poorly graded, dark brown, loose, non-plastic, moist. <i>(continued)</i>							
41								
42						100		
43								
44	SILTY SAND, fine to coarse sand, some gravel, fine to coarse, subrounded to subangular, well graded, dark brown, loose, wet.							
45	SILT and GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark brown, dense, damp, till-like.					90		BENTONITE
46								
47								
48						100		
49								
50	SILTY SAND, fine to medium sand, some gravel, fine to coarse, subrounded to subangular, dark brown, dense, moist.							
NOTES								

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1A
	Location FRO - Potwells	PAGE 6 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.332 Top of Casing Elev. (m): 1685.324 Northing: 5565188.275 Easting: 651189.554	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : FR_BH22_POTW1B

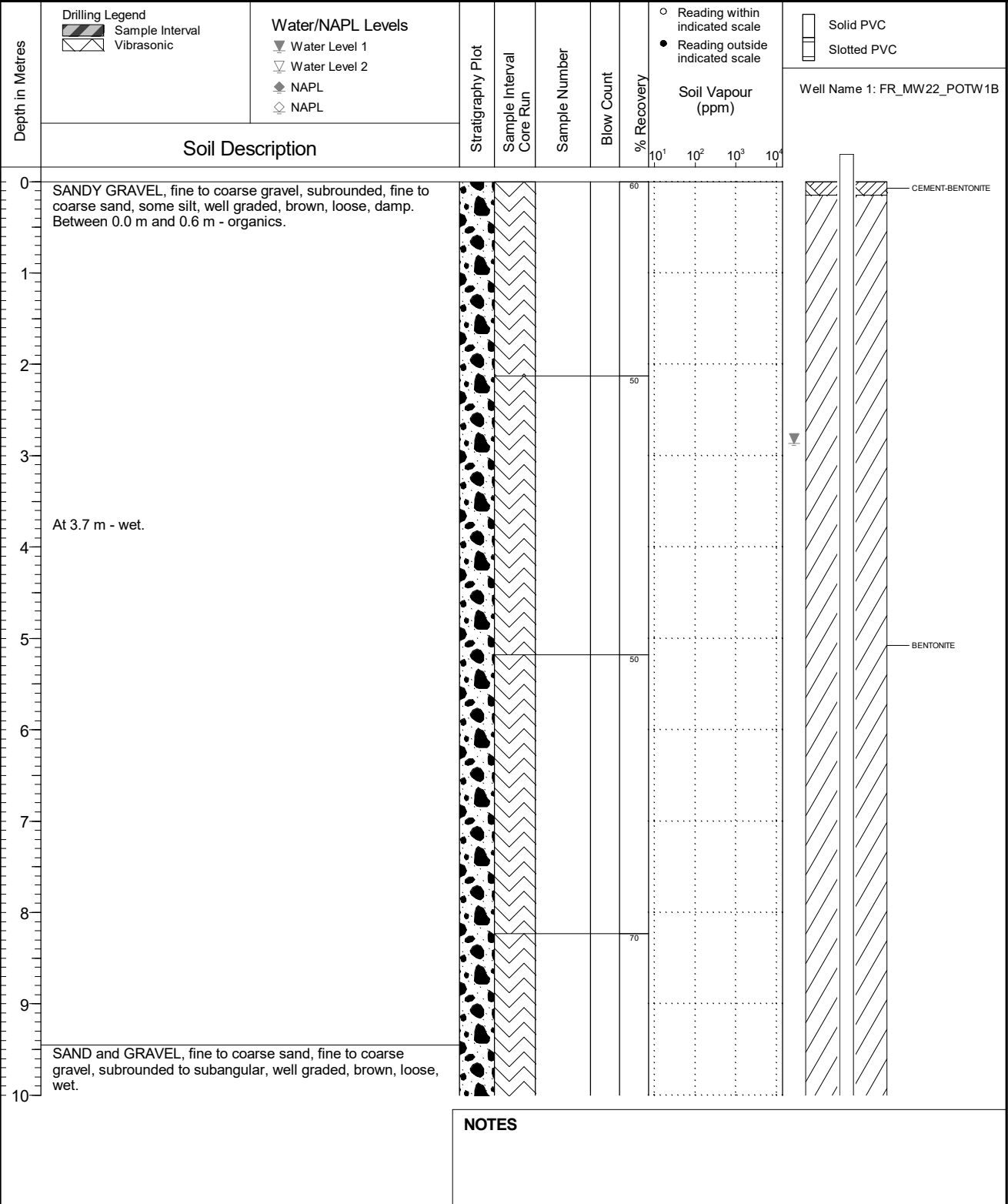
Location
FRO - Potwells

PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2022 08 18
 Ground Surface Elev. (m): 1684.308
 Top of Casing Elev. (m): 1685.379
 Northing: 5565187.739 Easting: 651189.056

Project Number: 692207
 Borehole Logged By: MTB
 Date Drilled: 2022 08 15
 Log Typed By: LC

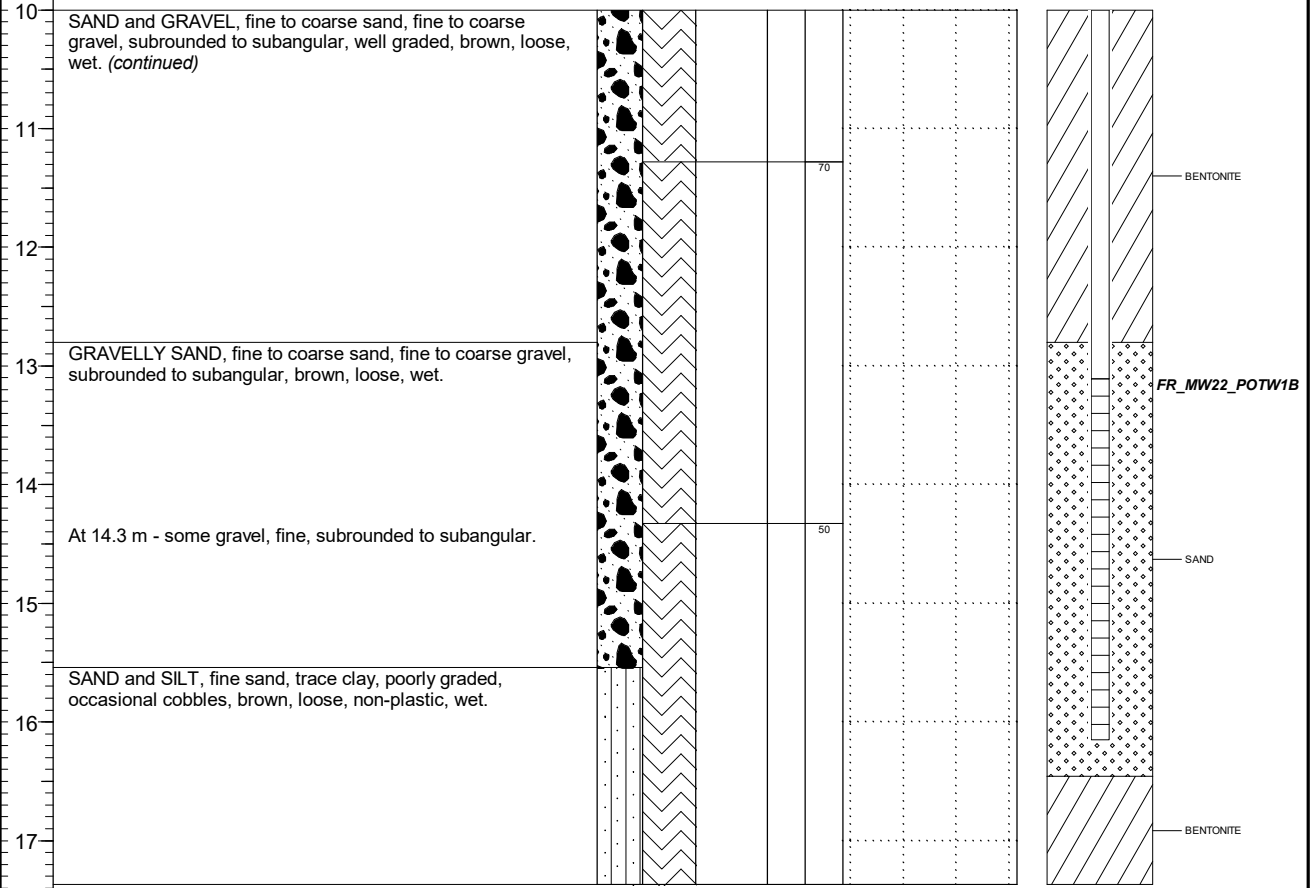


FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW1B
	Location FRO - Potwells	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1684.308 Top of Casing Elev. (m): 1685.379 Northing: 5565187.739 Easting: 651189.056	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 15 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval	Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_POTW1B
	Soil Description									



Bottom of hole at 17.4 m.

NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : FR_BH22_POTW1C

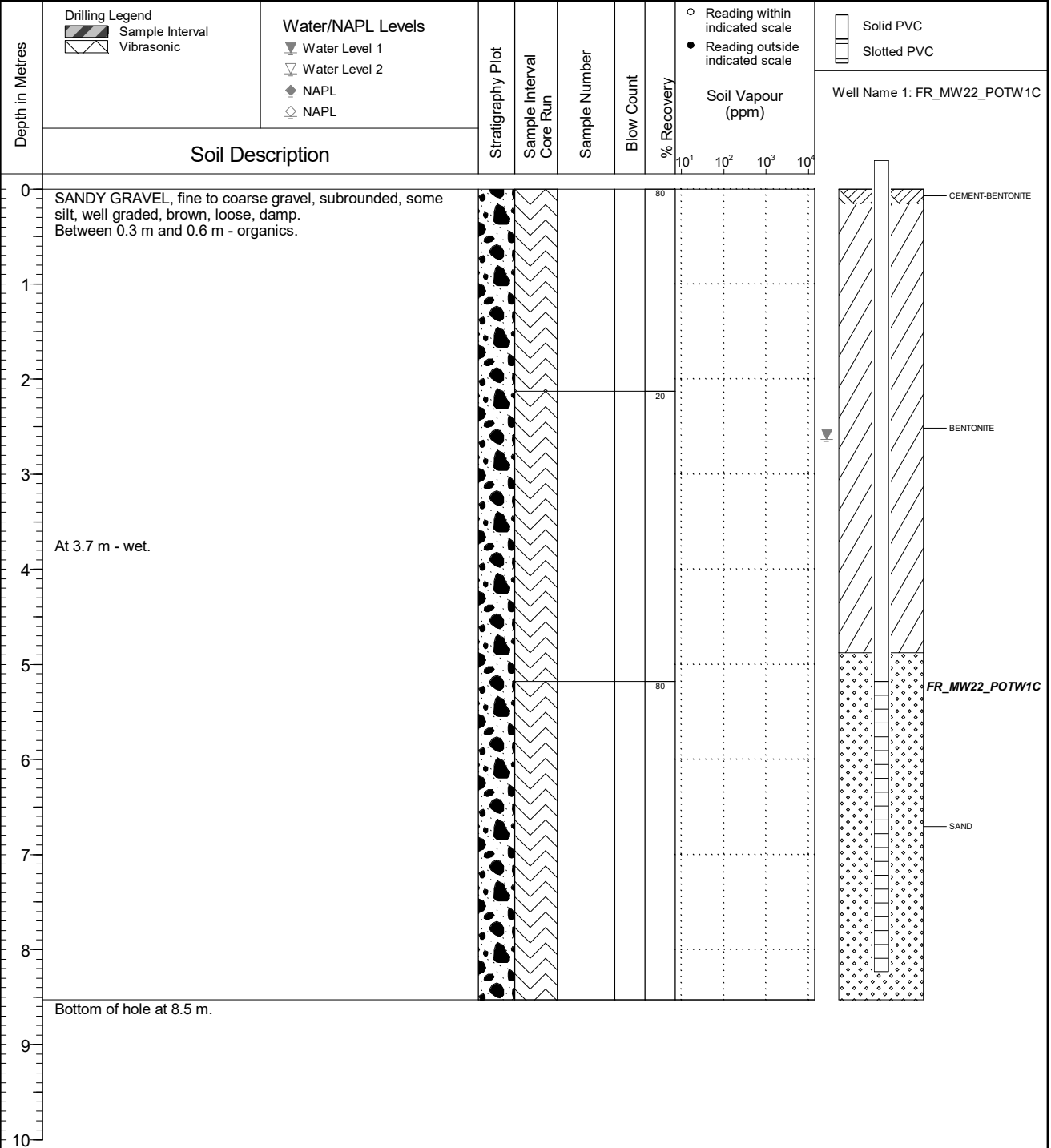
Location
FRO - Potwells

PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd.
Drilling Method: Vibratory Sonic
Borehole Dia. (m): 0.15
Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2022 08 18
Ground Surface Elev. (m): 1684.345
Top of Casing Elev. (m): 1685.354
Northing: 5565187.167 Easting: 651188.530

Project Number: 692207
Borehole Logged By: MTB
Date Drilled: 2022 08 16
Log Typed By: LC

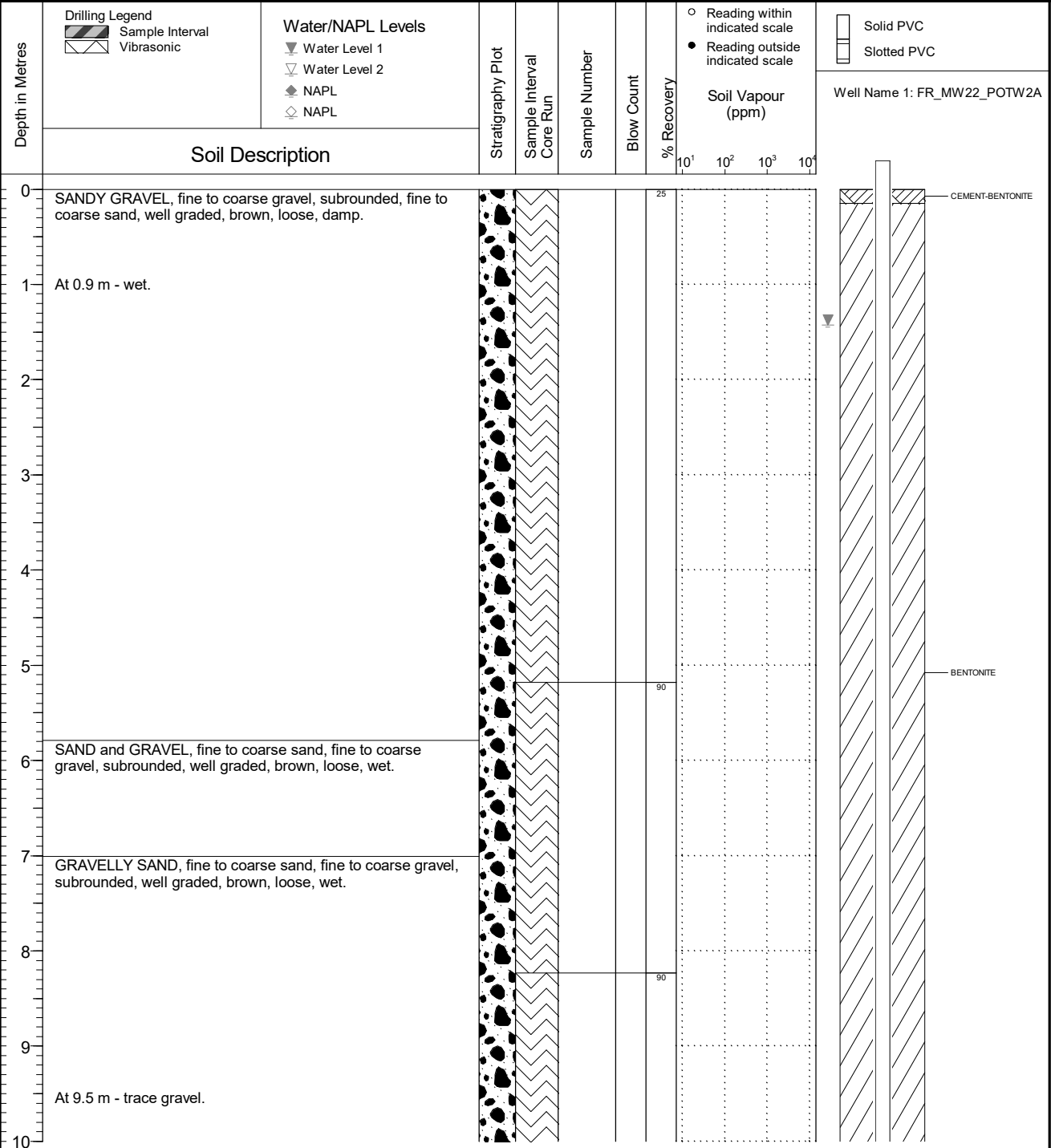


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 1 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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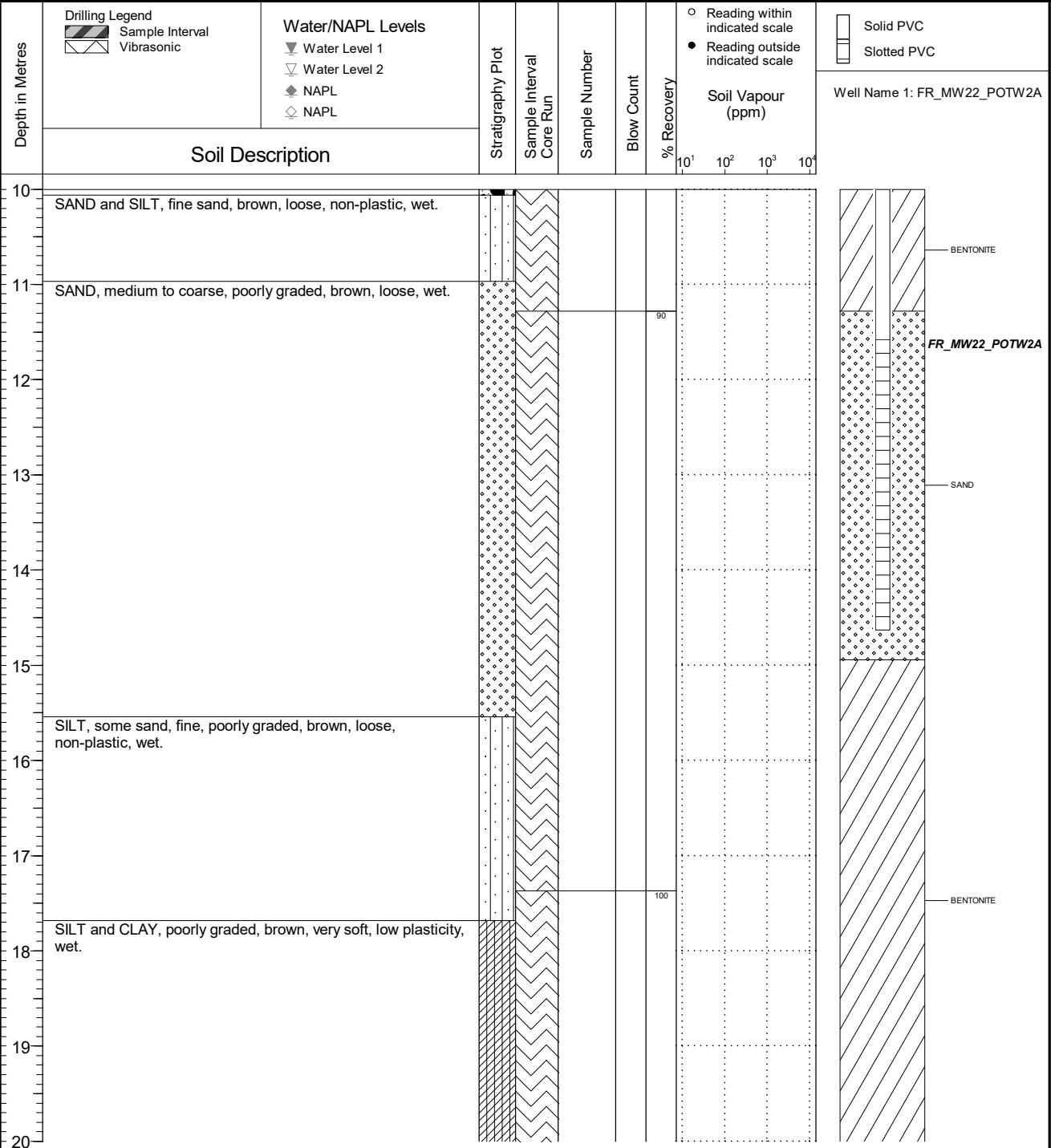


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 2 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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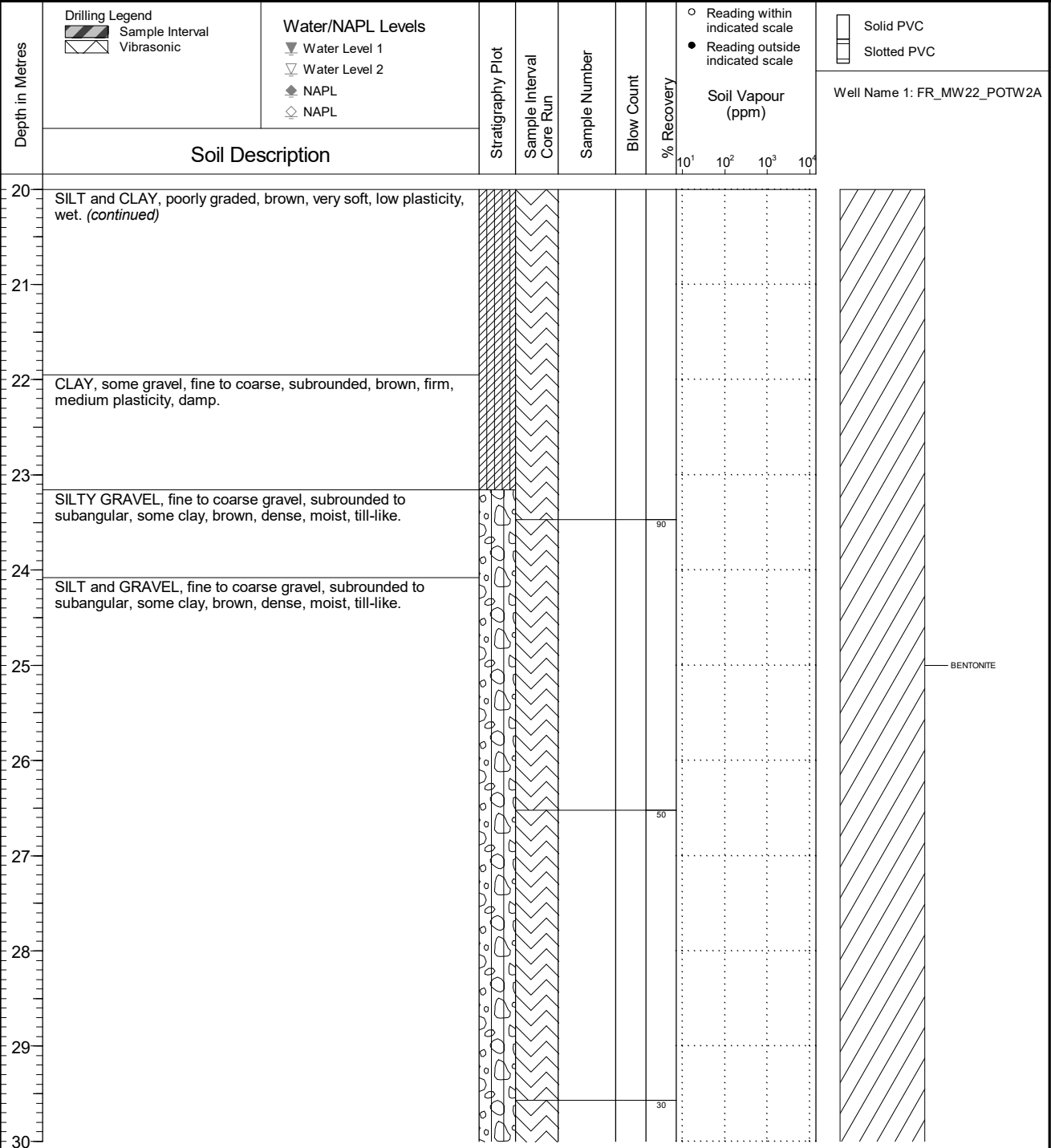


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 3 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A							
		Location FRO - Potwells		PAGE 4 OF 7							
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 12		Project Number: 692207							
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1679.614		Borehole Logged By: MTB							
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1680.519		Date Drilled: 2022 08 07							
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565024.168		Easting: 651039.776		Log Typed By: LC					
Depth in Metres	Drilling Legend Sample Interval Vibrasonic		Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL		Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)	Well Name 1: FR_MW22_POTW2A
	Soil Description		10 ¹	10 ²	10 ³	10 ⁴					
30	SILT and GRAVEL, fine to coarse gravel, subrounded to subangular, some clay, brown, dense, moist, till-like. <i>(continued)</i>										
31											
32											
33	SAND and SILT, fine sand, trace clay, poorly graded, dark brown, loose, non-plastic, moist.						100				
34											
35											BENTONITE
36							100				
37	GRAVELLY SILT, fine to coarse gravel, subrounded to subangular, some clay, dark brown, soft, low plasticity, damp, till-like.										
38	At 37.6 m - containing cobbles.						100				
39							100				
40											
NOTES											

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A					
		Location FRO - Potwells		PAGE 5 OF 7					
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776		Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC					
Depth in Metres	Drilling Legend Sample Interval Vibrosonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description		Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴		Well Name 1: FR_MW22_POTW2A				
40	GRAVELLY SILT, fine to coarse gravel, subrounded to subangular, some clay, dark brown, soft, low plasticity, damp, till-like. <i>(continued)</i> At 40.2 m - some gravel.								
41									
42	At 42.3 m - no gravel.								
43									
44									
45	At 45.4 m - some gravel, fine to coarse, subrounded to subangular.								
46									
47	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark brown, soft, non-plastic, wet.								
48									
49	At 49.4 m - encountered artesian flow.								
50									
NOTES									

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW2A	
		Location FRO - Potwells		PAGE 6 OF 7	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 12		Project Number: 692207	
Drilling Method: Vibratory Sonic		Ground Surface Elev. (m): 1679.614		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1680.519		Date Drilled: 2022 08 07	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565024.168		Easting: 651039.776	
Date Drilled: 2022 08 07		Log Typed By: LC			

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: FR_MW22_POTW2A
							10 ¹	10 ²	10 ³	10 ⁴	
50	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark brown, soft, non-plastic, wet. (continued)										BENTONITE
51						100					
52	Between 52.1 m and 52.4 m - siltstone, dark grey.										
53	SILT AND GRAVEL, fine to coarse gravel, subangular to subrounded, trace clay, dark grey, dense, wet.					100					
54											
55	Between 54.9 m and 55.2 m - siltstone, dark grey.										
56	Between 55.5 m and 56.1 m - siltstone, dark grey.										
57	SILTSTONE, dark grey.					50					
58											
59											
60											

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2A
	Location FRO - Potwells	PAGE 7 OF 7

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.614 Top of Casing Elev. (m): 1680.519 Northing: 5565024.168 Easting: 651039.776	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 07 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description								Well Name 1: FR_MW22_POTW2A

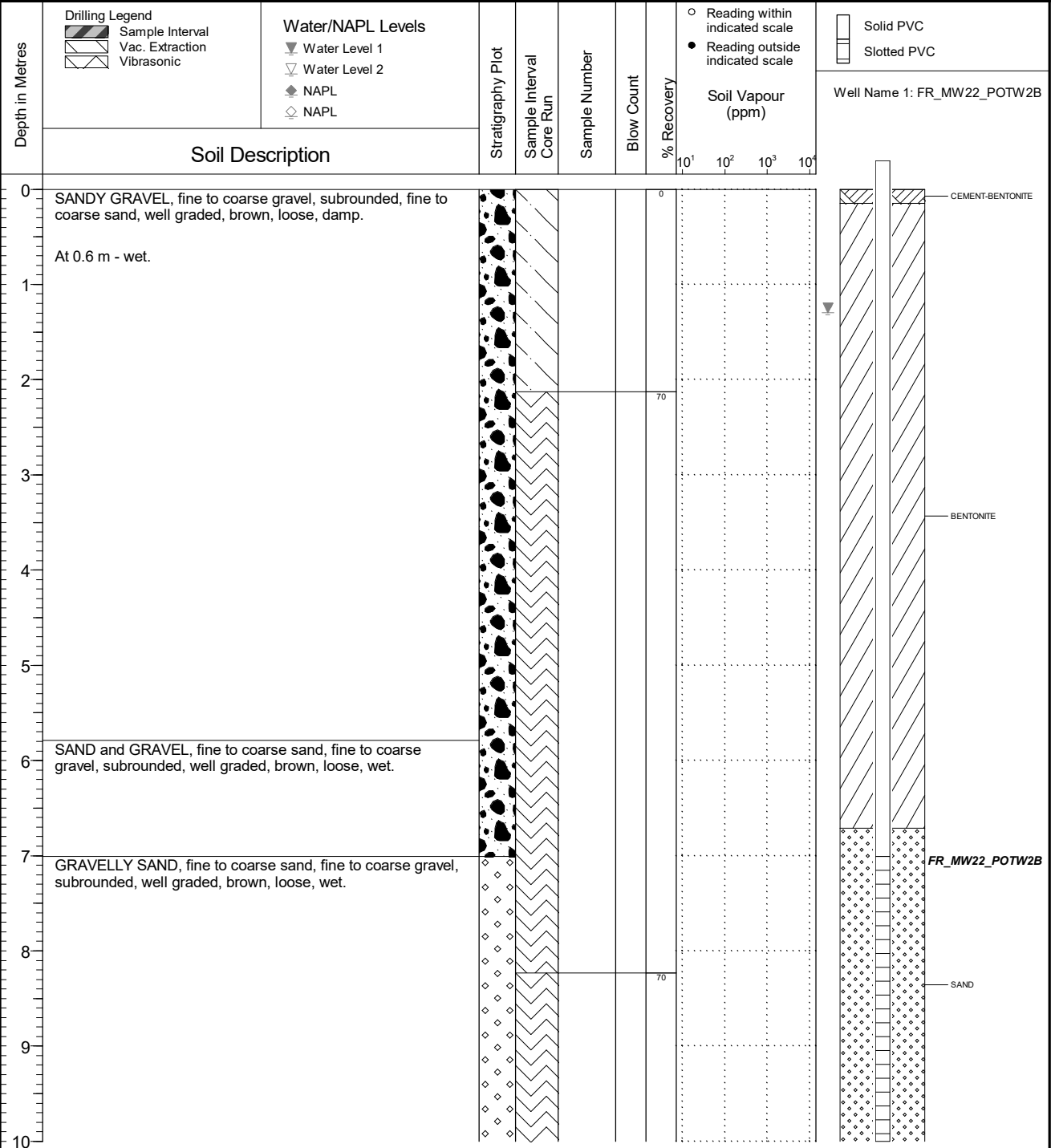


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW2B
	Location FRO - Potwells	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 12 Ground Surface Elev. (m): 1679.618 Top of Casing Elev. (m): 1680.494 Northing: 5565021.279 Easting: 651038.914	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 10 Log Typed By: LC
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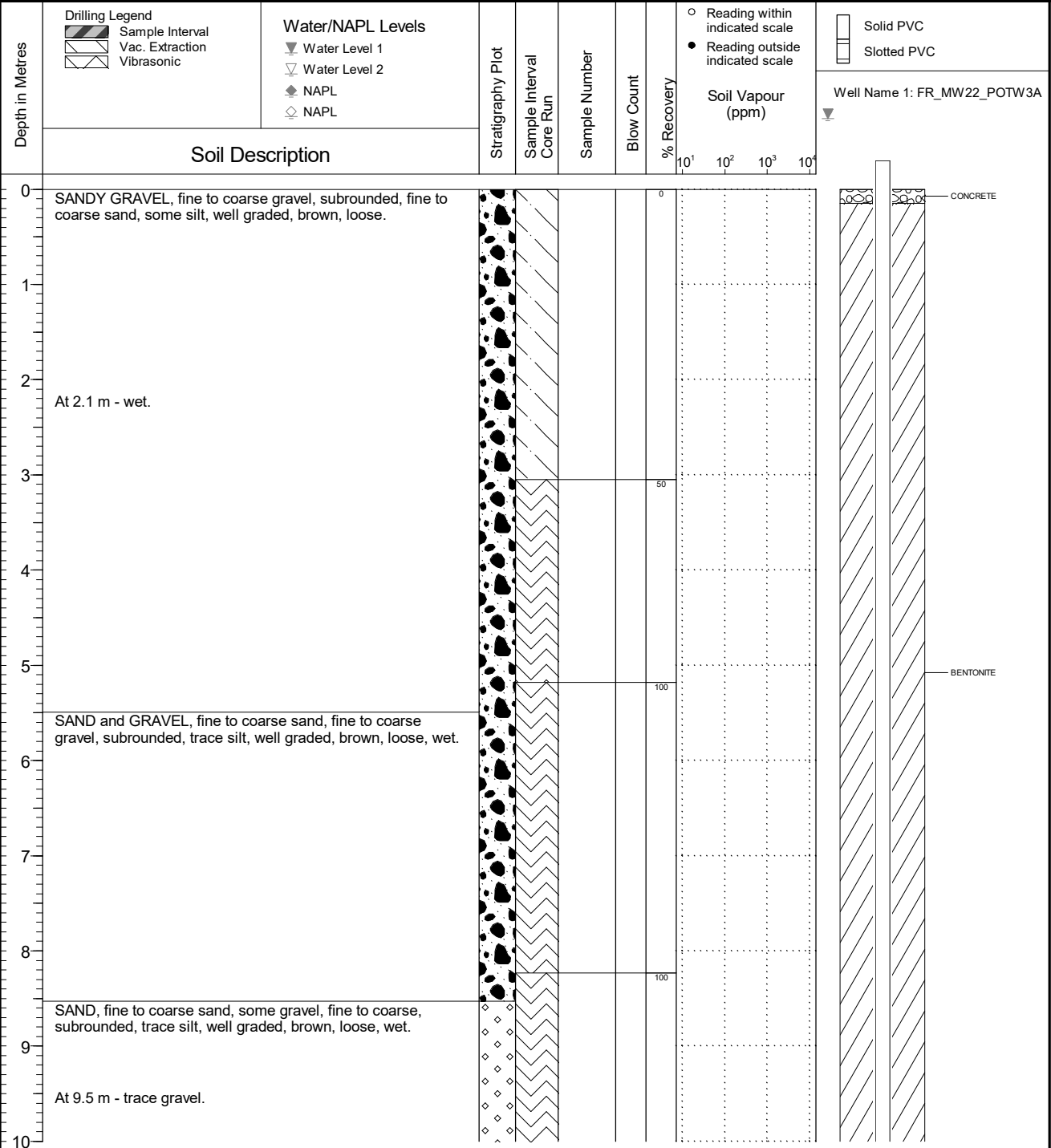


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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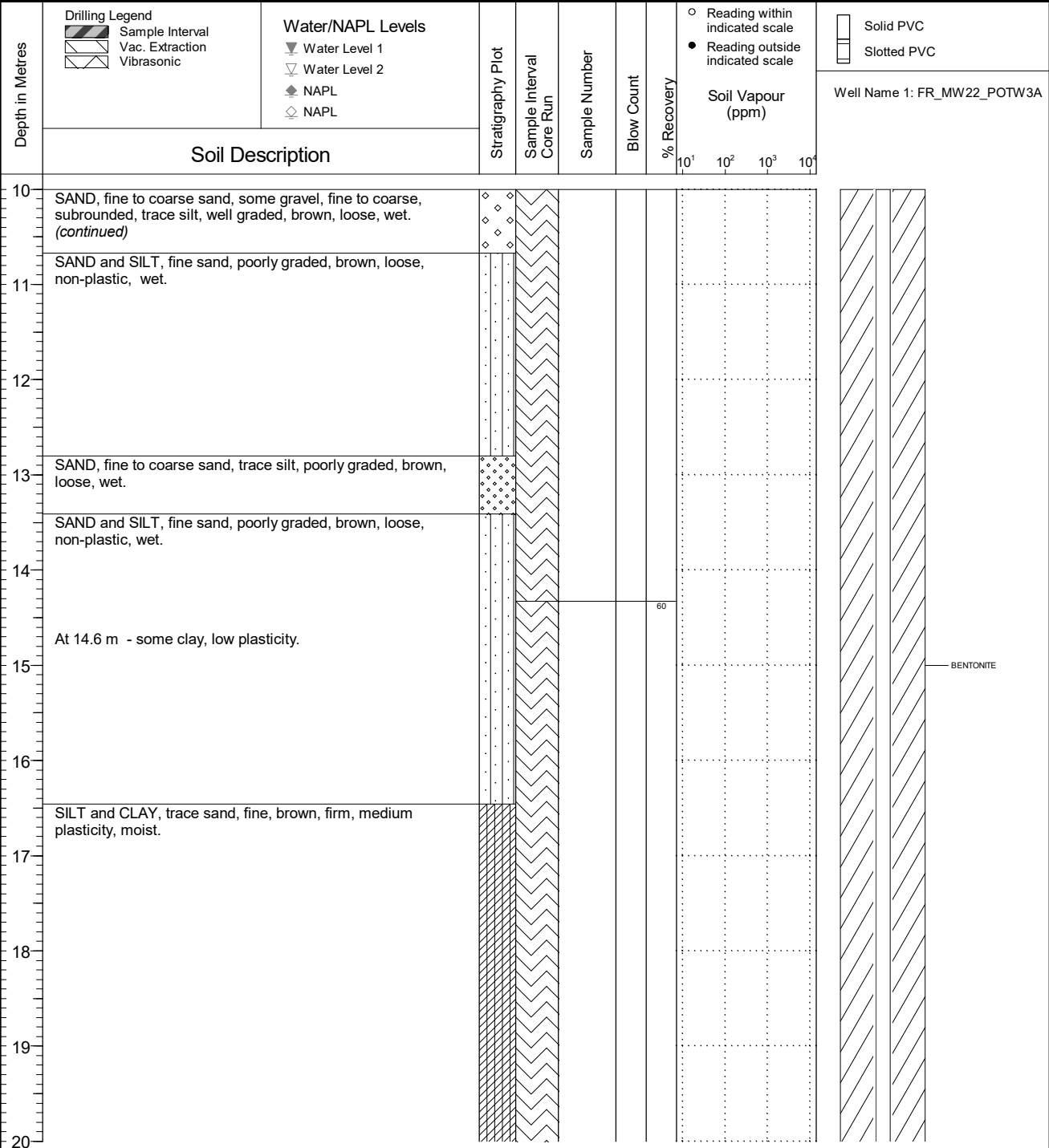


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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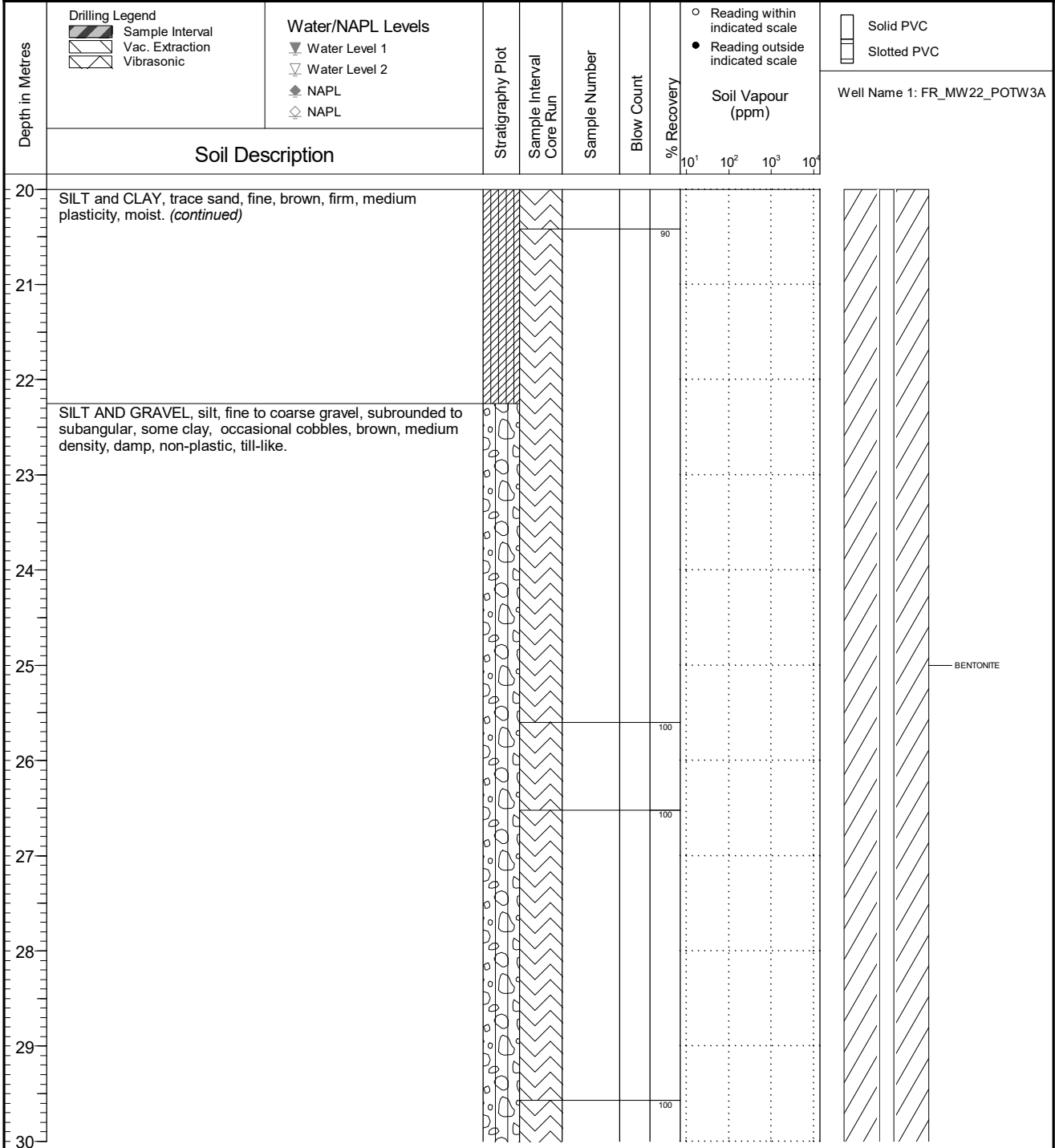


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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NOTES

FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_POTW3A	
		Location FRO - Potwells		PAGE 4 OF 6	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15		Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034		Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922		Easting: 651145.111	
Drilling Contractor: Mud Bay Drilling Co. Ltd.		Date Monitored: 2022 08 15		Project Number: 692207	
Drilling Method: Hydrovac/Vibratory Sonic		Ground Surface Elev. (m): 1680.133		Borehole Logged By: MTB	
Borehole Dia. (m): 0.15		Top of Casing Elev. (m): 1681.034		Date Drilled: 2022 08 11	
Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Northing: 5565040.922		Easting: 651145.111	

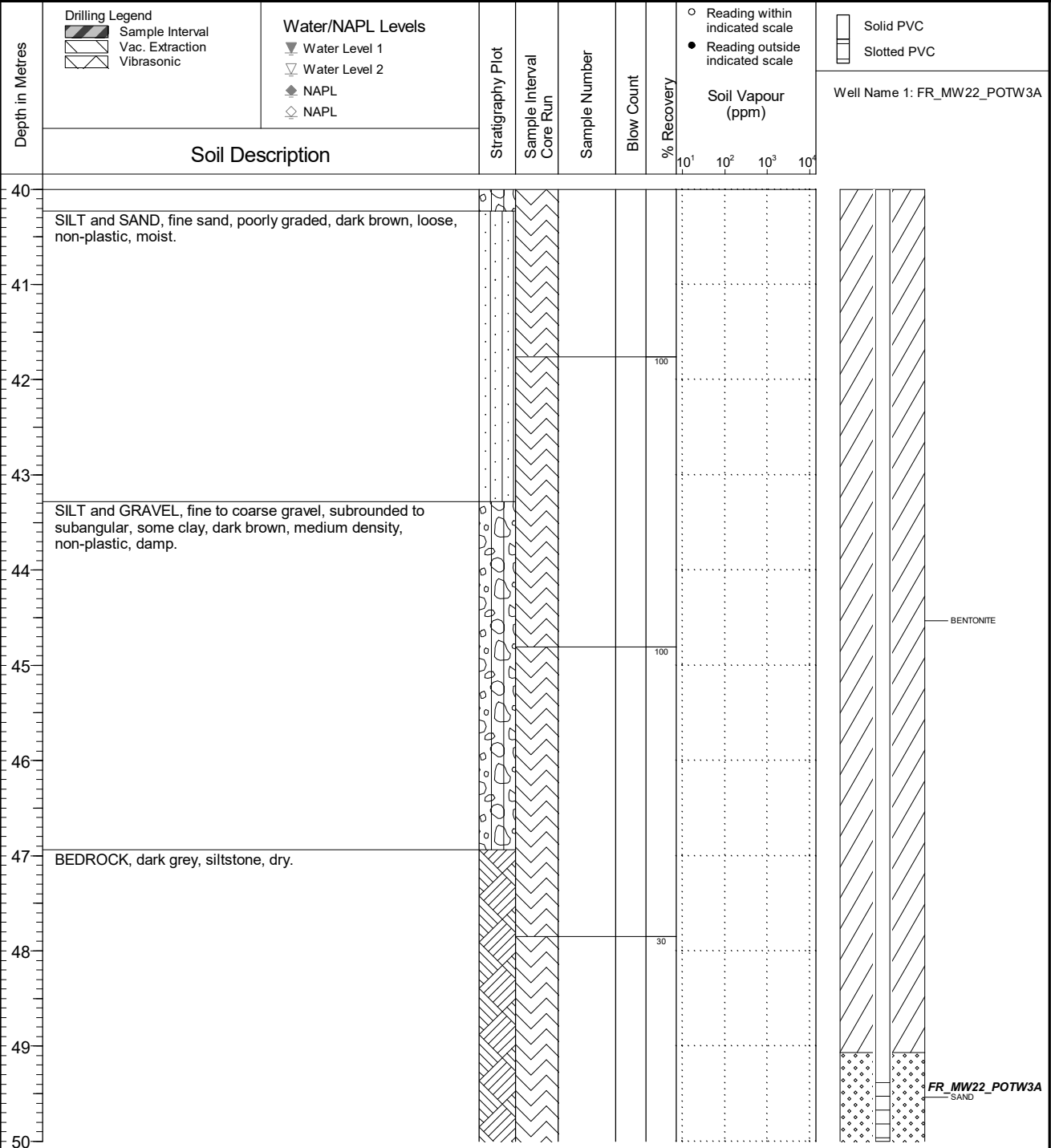
Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: FR_MW22_POTW3A
							10 ¹	10 ²	10 ³	10 ⁴	
30	SILT AND GRAVEL, silt, fine to coarse gravel, subrounded to subangular, some clay, occasional cobbles, brown, medium density, damp, non-plastic, till-like. <i>(continued)</i>	[Stratigraphy Plot]									
31											
32	SAND and SILT, fine sand, poorly graded, dark brown, loose, non-plastic, moist.										
33											
34											
35											
36											
37	SILT and GRAVEL, fine to coarse gravel, subrounded to subangular, some clay, dark brown, medium density, non-plastic, moist.										
38											
39	At 39.3 m - gravelly.										
40											

NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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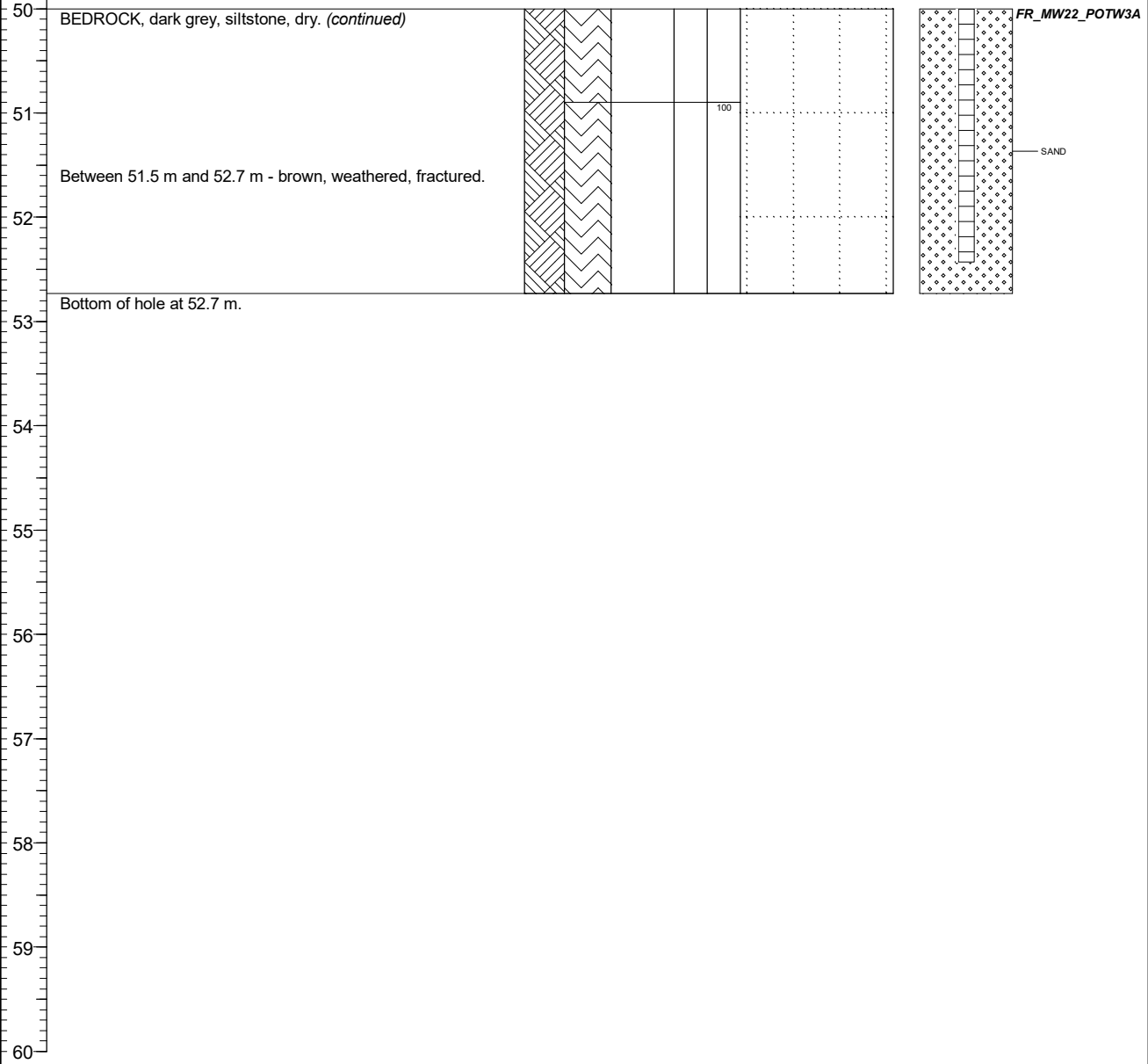
NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3A
	Location FRO - Potwells	PAGE 6 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.133 Top of Casing Elev. (m): 1681.034 Northing: 5565040.922 Easting: 651145.111	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 11 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_POTW3A
	Soil Description								

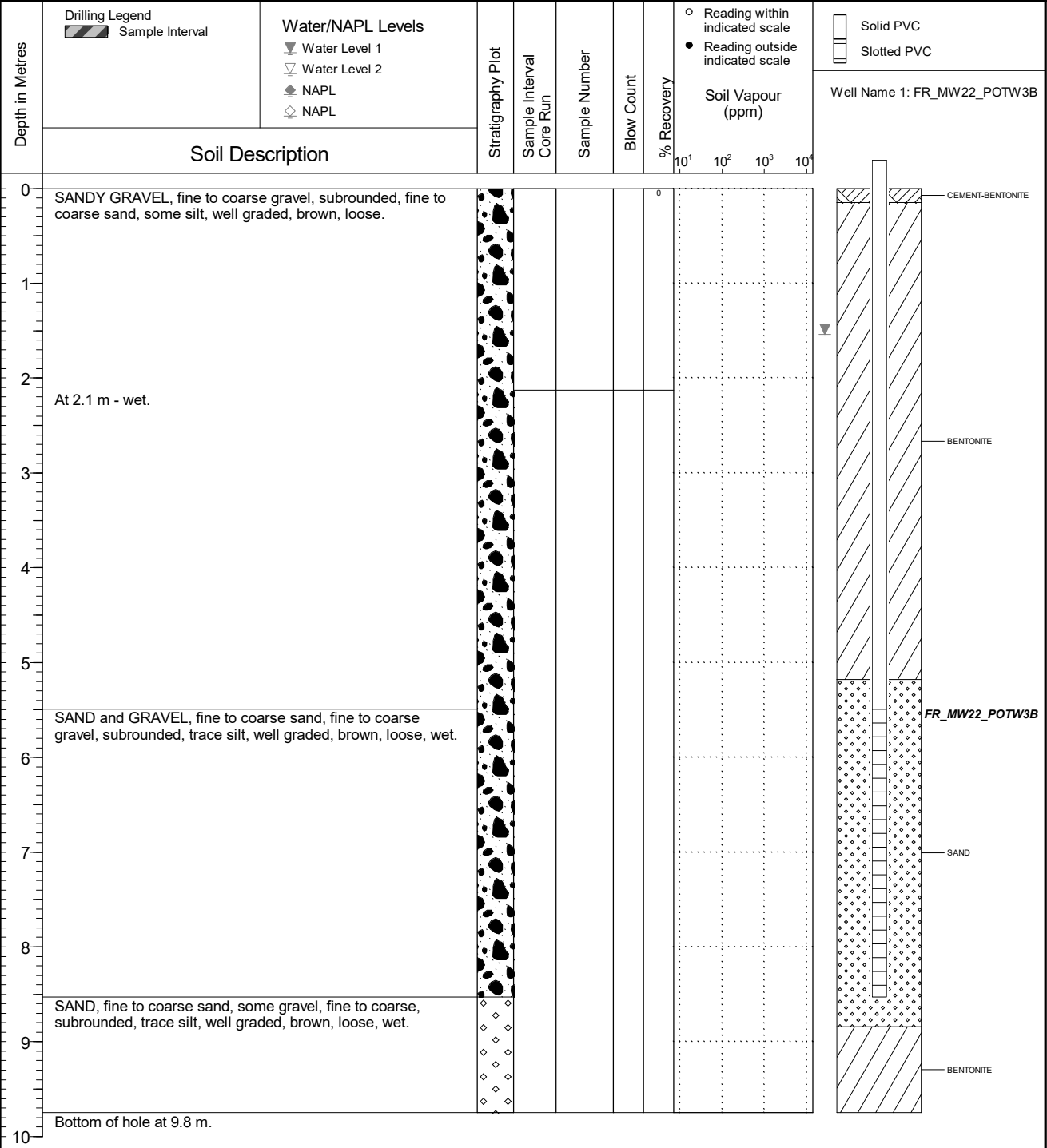


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_POTW3B
	Location FRO - Potwells	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 15 Ground Surface Elev. (m): 1680.186 Top of Casing Elev. (m): 1681.079 Northing: 5565042.076 Easting: 651147.517	Project Number: 692207 Borehole Logged By: MTB Date Drilled: 2022 08 13 Log Typed By: LC
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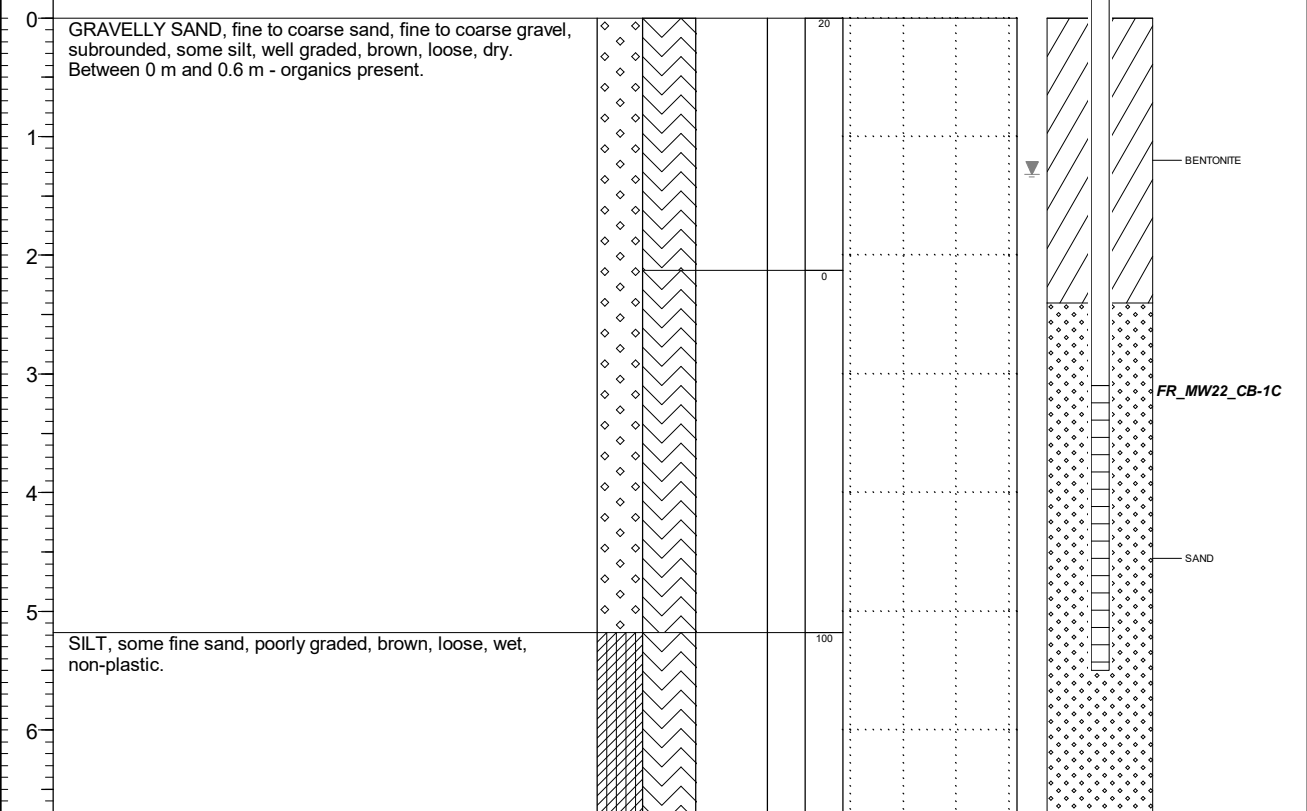
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-1C
	Location FRO Clode Pond	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 09 09 Ground Surface Elev. (m): 1672.736 Top of Casing Elev. (m): 1673.976 Northing: 5564422.122 Easting: 651080.188	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 09 09 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_CB-1C
	Soil Description								

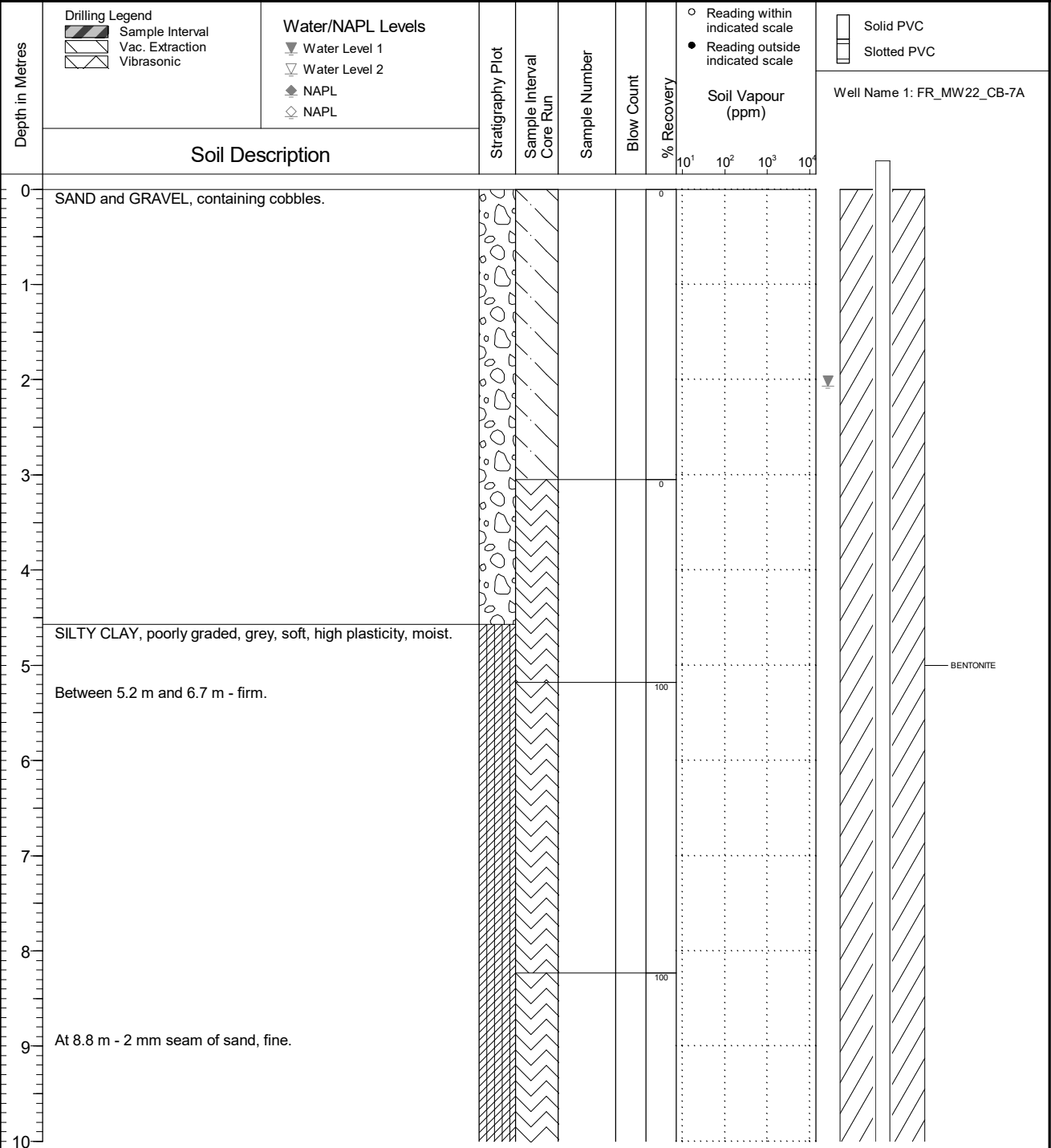


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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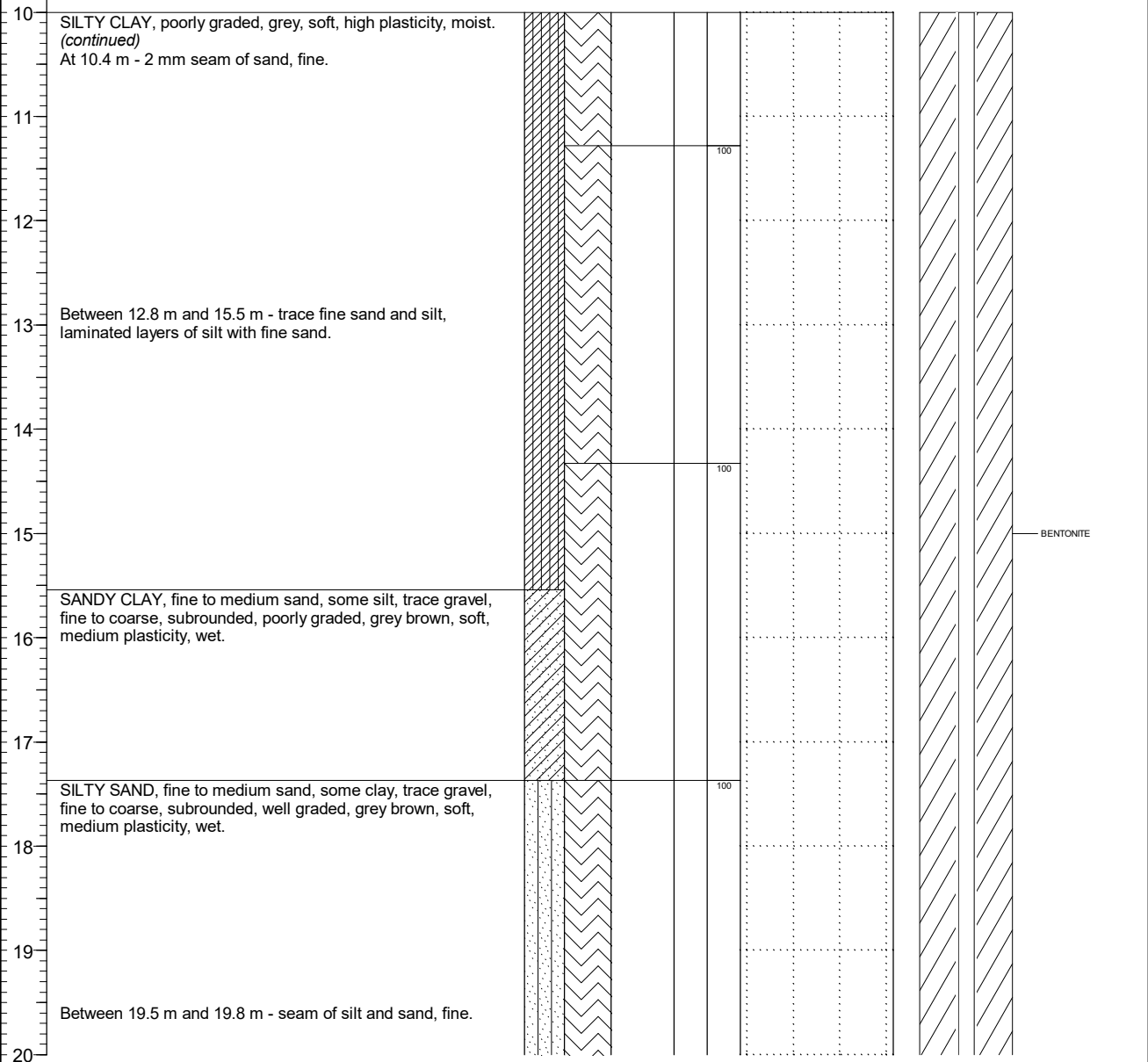
NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 2 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: FR_MW22_CB-7A
	Soil Description								

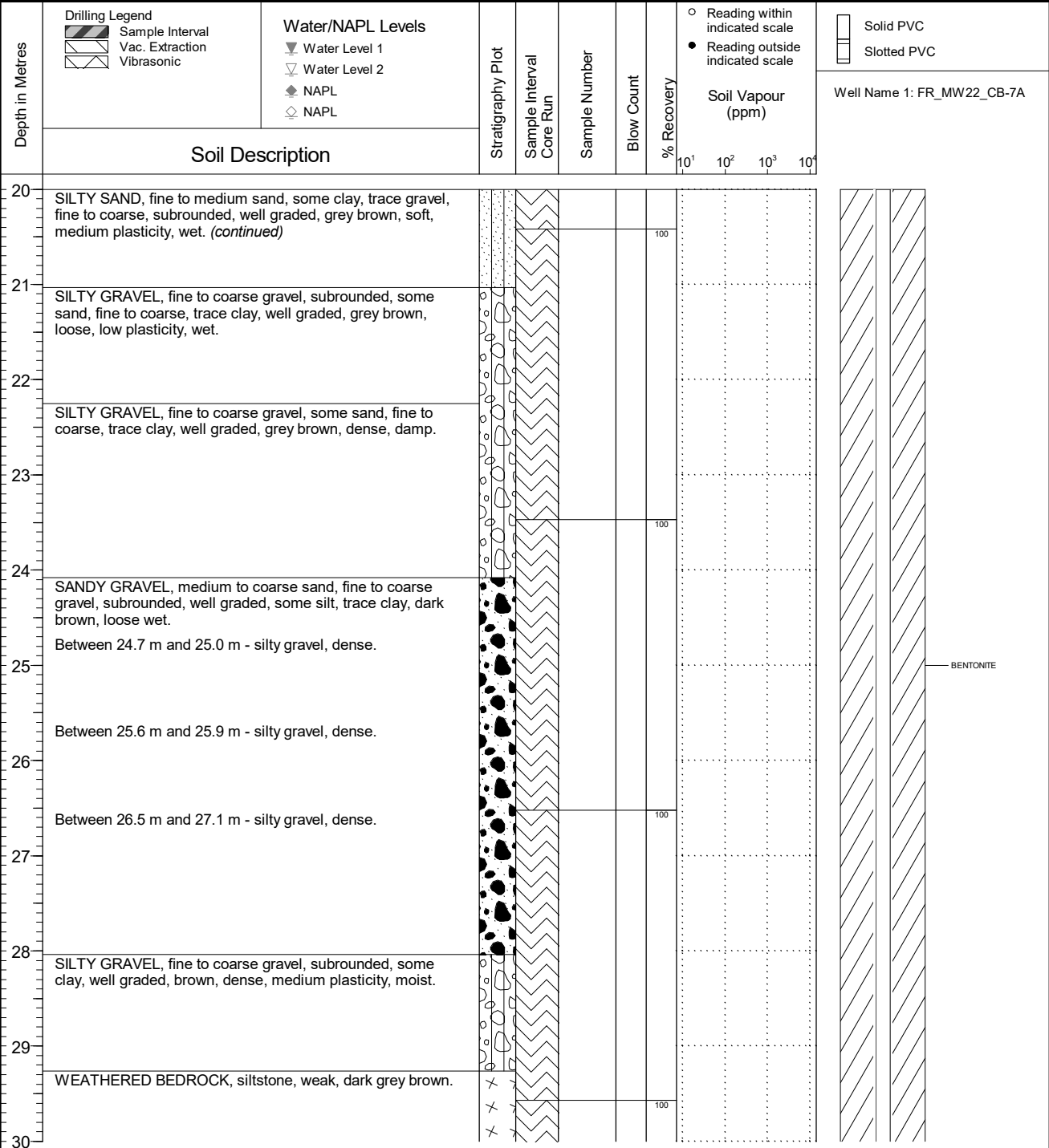


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 3 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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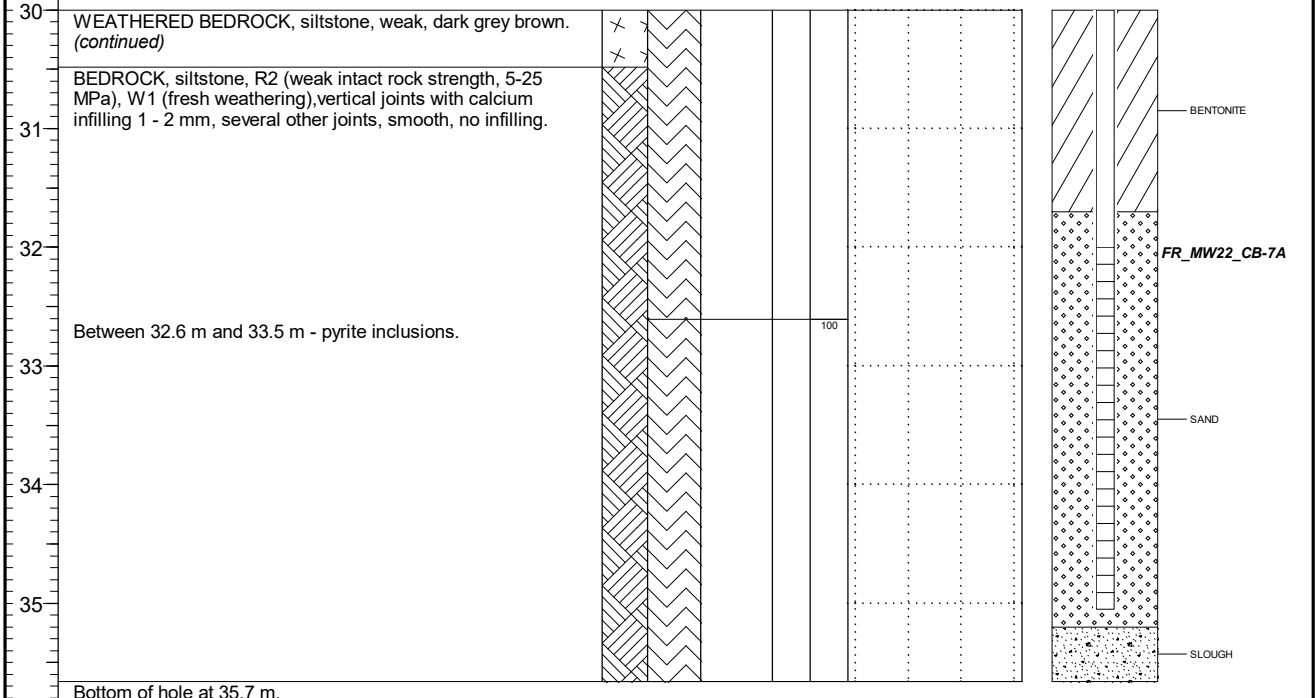
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7A
	Location FRO Clode Pond Center	PAGE 4 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.987 Top of Casing Elev. (m): 1671.019 Northing: 5564164.572 Easting: 650848.721	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 29 Log Typed By: LC
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Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval	Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	○ Solid PVC □ Slotted PVC Well Name 1: FR_MW22_CB-7A
	Soil Description									

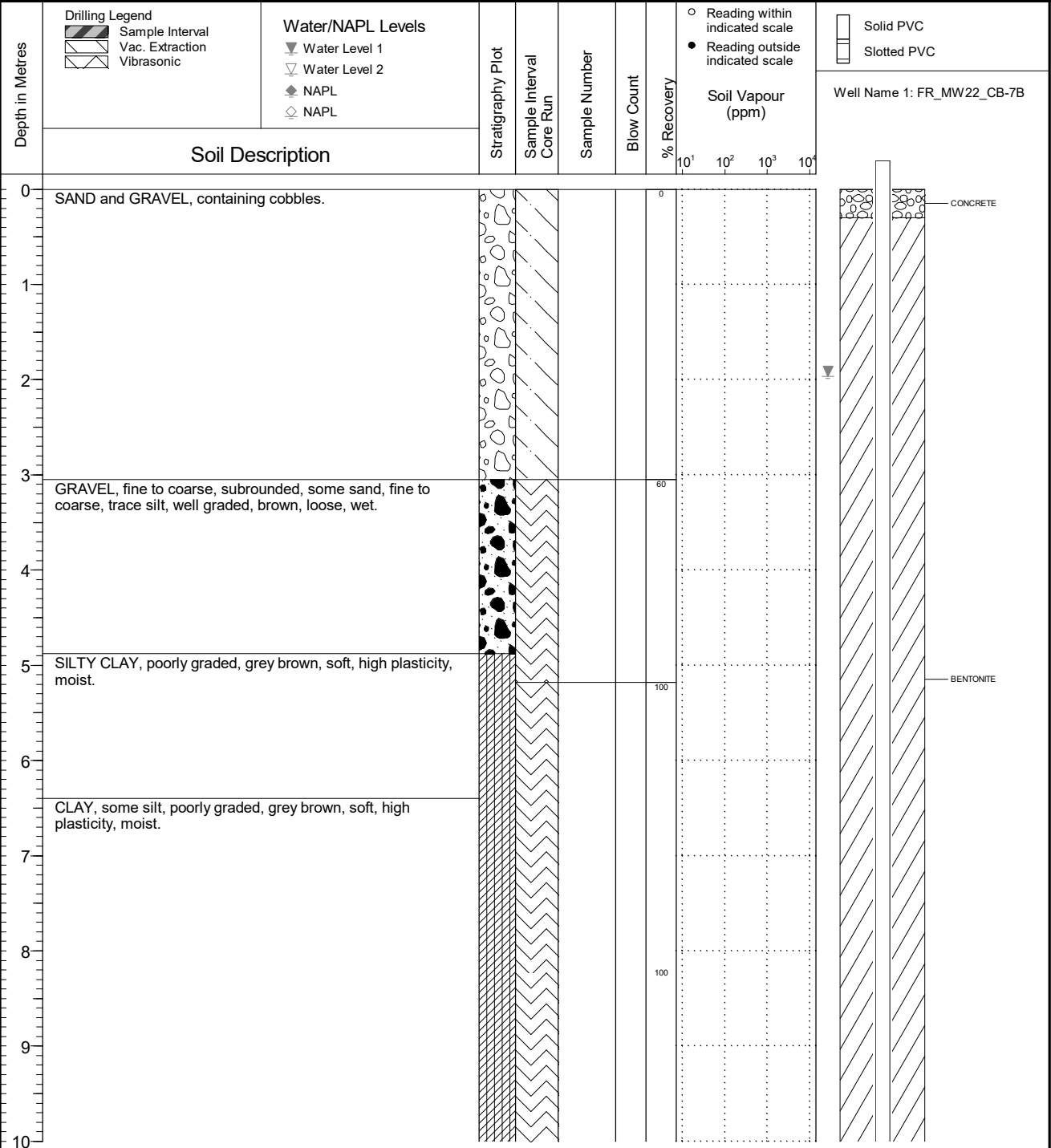


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7B
	Location FRO Clode Pond Center	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.862 Top of Casing Elev. (m): 1670.816 Northing: 5564161.745 Easting: 650850.145	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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FINAL



Client
Teck Coal Limited

Borehole No. : **FR_BH22_CB-7B**

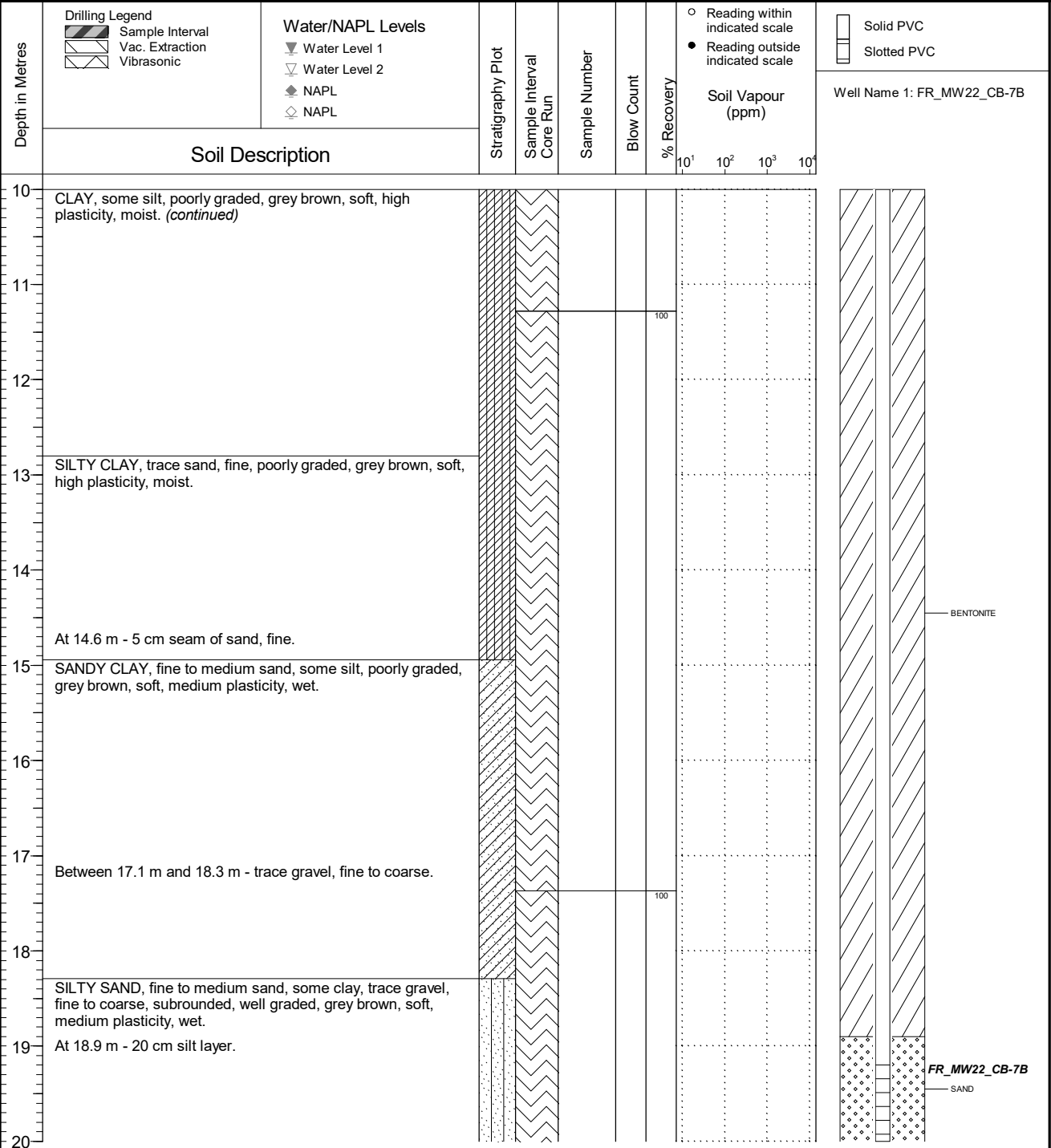
Location
FRO Clode Pond Center

PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Hydrovac/Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2022 08 10
 Ground Surface Elev. (m): 1669.862
 Top of Casing Elev. (m): 1670.816
 Northing: 5564161.745 Easting: 650850.145

Project Number: 692204
 Borehole Logged By: AH
 Date Drilled: 2022 07 30
 Log Typed By: LC

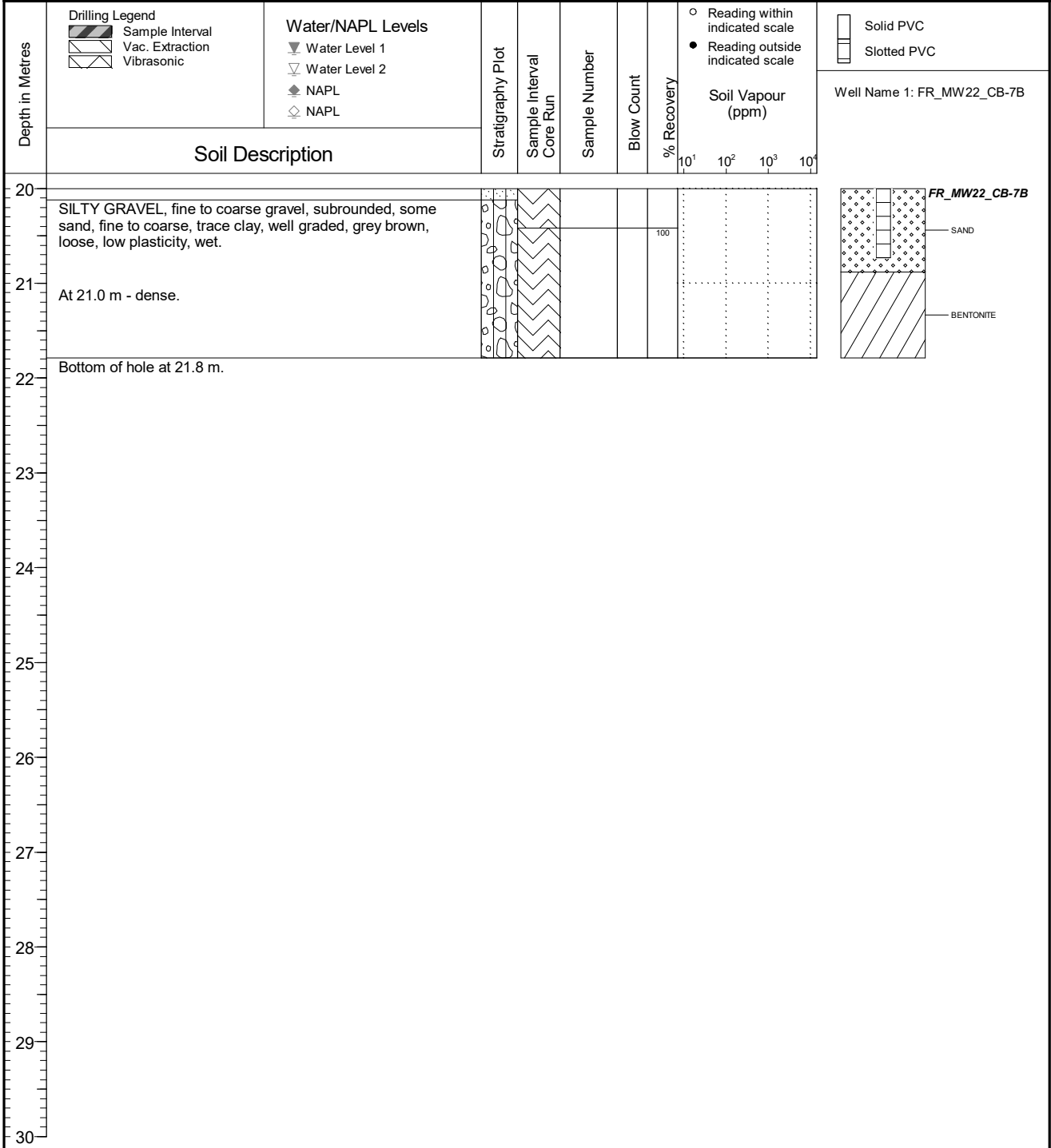


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-7B
	Location FRO Clode Pond Center	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 10 Ground Surface Elev. (m): 1669.862 Top of Casing Elev. (m): 1670.816 Northing: 5564161.745 Easting: 650850.145	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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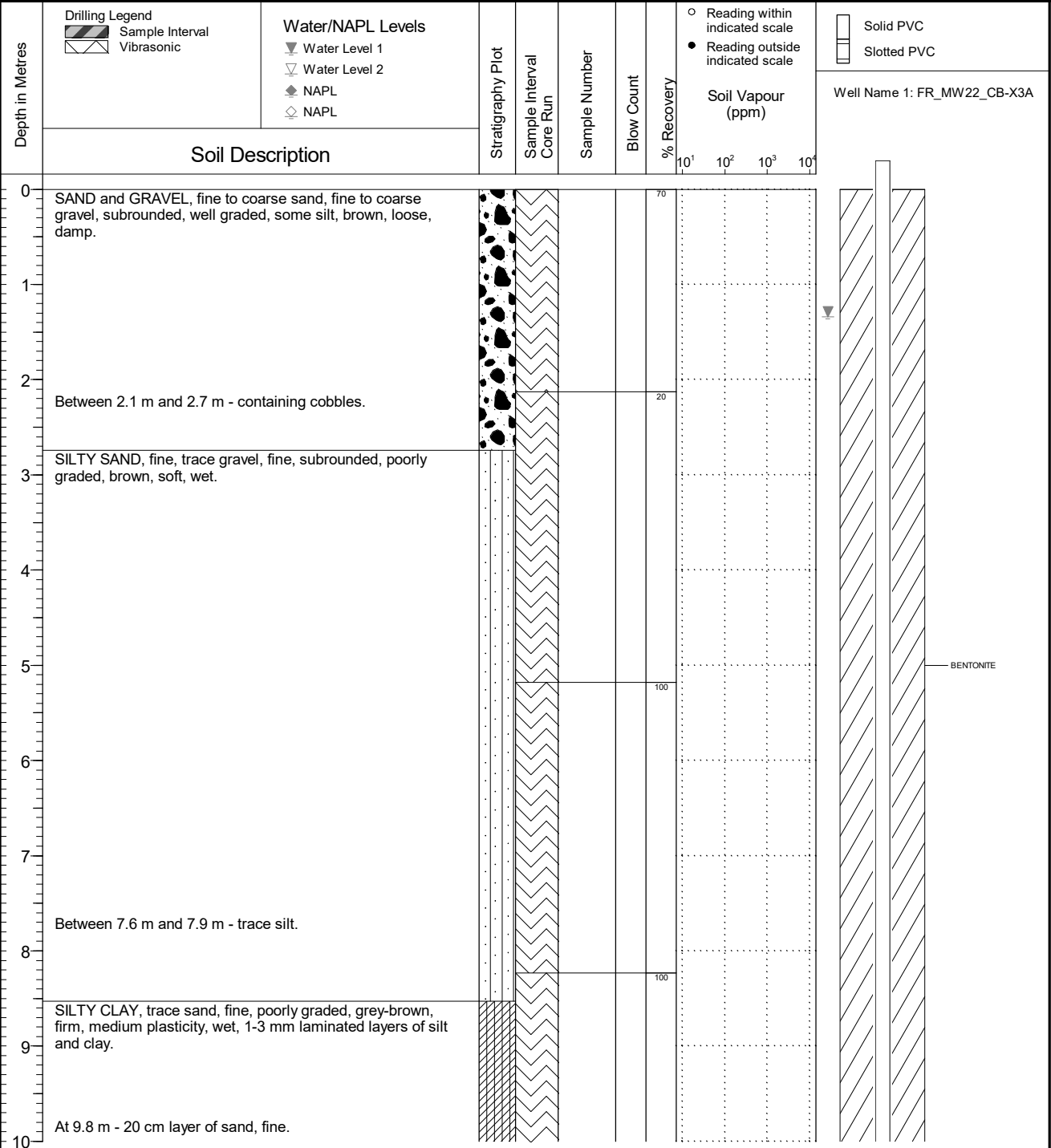


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3A
	Location FRO Clode Pond North	PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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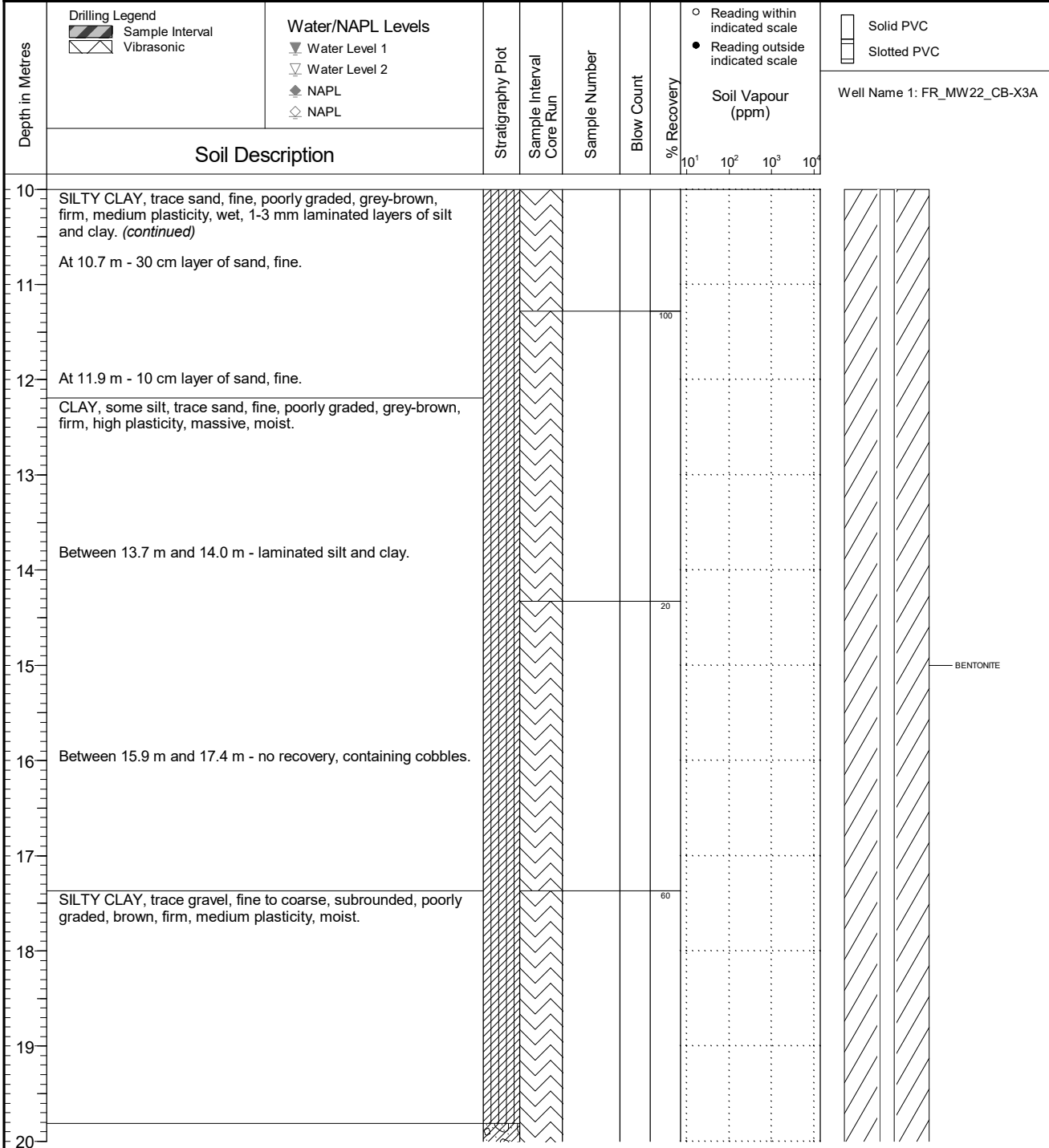


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FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3A
	Location FRO Clode Pond North	PAGE 2 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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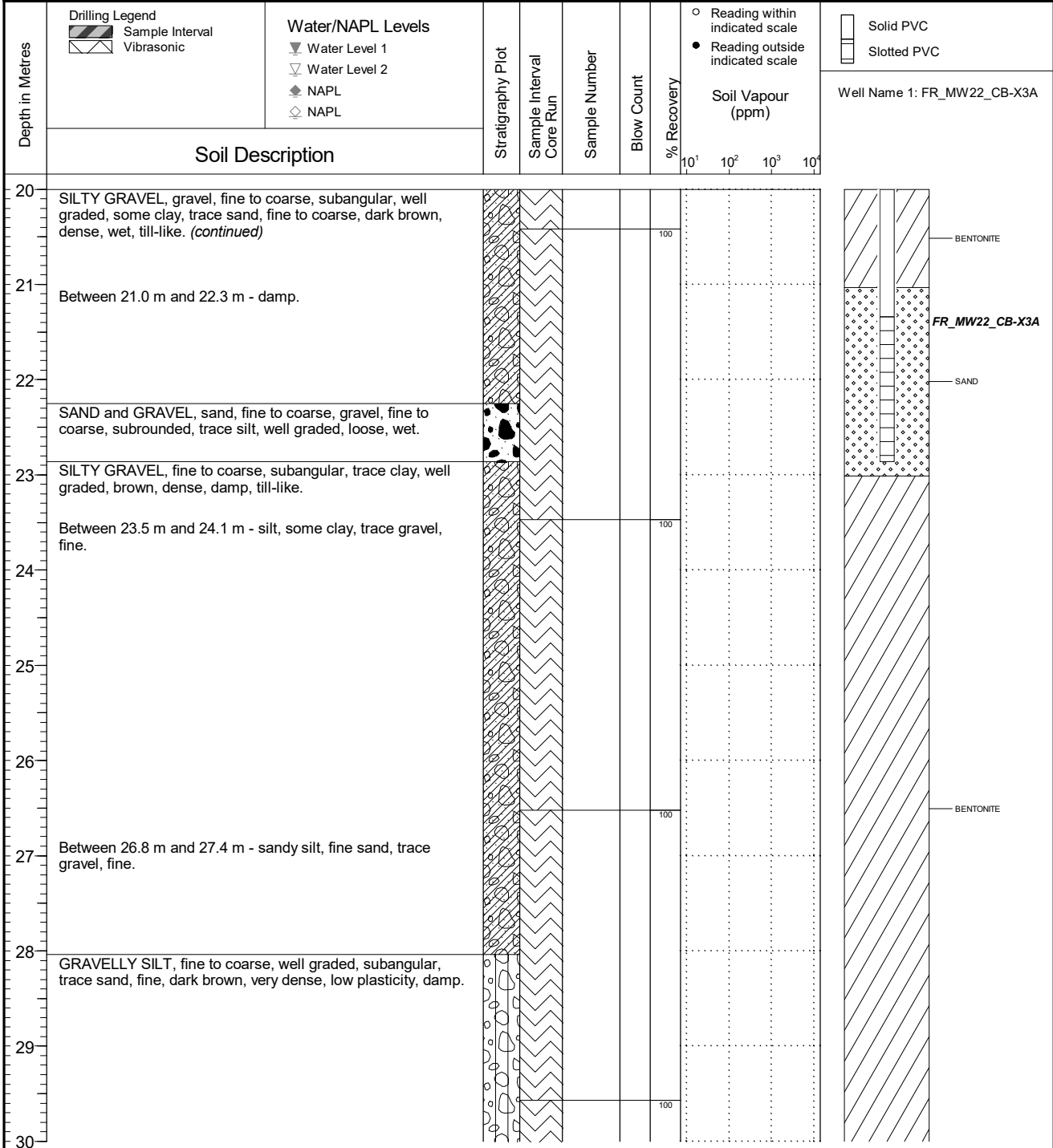


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FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3A
	Location FRO Clode Pond North	PAGE 3 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC
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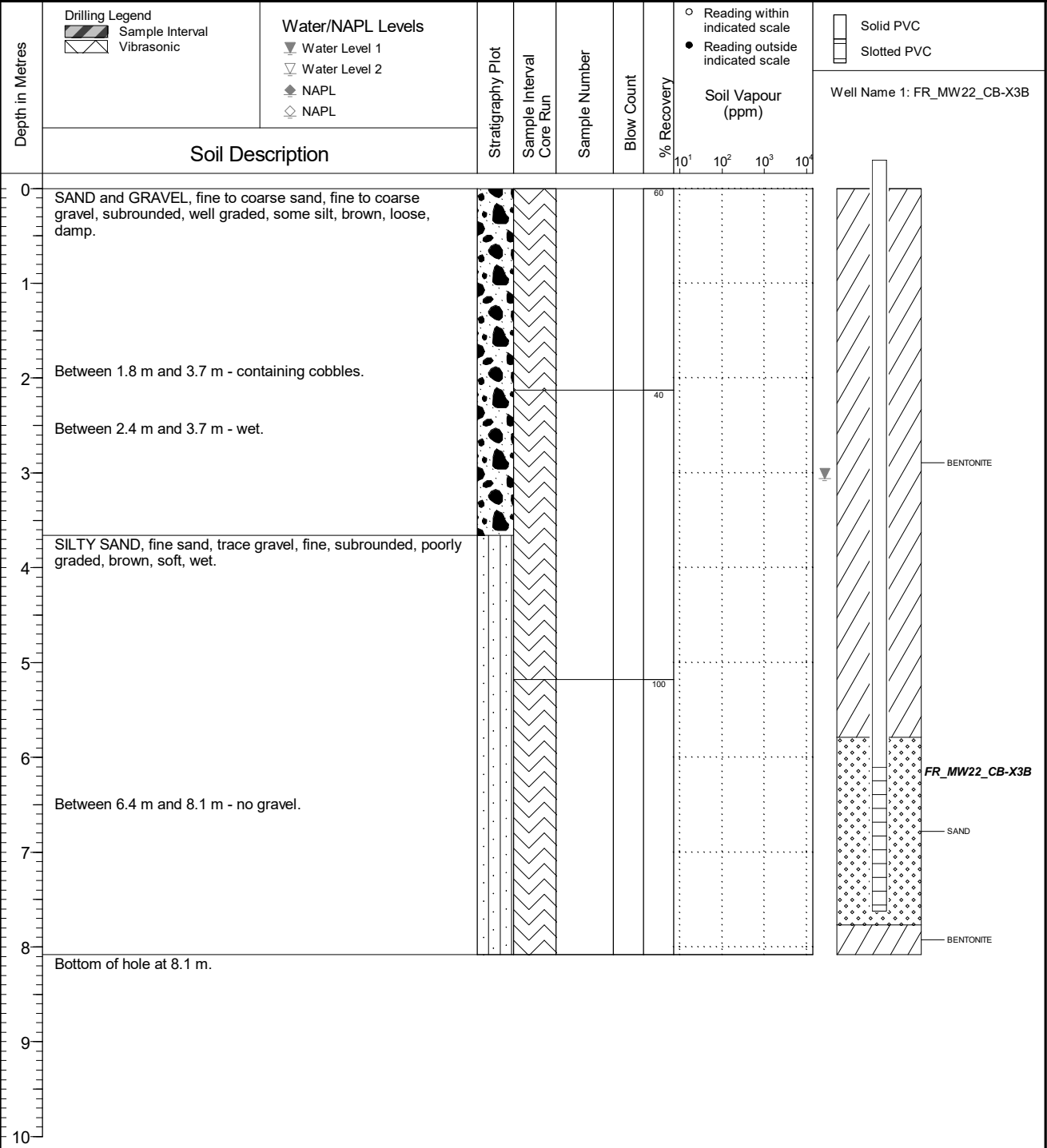
FINAL

		Client Teck Coal Limited		Borehole No. : FR_BH22_CB-X3A					
		Location FRO Clode Pond North		PAGE 4 OF 4					
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.952 Top of Casing Elev. (m): 1674.954 Northing: 5564528.345 Easting: 650939.085		Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 30 Log Typed By: LC					
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description		Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴		Well Name 1: FR_MW22_CB-X3A				
30	GRAVELLY CLAY, fine to coarse, subangular, well graded, some silt, dark brown, dense, medium plasticity, moist.								BENTONITE
31									
32	Between 31.4 m and 32.5 m - damp.								
Bottom of hole at 32.5 m.									
33									
34									
35									
36									
37									
38									
39									
40									
NOTES									

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_CB-X3B
	Location FRO Clode Pond North	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 09 Ground Surface Elev. (m): 1673.956 Top of Casing Elev. (m): 1674.952 Northing: 5564529.526 Easting: 650939.705	Project Number: 692204 Borehole Logged By: AH Date Drilled: 2022 07 31 Log Typed By: LC
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NOTES

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA1	
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021
Drilling Contractor: Mud Bay Drilling		Elevation: 1666.50	Coordinates:
Supervision: Teck FRO		Dip: -90 Azi:0.00	N 5563844.62
Drilling Method: Sonic		Total Depth (m): 17	E 650785.49

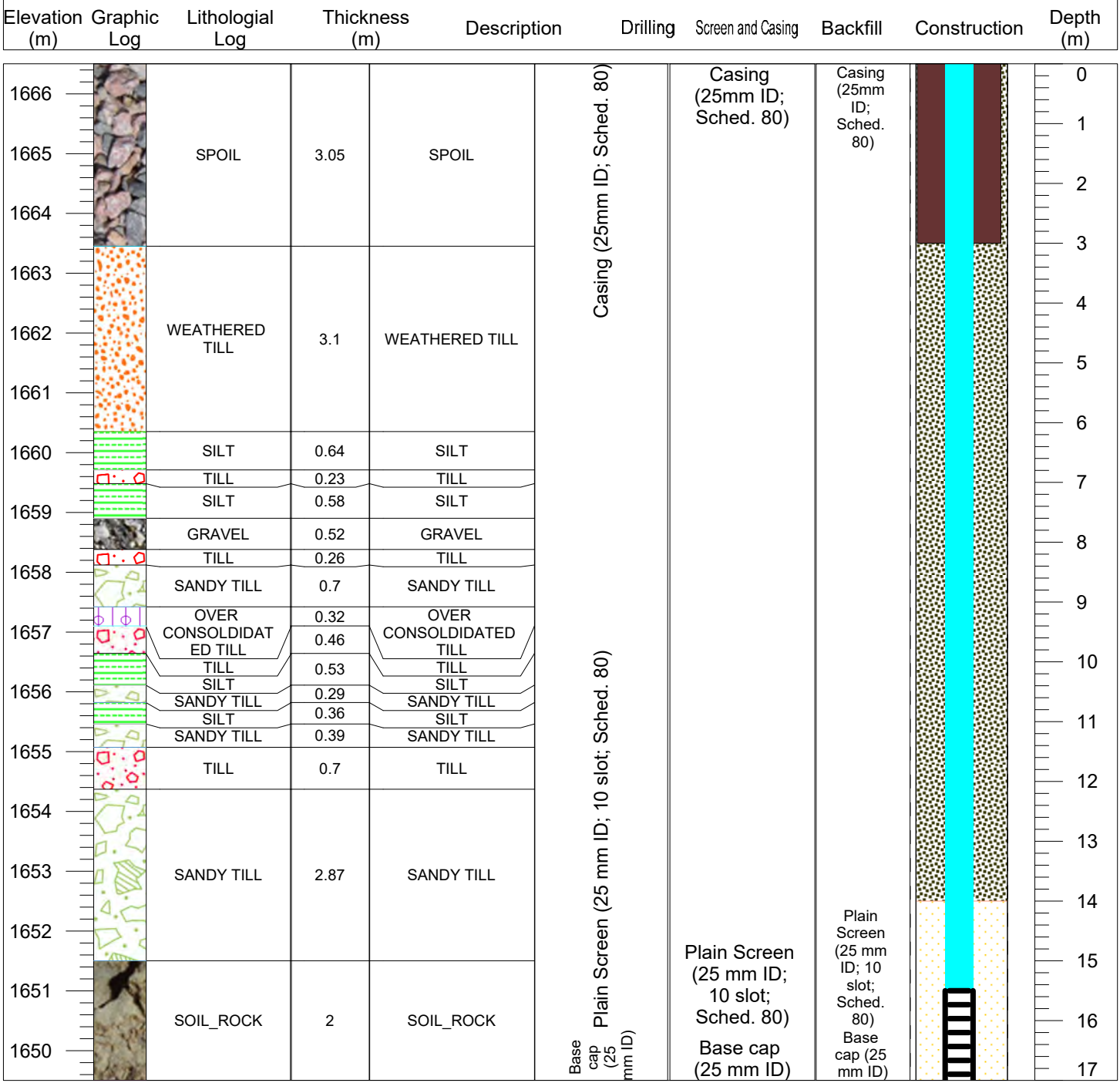


Figure No. C.3

O'Neil Hydro-Geotechnical Engineering Ltd.
33-6299 144th Street
Surrey, V3X 1A2
Cell: +1 (604) 836 0300

Construction Key

Surface Casing	GRAVEL	SPOIL
Casing	SILT	SOIL_ROCK
Screen	TILL	Bentonite
Open Hole		

Lithological and Backfill Key

Pack	OVER CONSOLIDATED TILL
WEATHERED TILL	SANDY TILL

Date : 6/3/2021

Ref : 30921

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA2	
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021
Drilling Contractor: Mud Bay Drilling		Elevation: 1664.76	Coordinates:
Supervision: Teck FRO		Dip: -90 Azi:0.00	N 5563846.65
Drilling Method: Sonic		Total Depth (m): 15.63	E 650853.14

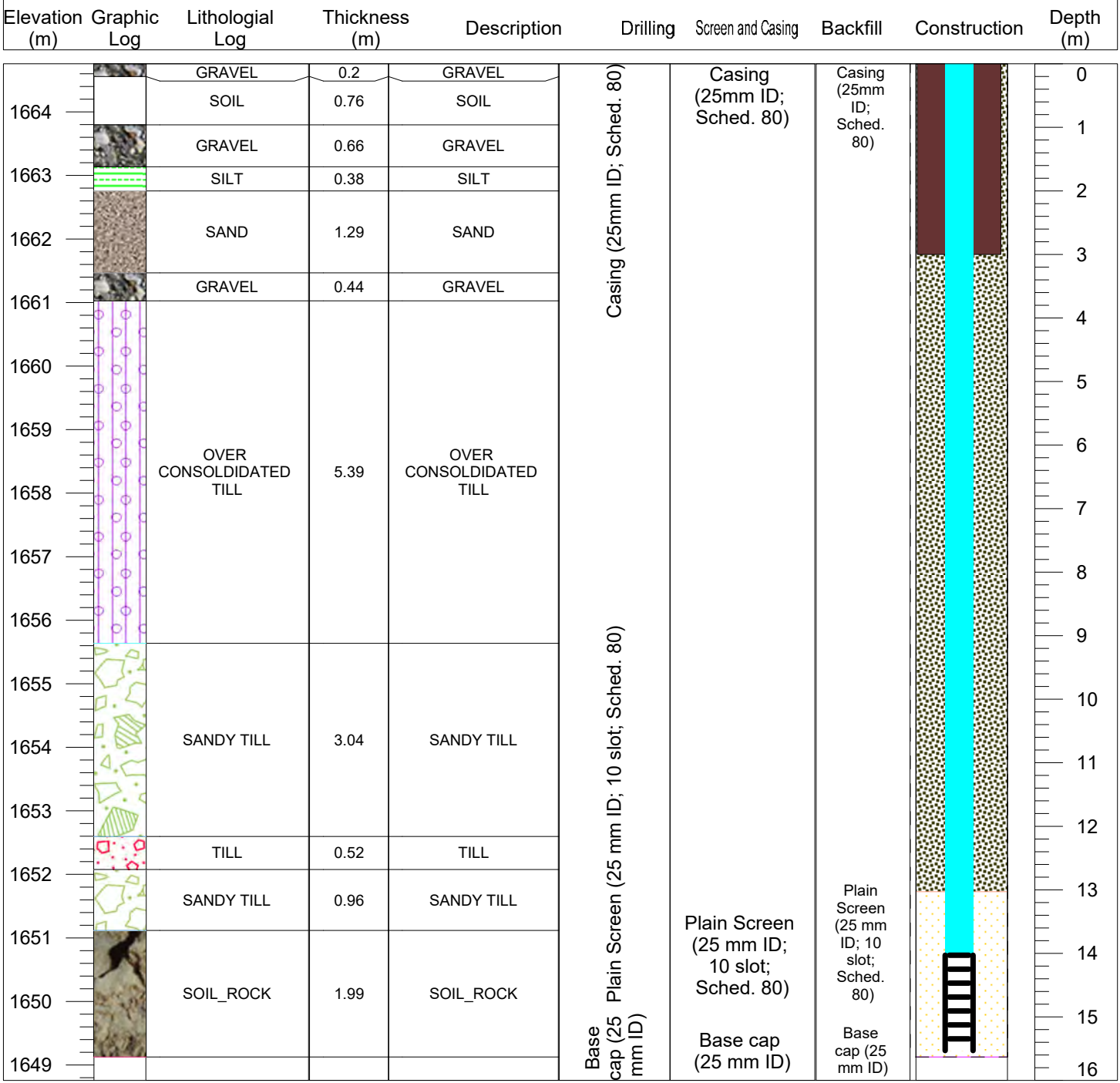


Figure No. C.4

Construction Key

- Surface Casing
- Casing
- Screen
- Open Hole

Lithological and Backfill Key

- GRAVEL
- SAND
- SILT
- TILL
- SOIL_ROCK
- Bentonite
- Pack
- OVER CONSOLIDATED TILL
- SANDY TILL

Date : 6/25/2021

Ref : 30921

O'Neill Hydro-Geotechnical Engineering Ltd.
 33-6299 144th Street
 Surrey, V3X 1A2
 Cell: +1 (604) 836 0300

Project: LMP East Wall Water Quality Monitoring Program		Borehole Log No.: LMA3							
Location: Fording River Operation		Start Date : 06/02/2021	End Date : 06/02/2021						
Drilling Contractor: Mud Bay Drilling		Elevation: 1670.81	Coordinates:						
Supervision: Teck FRO		Dip: -90 Azi:0.00	N 5563951.28						
Drilling Method: Sonic		Total Depth (m): 14.35	E 650779.85						
Elevation (m)	Graphic Log	Lithological Log	Thickness (m)	Description	Drilling	Screen and Casing	Backfill	Construction	Depth (m)

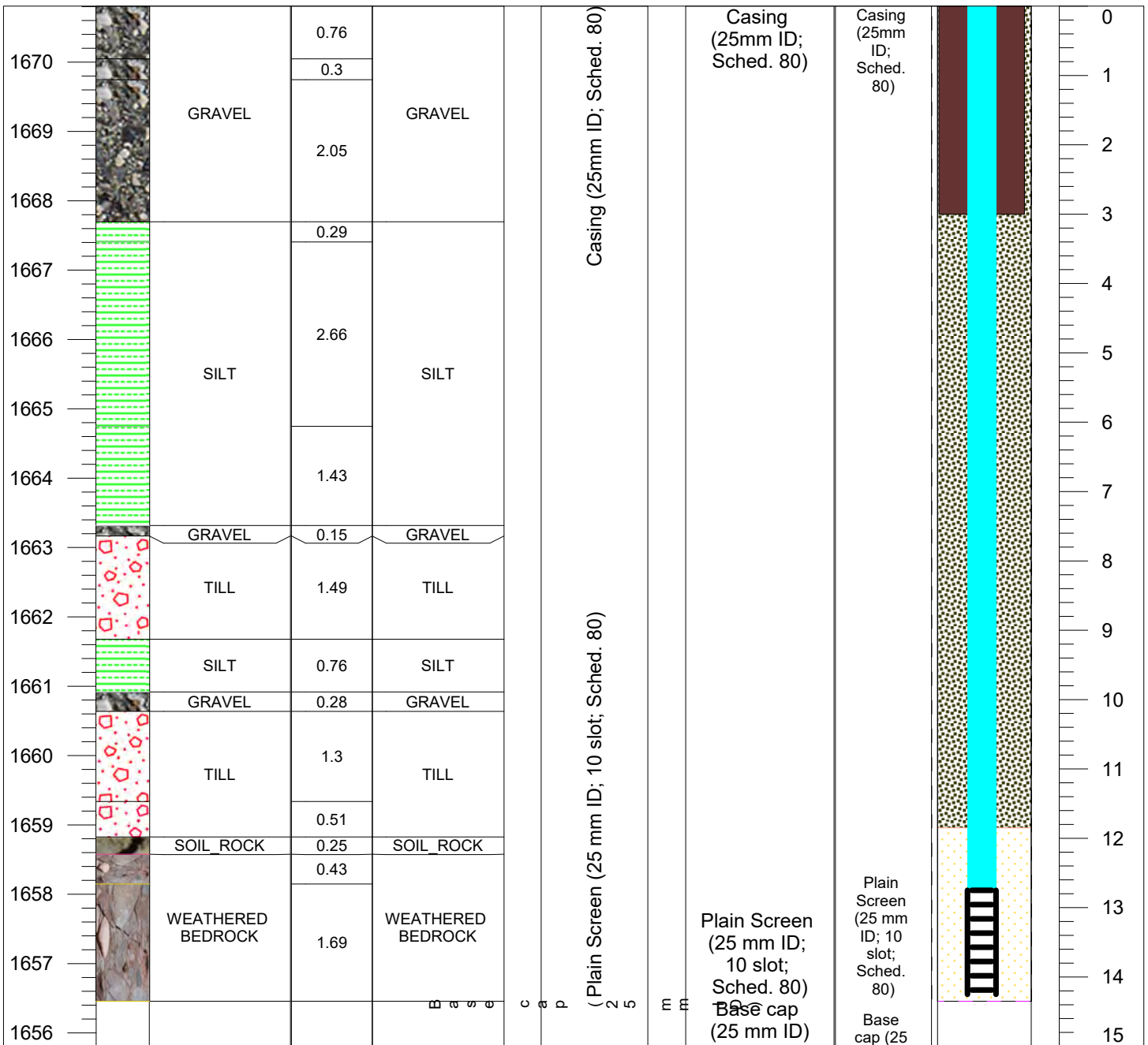


Figure No. C.5

O'Neill Hydro-Geotechnical Engineering Ltd.
 33-6299 144th Street
 Surrey, V3X 1A2
 Cell: +1 (604) 836 0300
 email: soneill2@telus.net

Lithological and Backfill Key

- Surface Casing
- Casing
- Screen
- Open Hole
- GRAVEL
- SILT
- TILL
- SOIL_ROCK
- Bentonite
- Pack
- WEATHERED BEDROCK

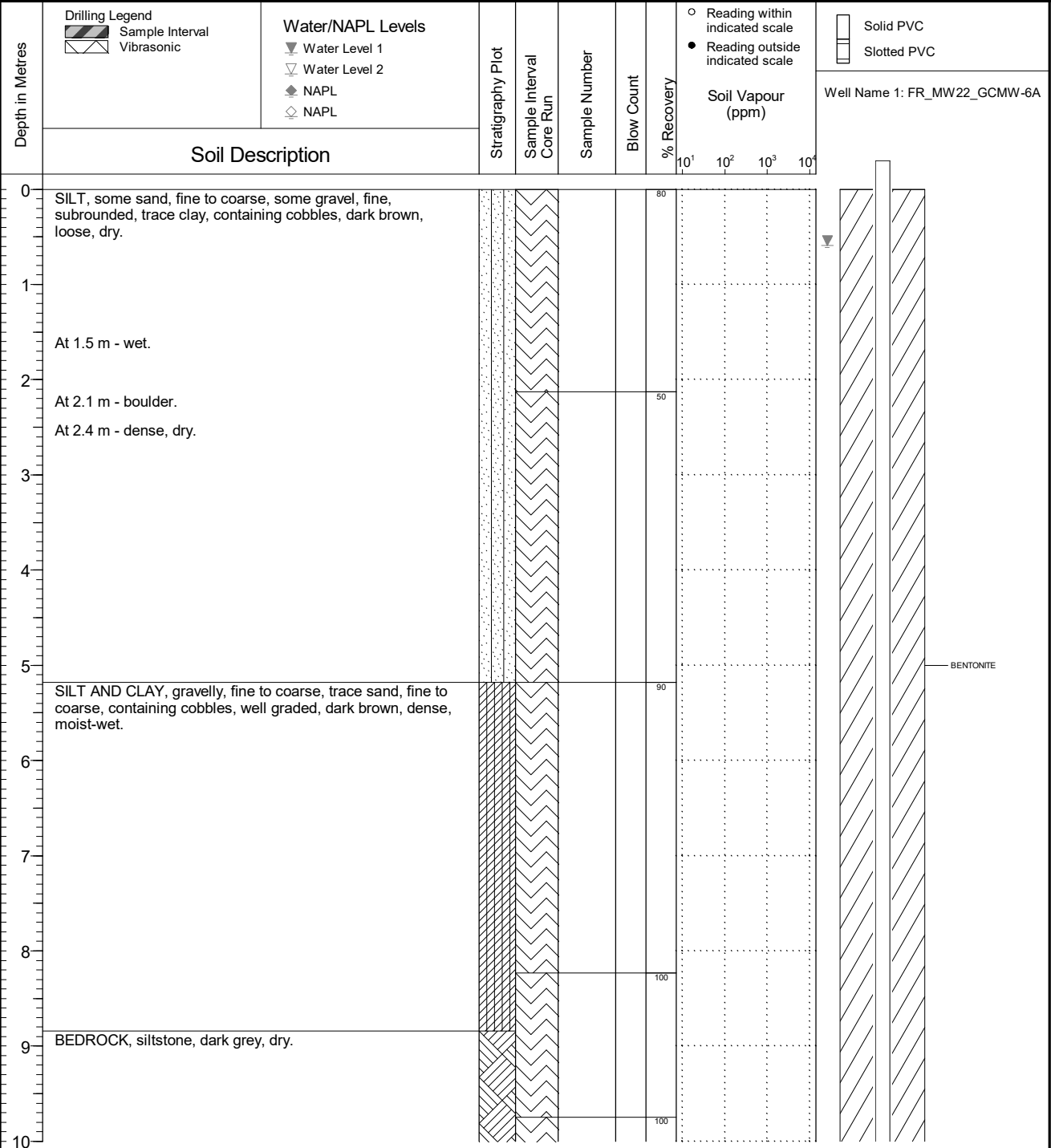
Date : 6/25/2021 **Ref :** 30921

Author : Shane O'Neill **Drawn By :** SON

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6A
	Location FRO Clode Pond South	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1665.982 Top of Casing Elev. (m): 1666.907 Northing: 5563917.490 Easting: 651033.313	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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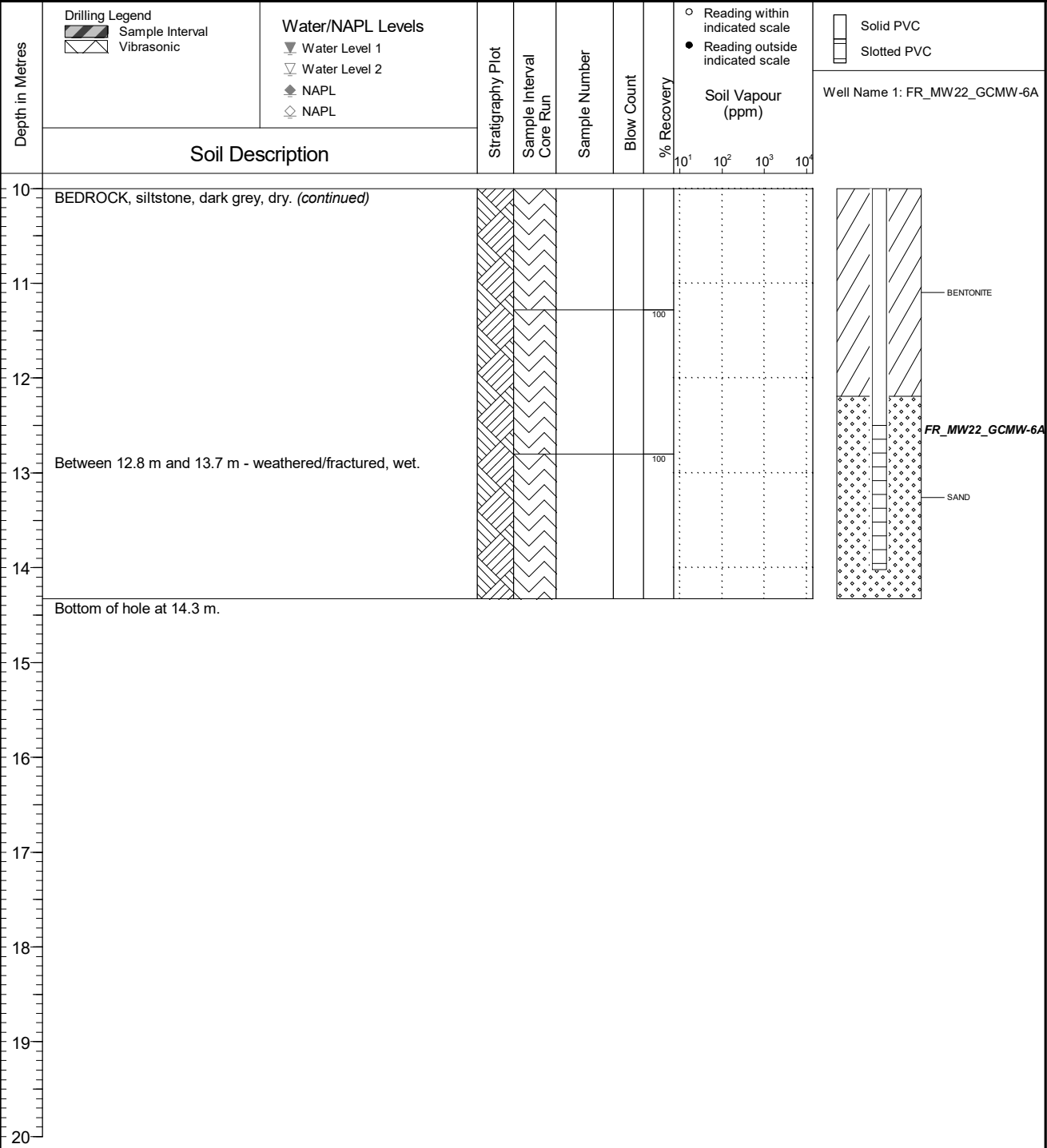


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6A
	Location FRO Clode Pond South	PAGE 2 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1665.982 Top of Casing Elev. (m): 1666.907 Northing: 5563917.490 Easting: 651033.313	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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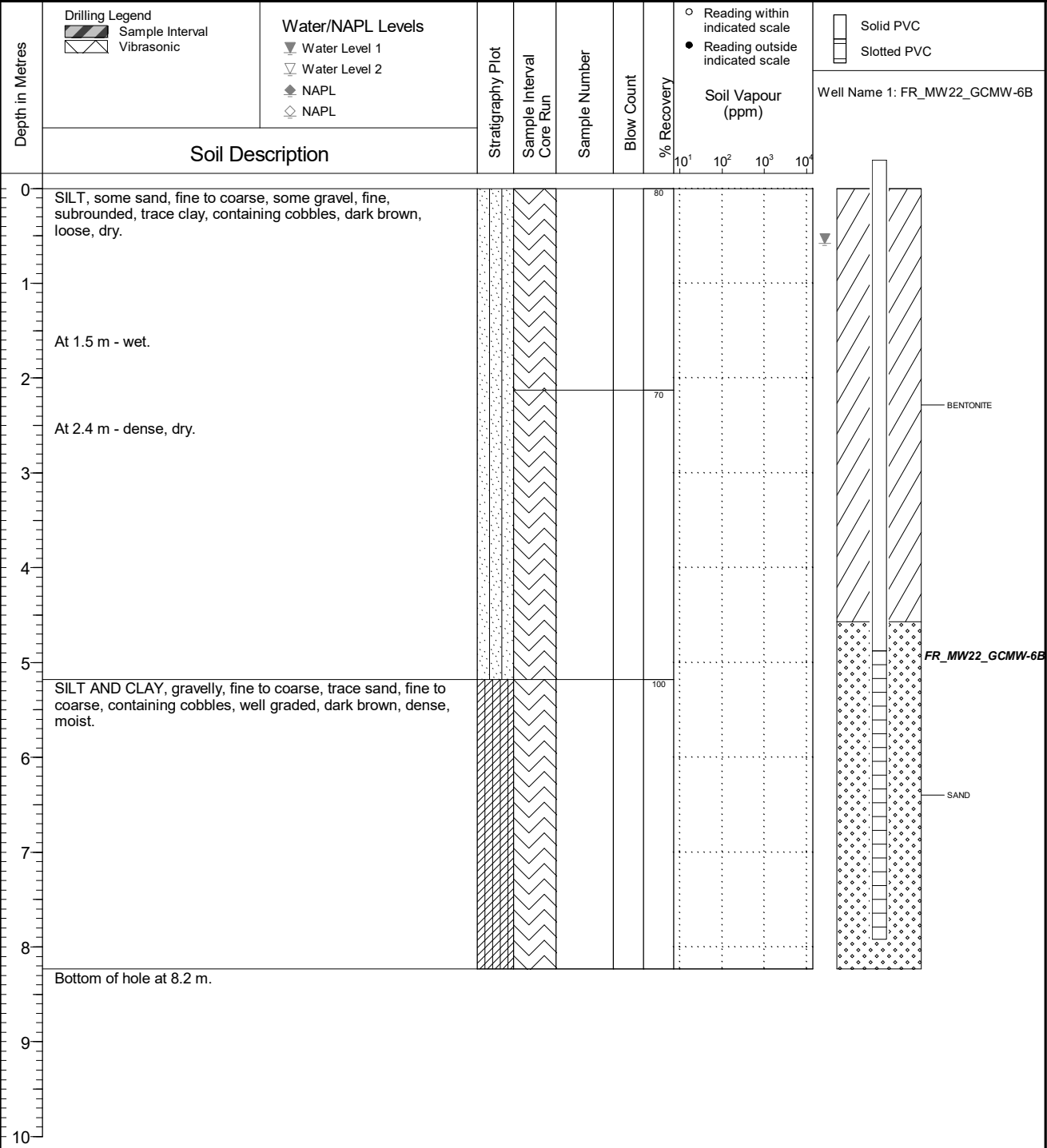


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : FR_BH22_GCMW-6B
	Location FRO Clode Pond South	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 08 18 Ground Surface Elev. (m): 1666.018 Top of Casing Elev. (m): 1666.937 Northing: 5563916.729 Easting: 651033.023	Project Number: 692204 Borehole Logged By: MTB Date Drilled: 2022 08 17 Log Typed By: LC
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FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR2A

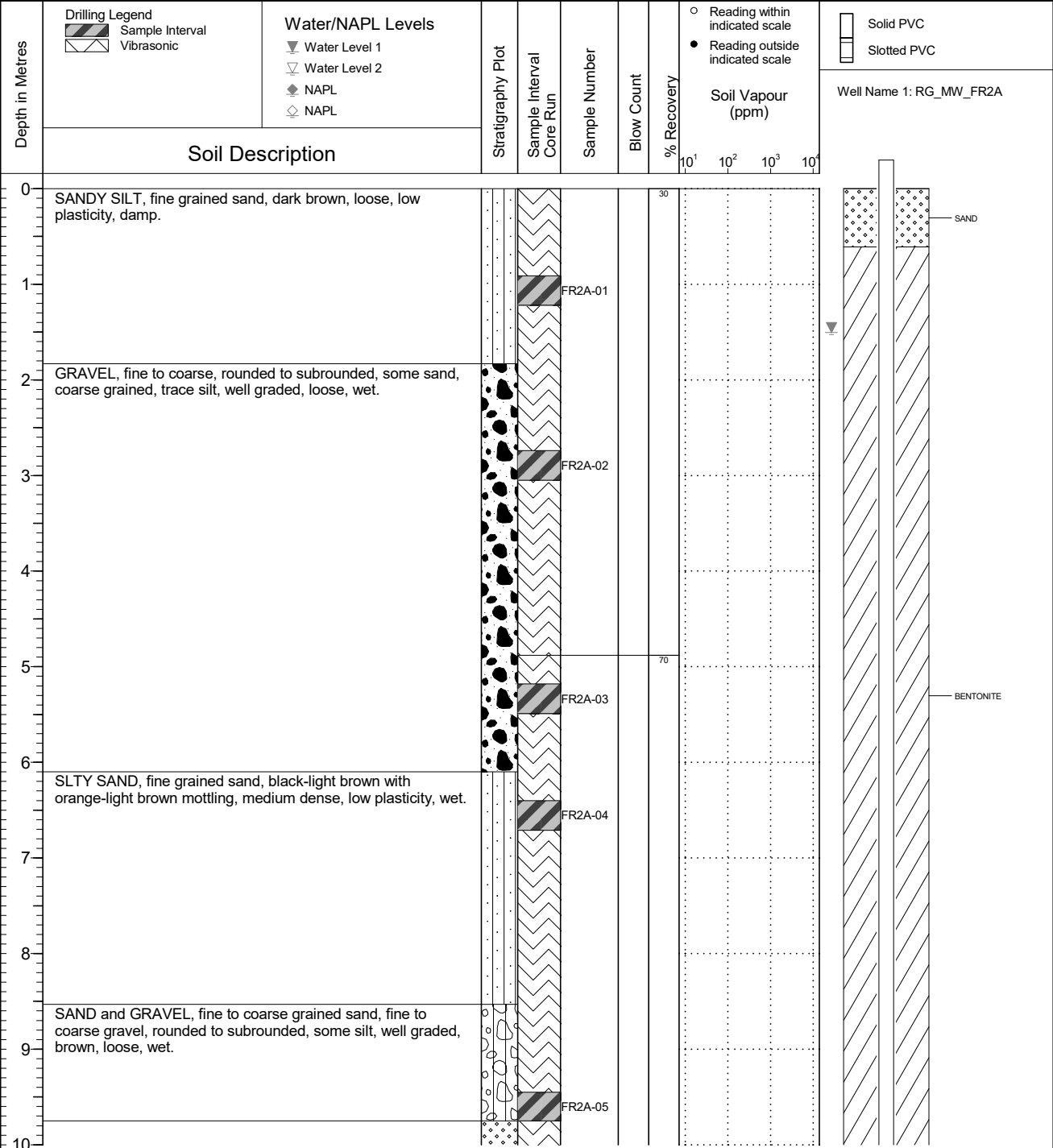
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1569.034
 Top of Casing Elev. (m): 1569.754
 Northing: 5556755.637 Easting: 653498.963

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 08 29
 Log Typed By: VL

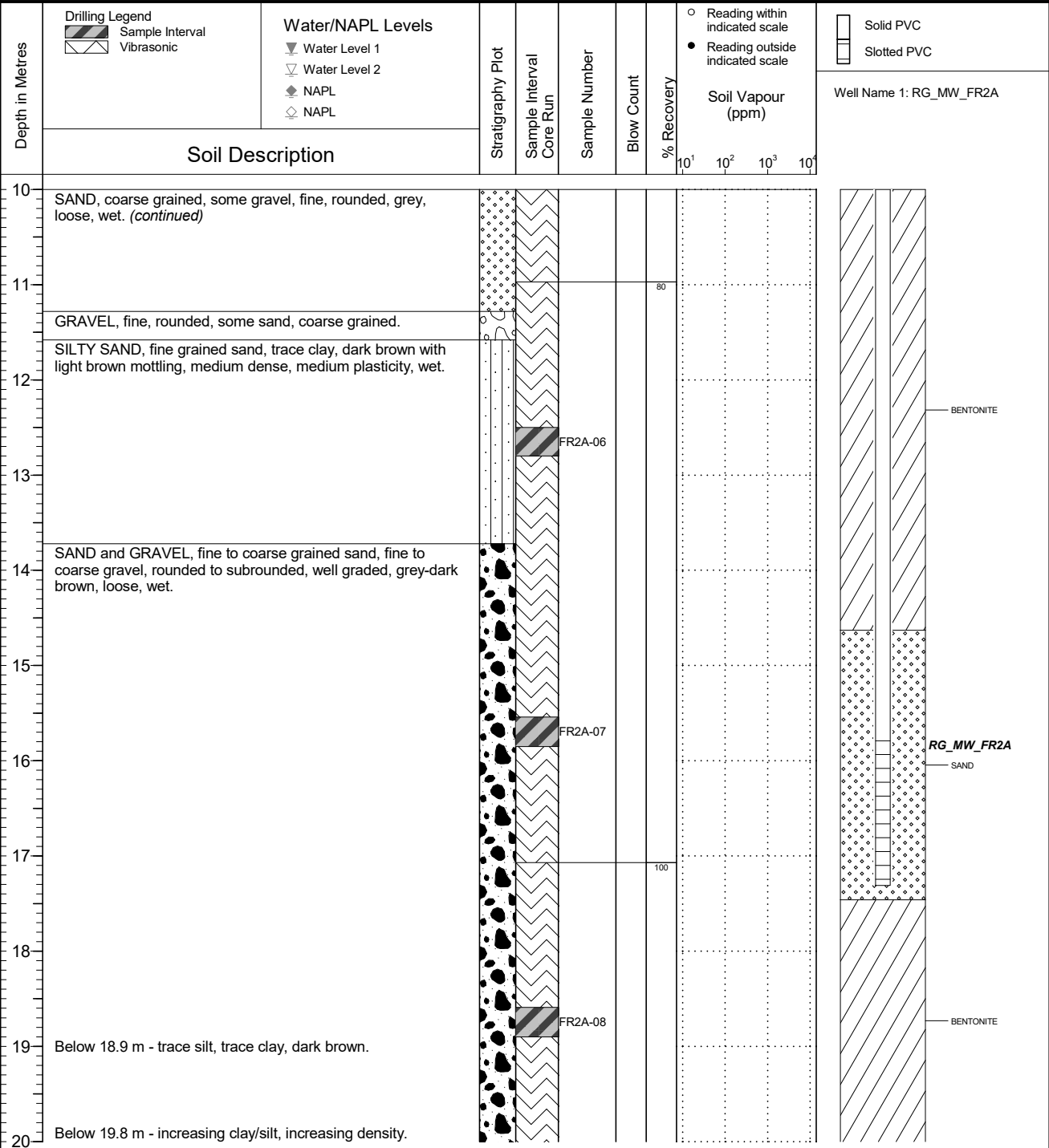


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR2A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.034 Top of Casing Elev. (m): 1569.754 Northing: 5556755.637 Easting: 653498.963	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 29 Log Typed By: VL
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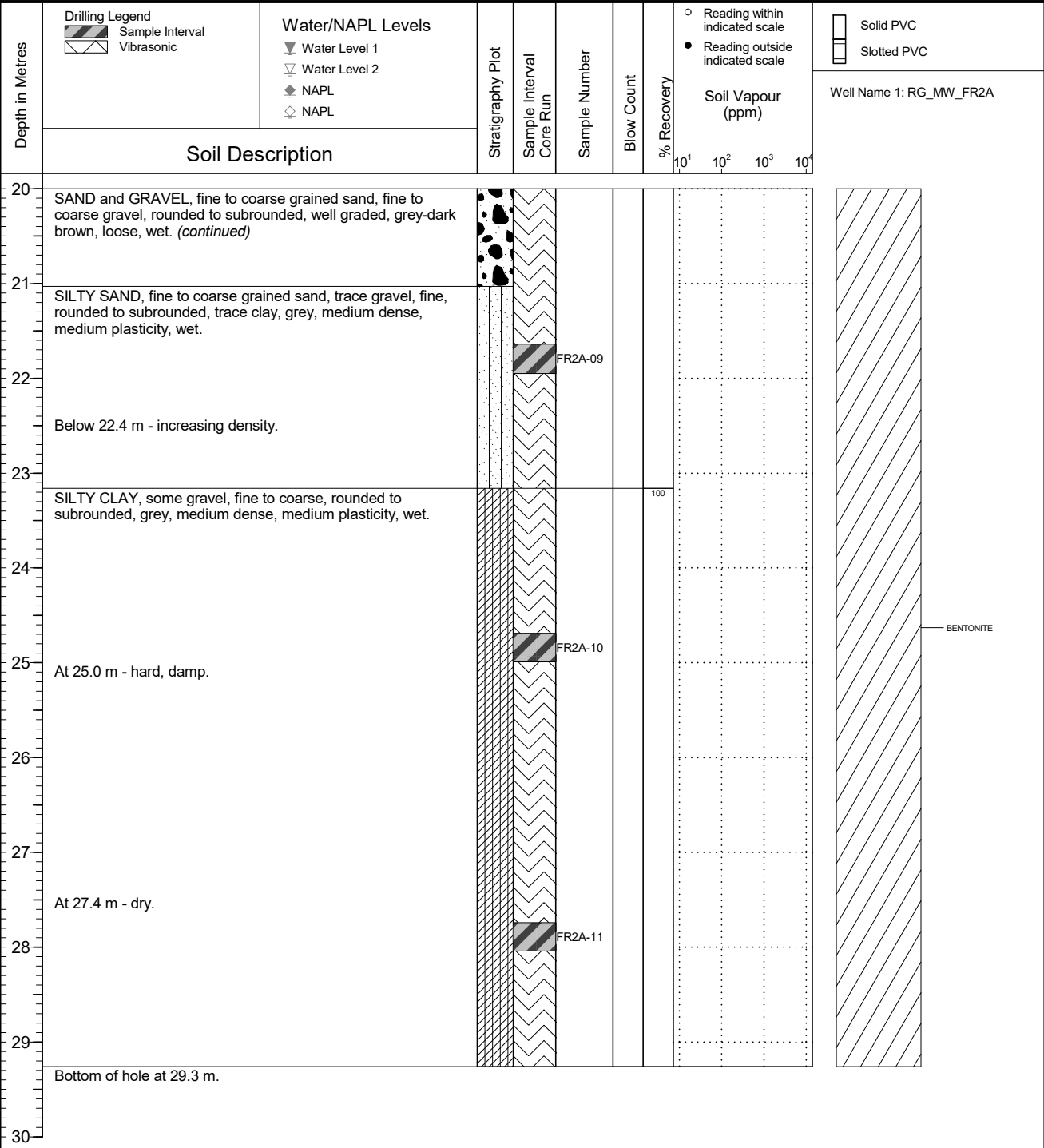
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR2A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.034 Top of Casing Elev. (m): 1569.754 Northing: 5556755.637 Easting: 653498.963	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 29 Log Typed By: VL
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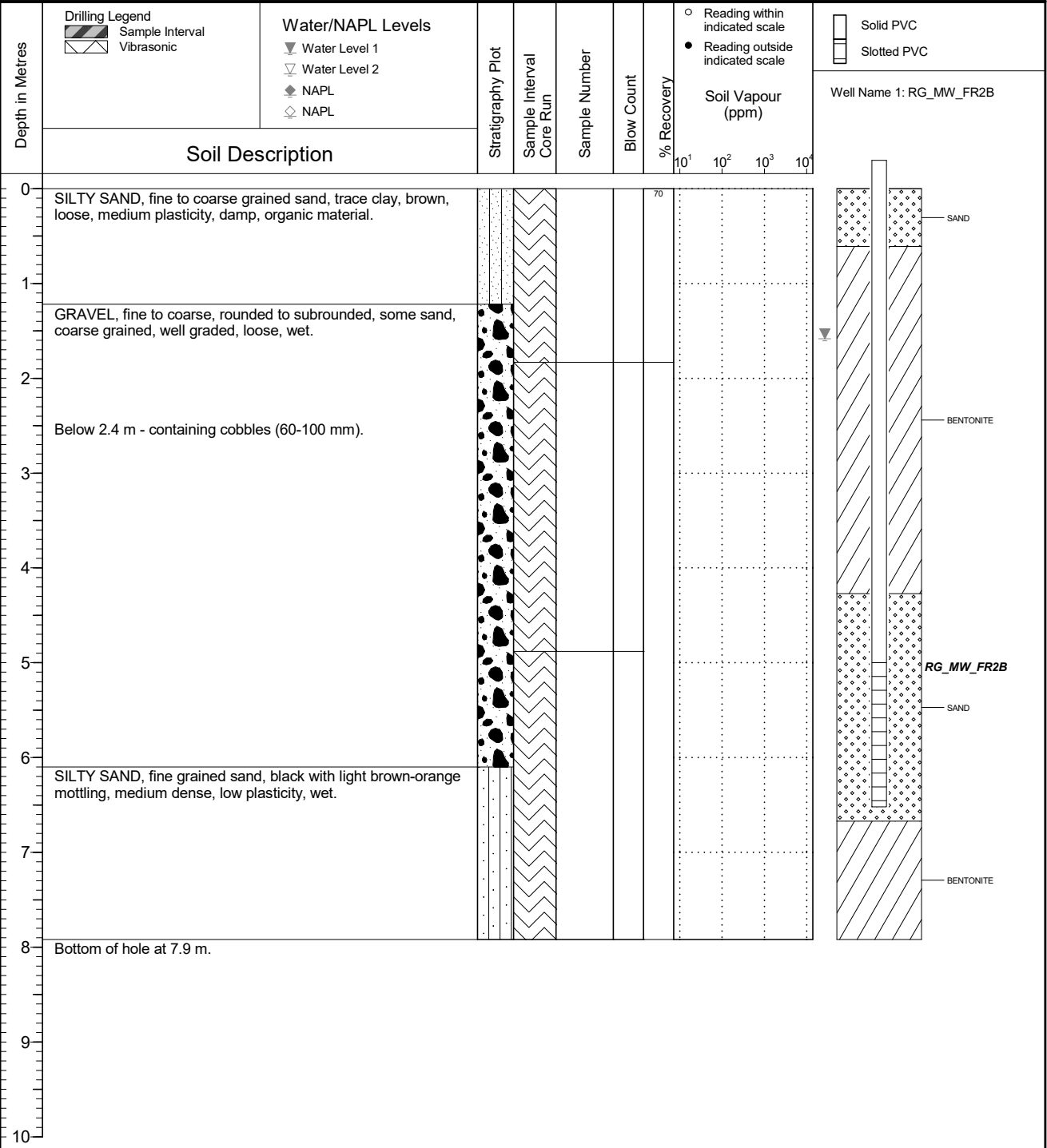


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR2B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1569.083 Top of Casing Elev. (m): 1569.693 Northing: 5556755.559 Easting: 653500.091	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 30 Log Typed By: VL
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR3A

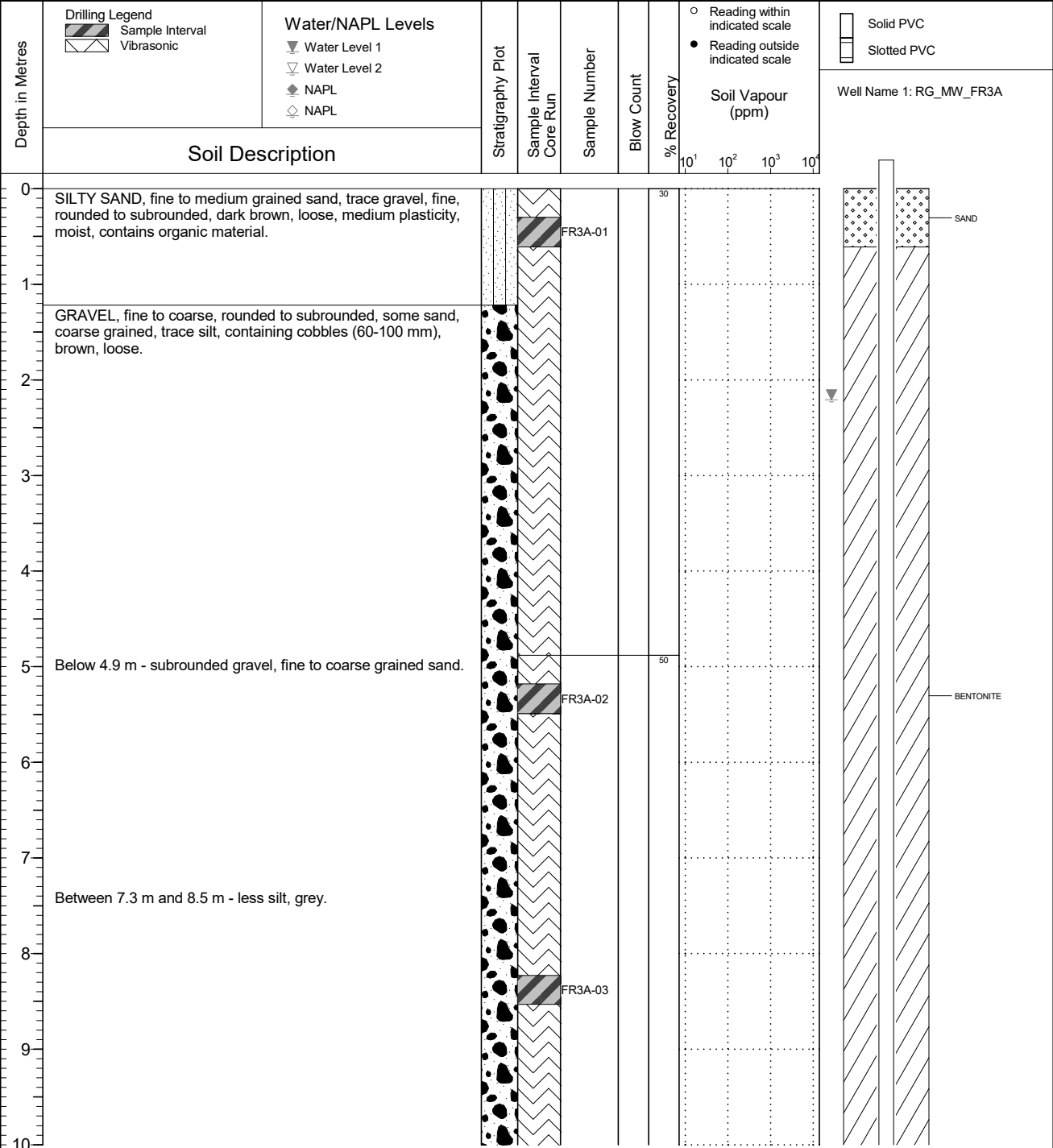
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1570.402
 Top of Casing Elev. (m): 1571.215
 Northing: 5556777.203 Easting: 653233.950

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 08 31
 Log Typed By: VL

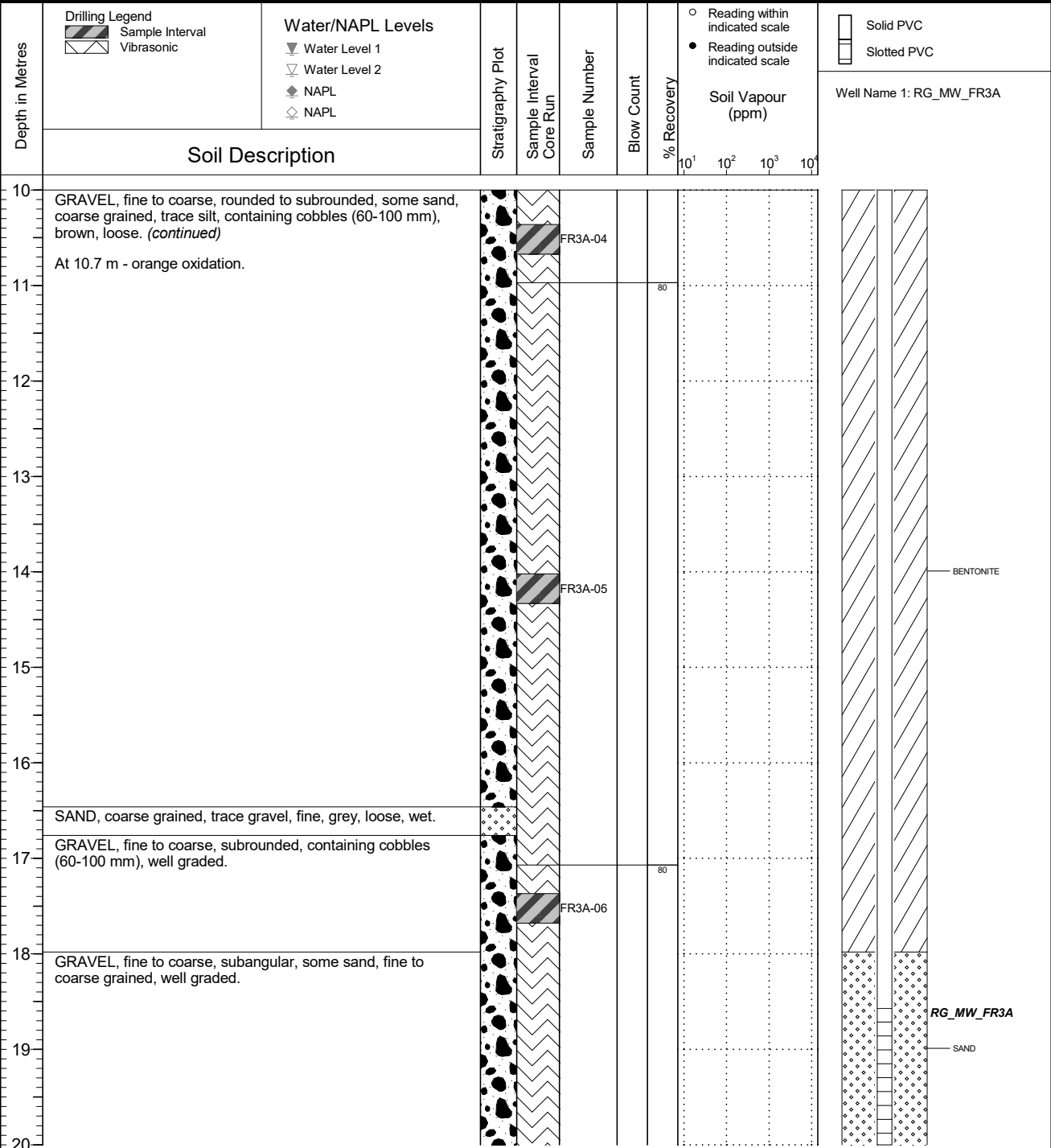


NOTES
 Bolded sample denotes sample analyzed.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR3A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1570.402 Top of Casing Elev. (m): 1571.215 Northing: 5556777.203 Easting: 653233.950	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 08 31 Log Typed By: VL
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NOTES
 Bolded sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR3A

Location
Regional Groundwater Monitoring

PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1570.402
 Top of Casing Elev. (m): 1571.215
 Northing: 5556777.203 Easting: 653233.950

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 08 31
 Log Typed By: VL

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: RG_MW_FR3A	
							10 ¹	10 ²	10 ³	10 ⁴		
20	GRAVEL, fine to coarse, subangular, some sand, fine to coarse grained, well graded. <i>(continued)</i>											
21	GRAVEL, fine to coarse, subangular, some silt, trace clay, well graded, dark brown, medium dense, medium plasticity, wet. Between 21.3 and 22.2 m - less silt, less clay, light brown.		FR3A-07									
22												
23	GRAVEL, fine to coarse, subangular, some silt, trace clay, well graded, dark brown, medium dense, medium plasticity, wet.											
24	CLAYEY GRAVEL, fine gravel, subrounded to subangular, some sand, coarse grained, brown, dense, wet.		FR3A-08			80						
25	BOULDER, 330 mm, siltstone, black.											
26	CLAYEY GRAVEL, fine to coarse gravel, subrounded and subangular, some sand, coarse grained, dark brown, dense, medium plasticity, damp.											
27	GRAVELLY CLAY, fine gravel, subrounded to subangular, some sand, fine grained, dark brown, dense, moist. At 27.4 m - light brown.		FR3A-09									
28	At 28.3 m - dry.											
29	Bottom of hole at 29.3 m.											
30												

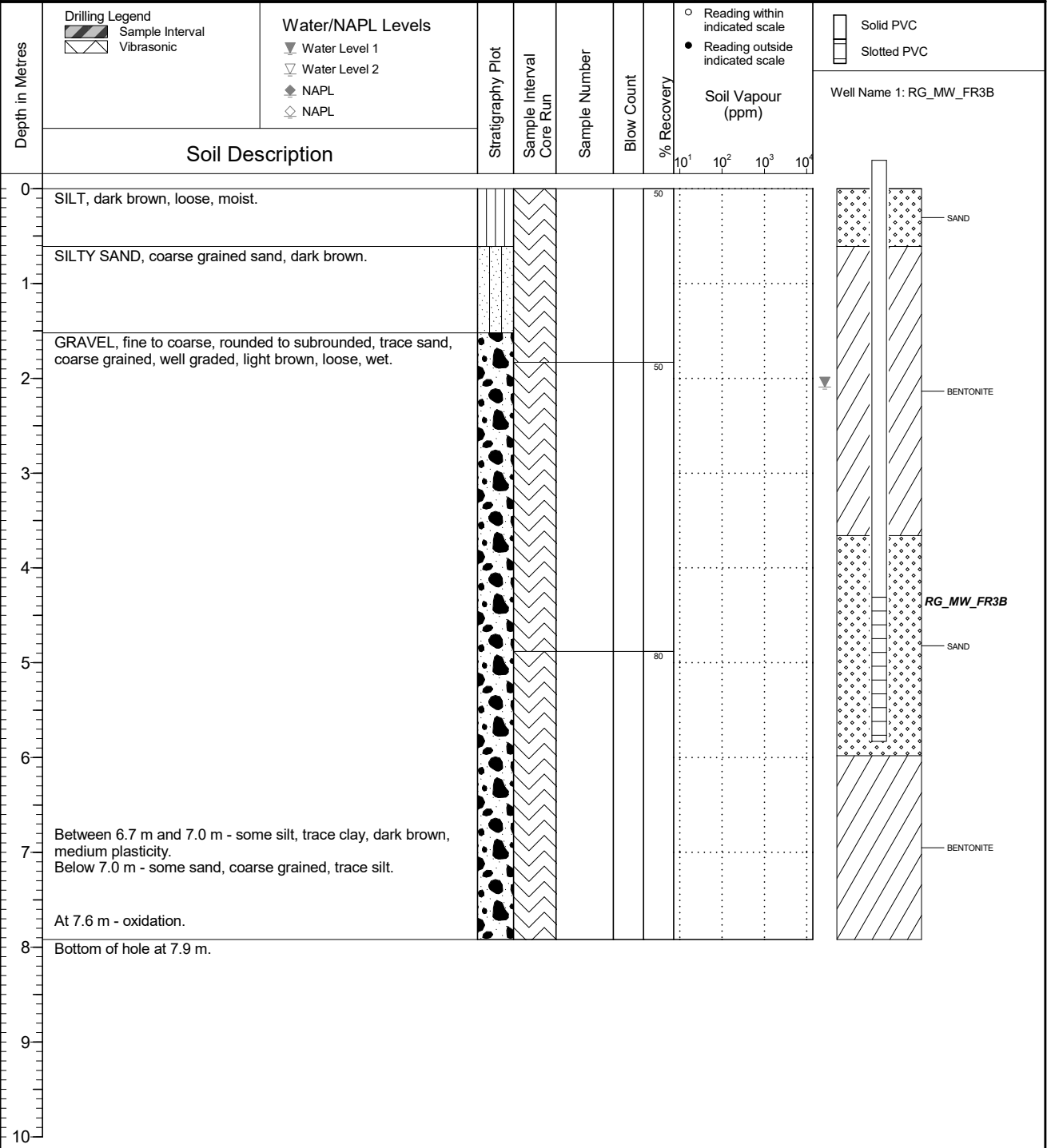
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR3B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1570.406 Top of Casing Elev. (m): 1571.164 Northing: 5556778.224 Easting: 653233.805	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR4A

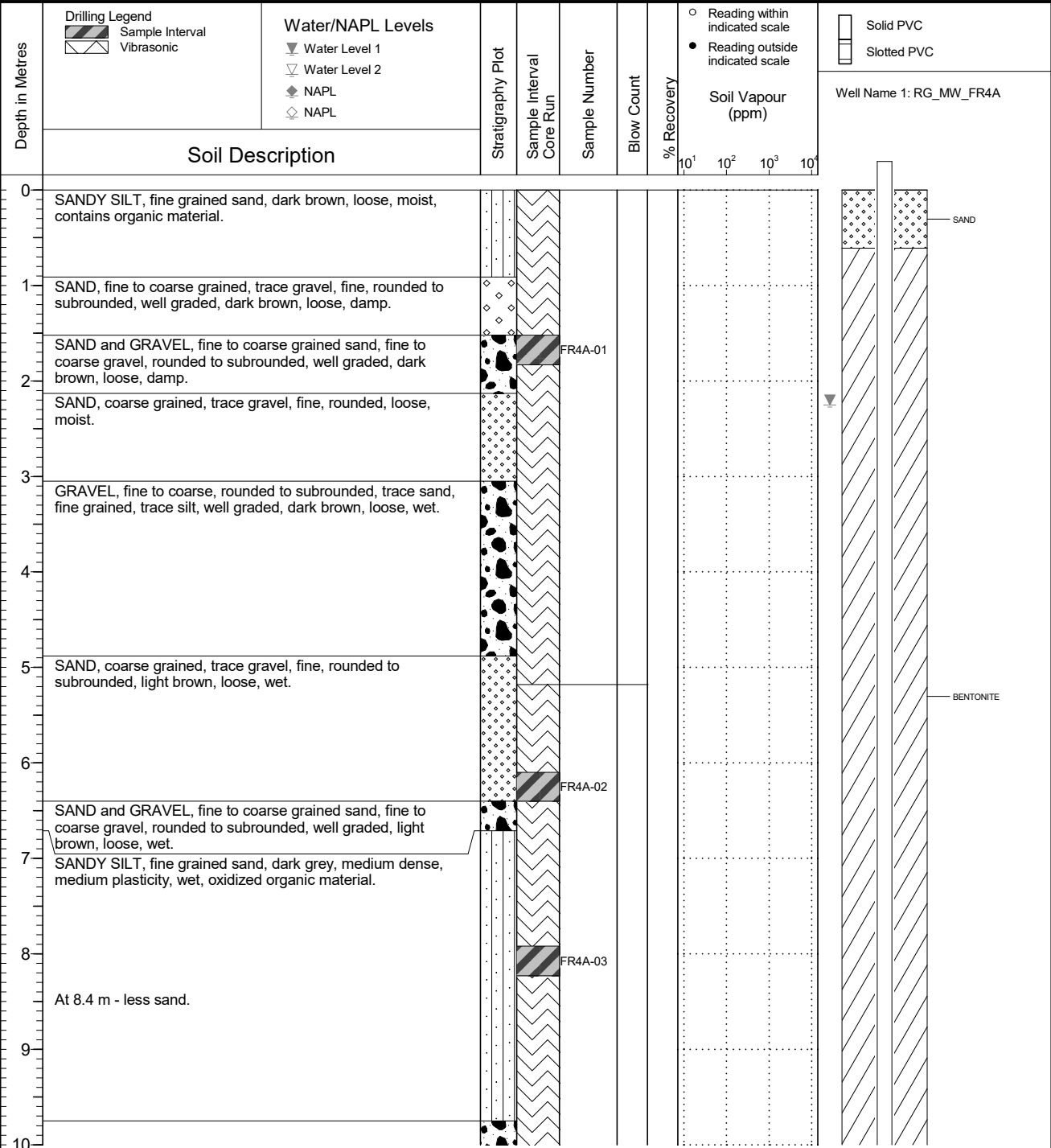
Location
Regional Groundwater Monitoring

PAGE 1 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1567.791
 Top of Casing Elev. (m): 1568.550
 Northing: 5556366.236
 Easting: 653496.608

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 01
 Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR4A

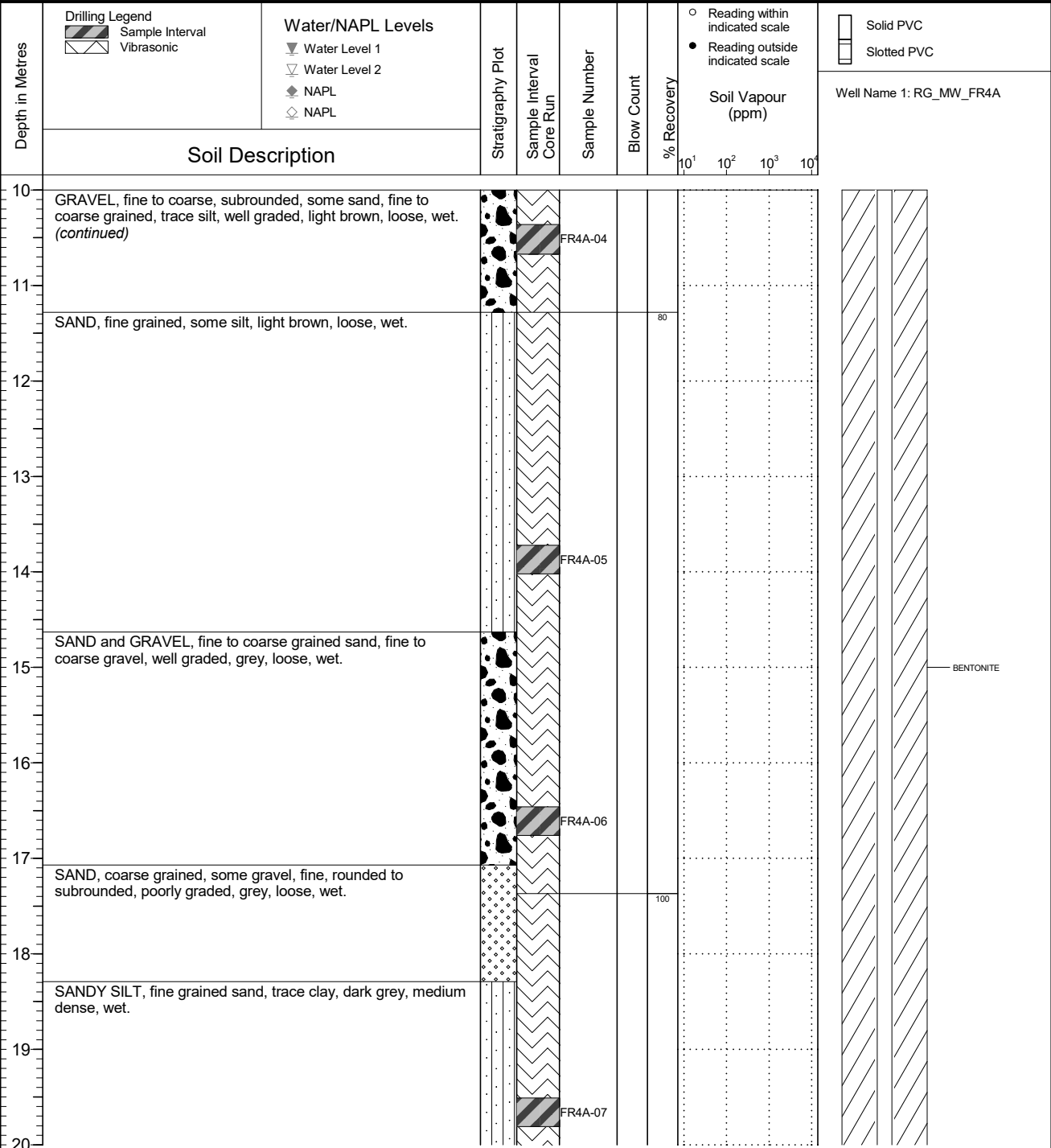
Location
Regional Groundwater Monitoring

PAGE 2 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1567.791
 Top of Casing Elev. (m): 1568.550
 Northing: 5556366.236 Easting: 653496.608

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 01
 Log Typed By: VL



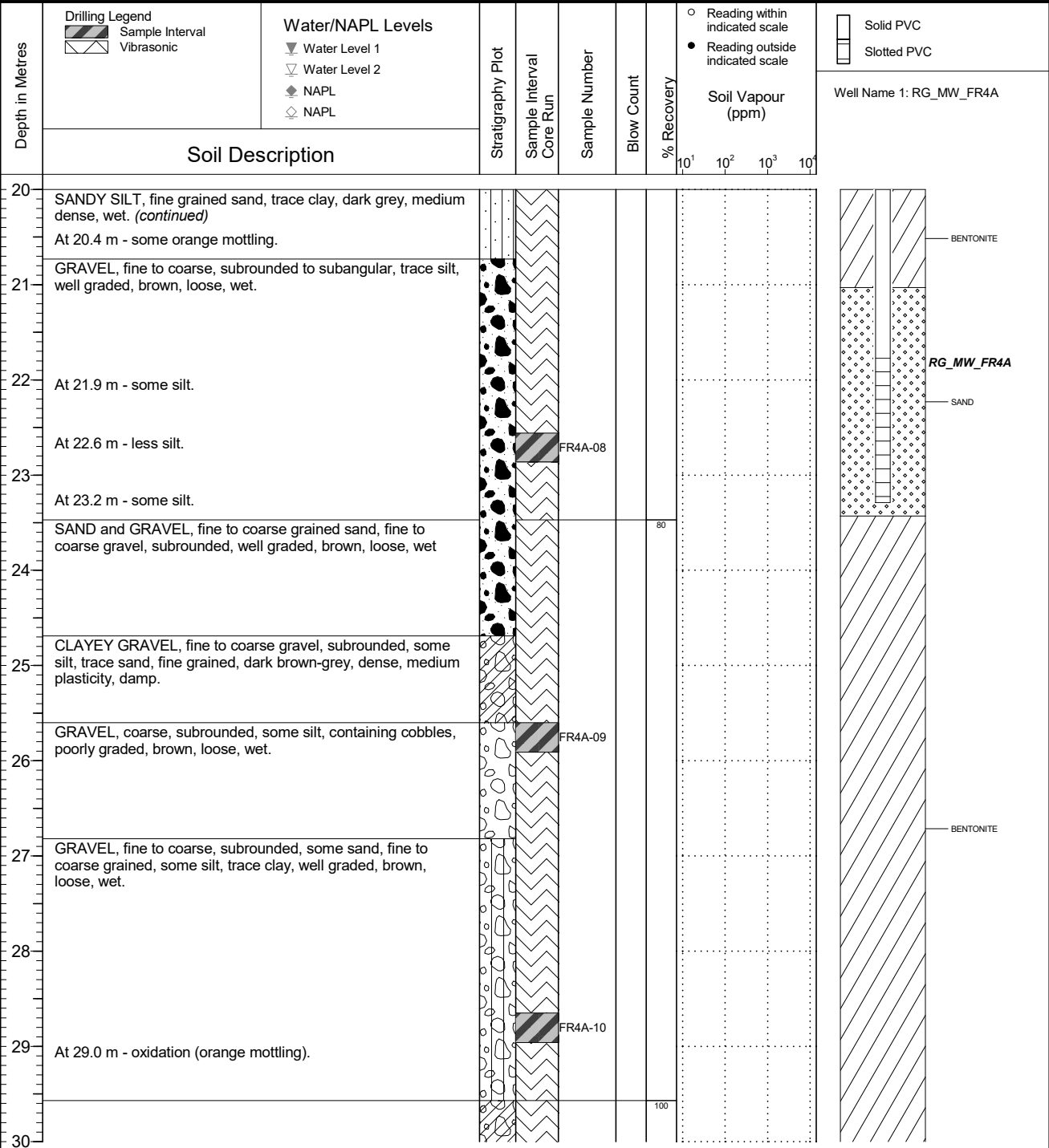
NOTES
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR4A
	Location Regional Groundwater Monitoring	PAGE 3 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1567.791 Top of Casing Elev. (m): 1568.550 Northing: 5556366.236 Easting: 653496.608	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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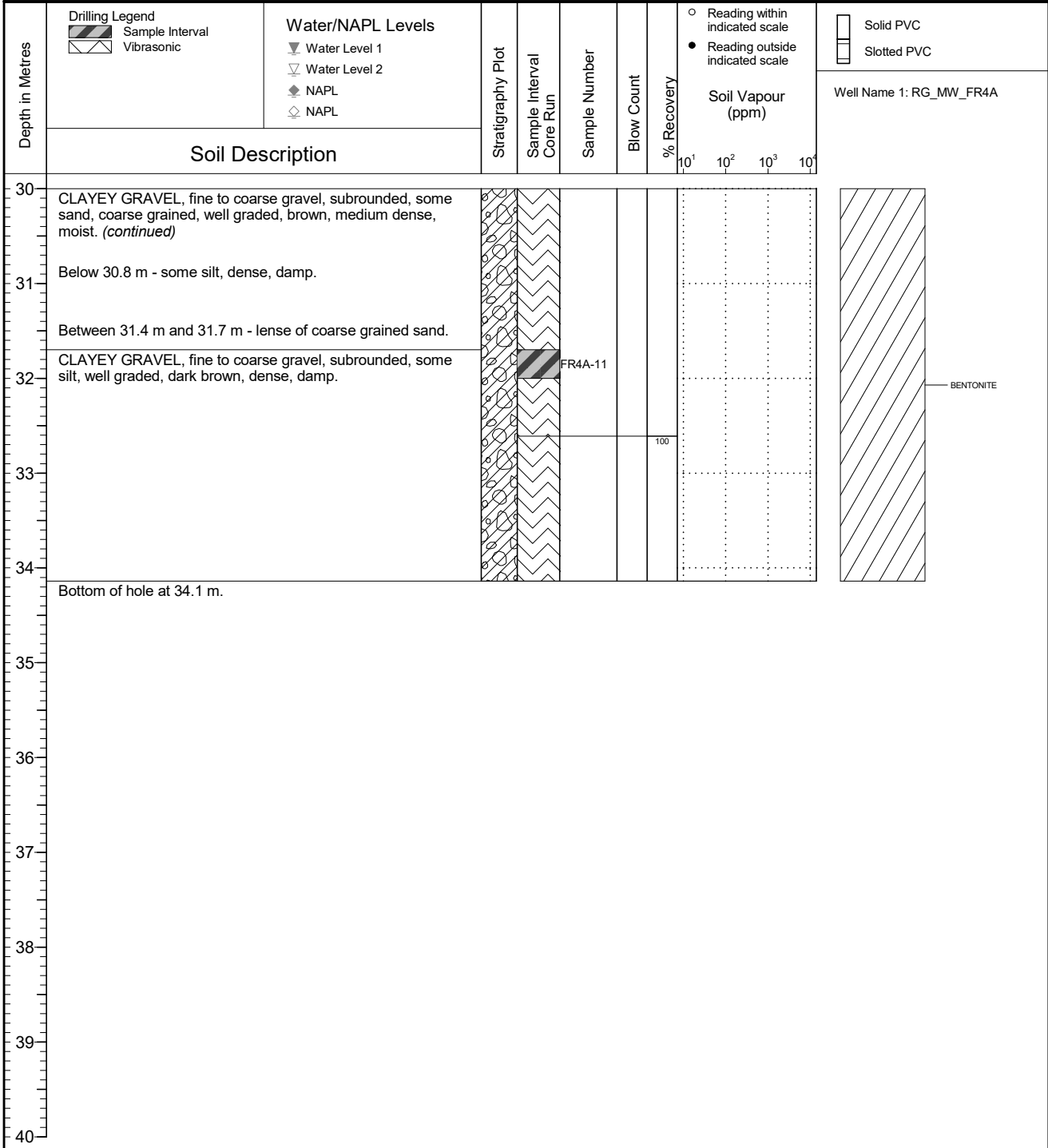


NOTES
 Bolded sample denotes sample analyzed.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR4A
	Location Regional Groundwater Monitoring	PAGE 4 OF 4

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1567.791 Top of Casing Elev. (m): 1568.550 Northing: 5556366.236 Easting: 653496.608	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 01 Log Typed By: VL
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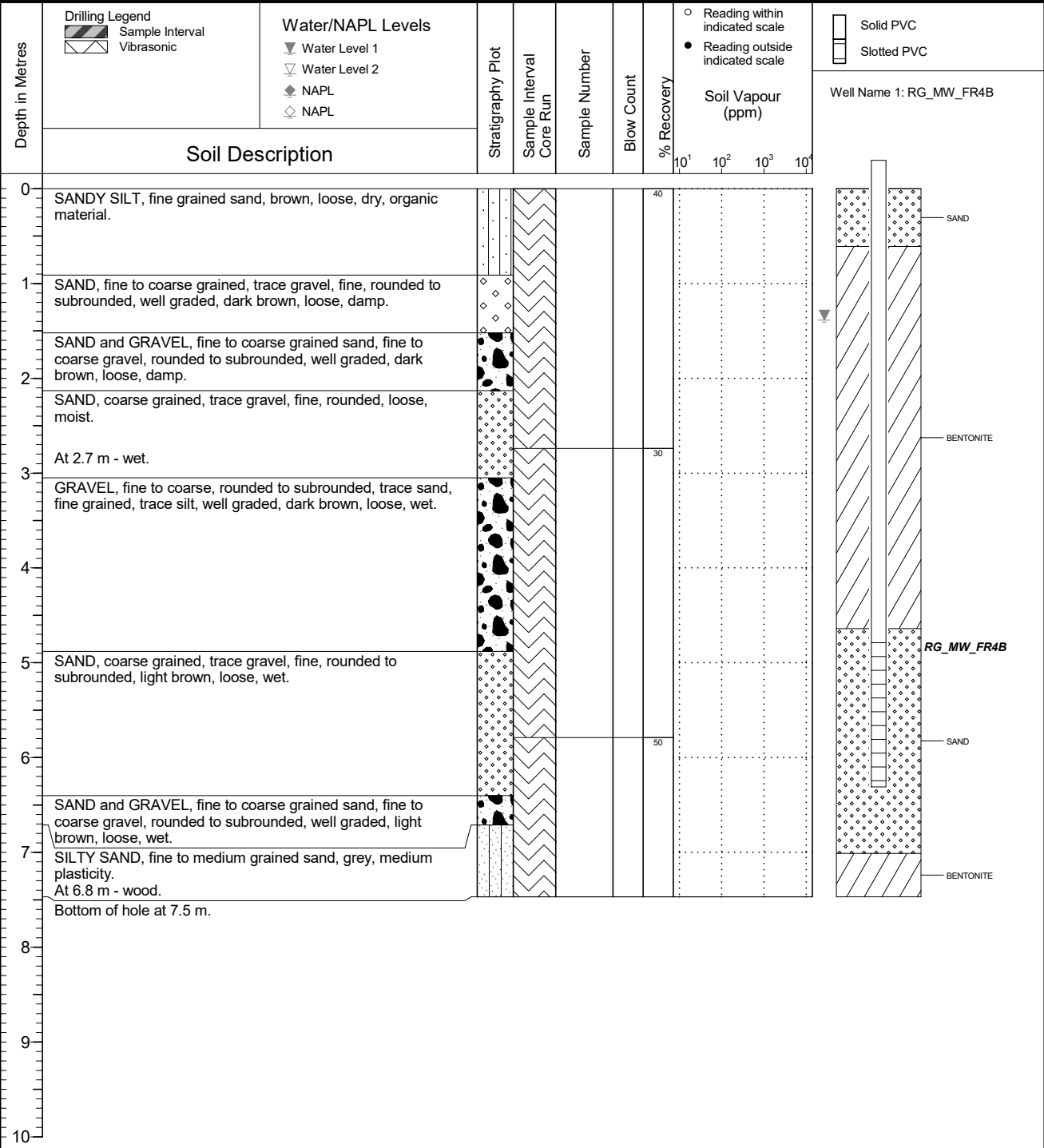
NOTES
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR4B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1567.848 Top of Casing Elev. (m): 1568.624 Northing: 5556368.730 Easting: 653496.019	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 08 Log Typed By: VL
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5A

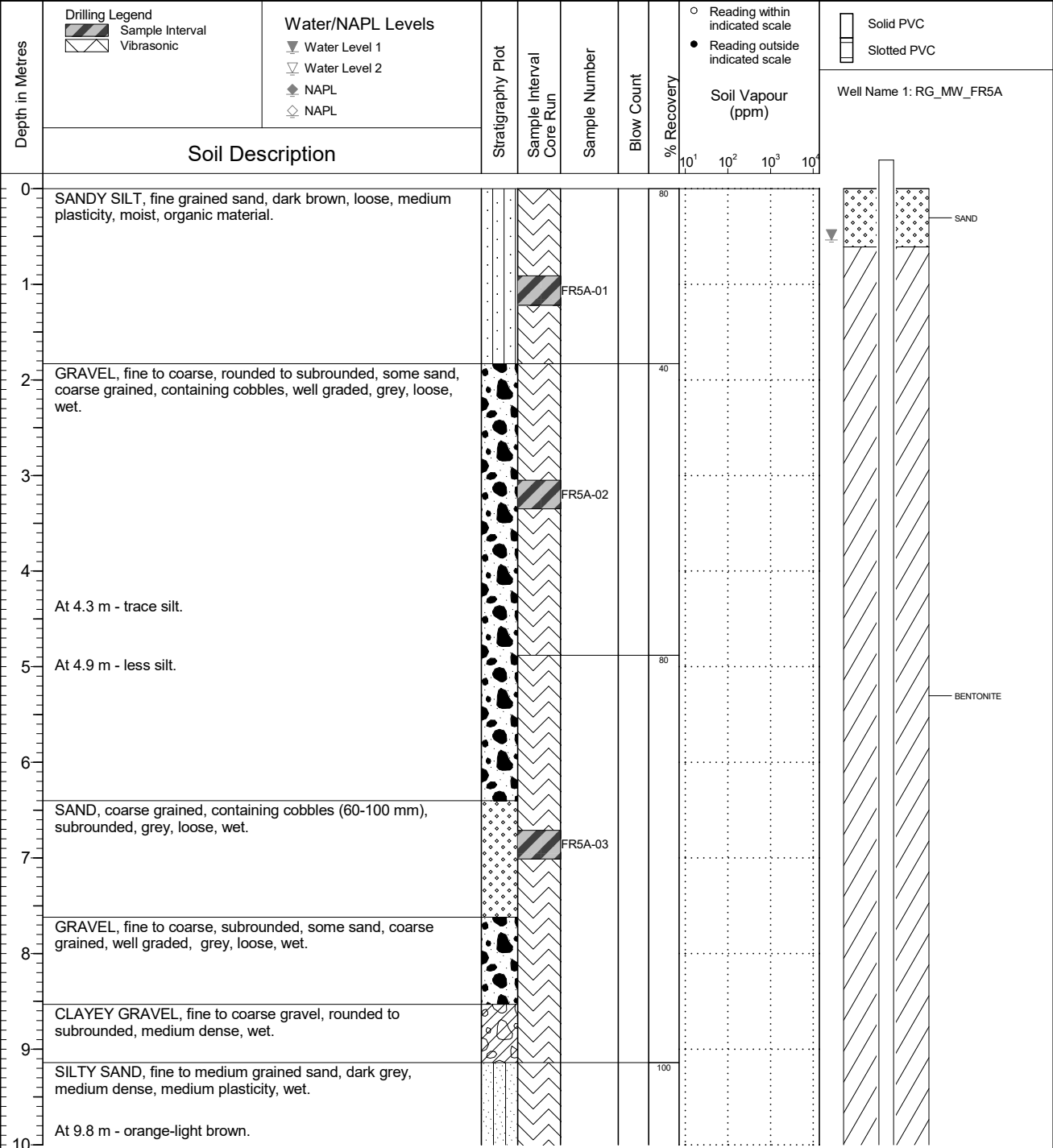
Location
Regional Groundwater Monitoring

PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1566.144
 Top of Casing Elev. (m): 1566.937
 Northing: 5556260.737
 Easting: 653572.546

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5A

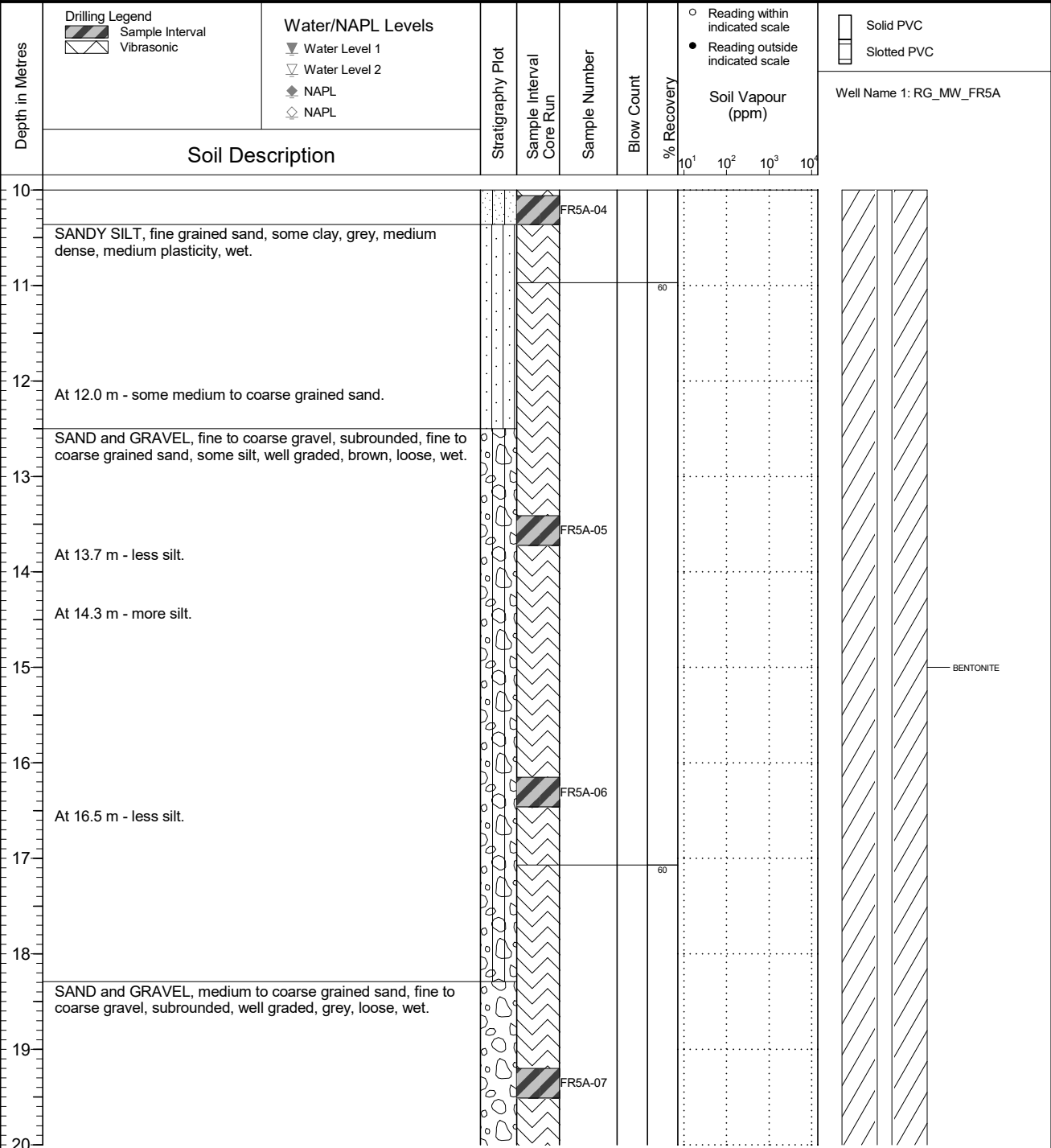
Location
Regional Groundwater Monitoring

PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1566.144
 Top of Casing Elev. (m): 1566.937
 Northing: 5556260.737
 Easting: 653572.546

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL

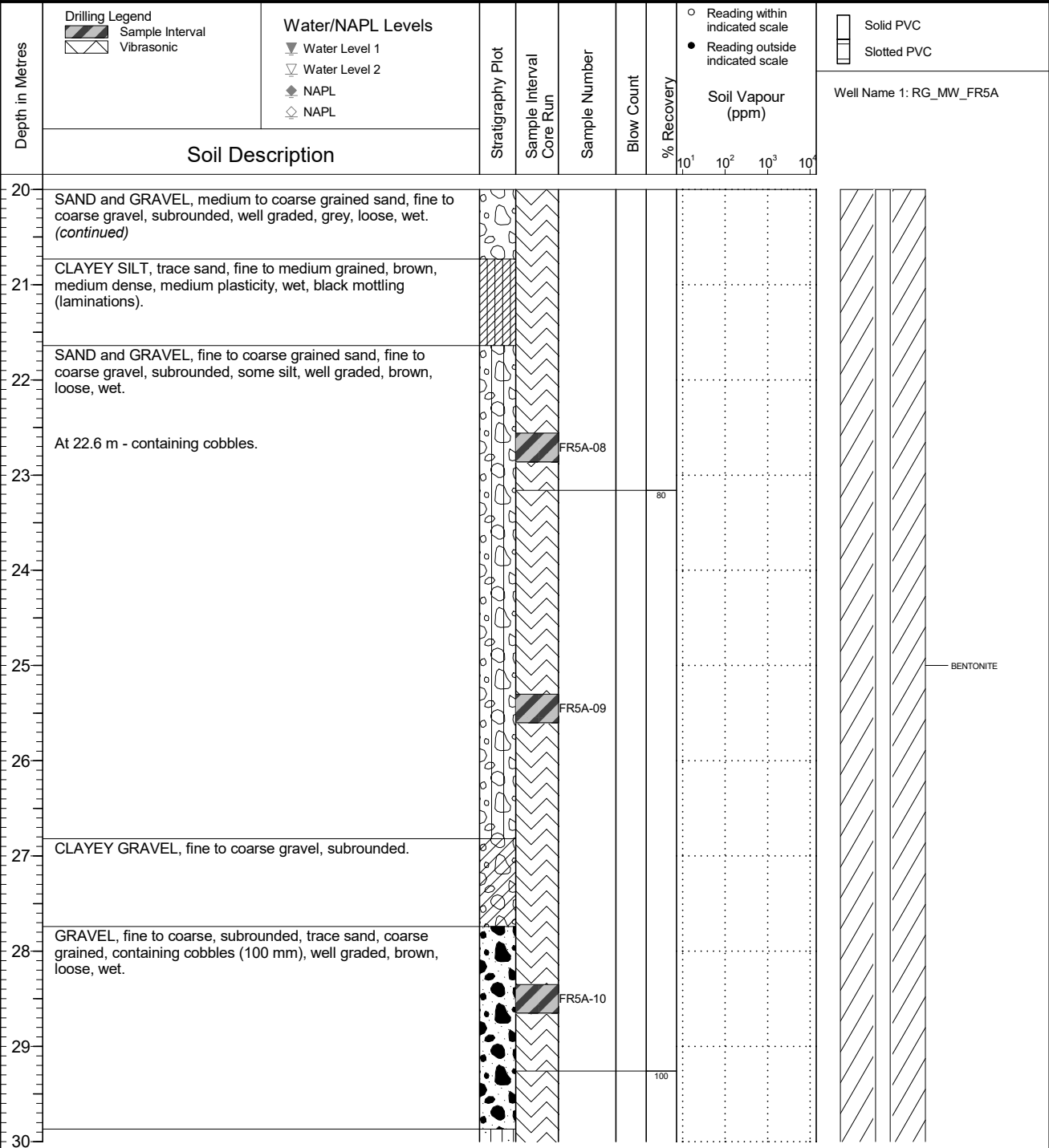


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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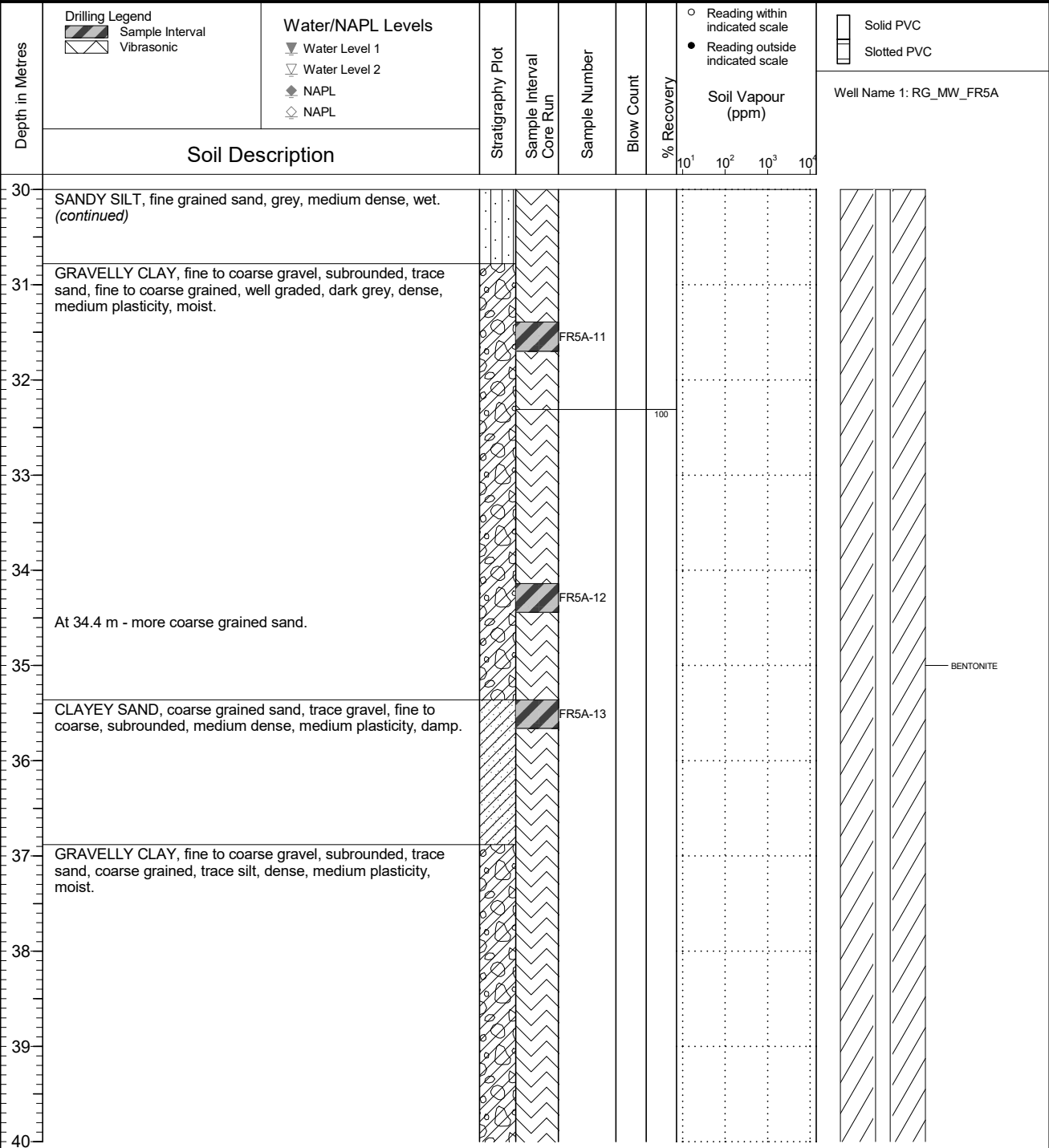


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 4 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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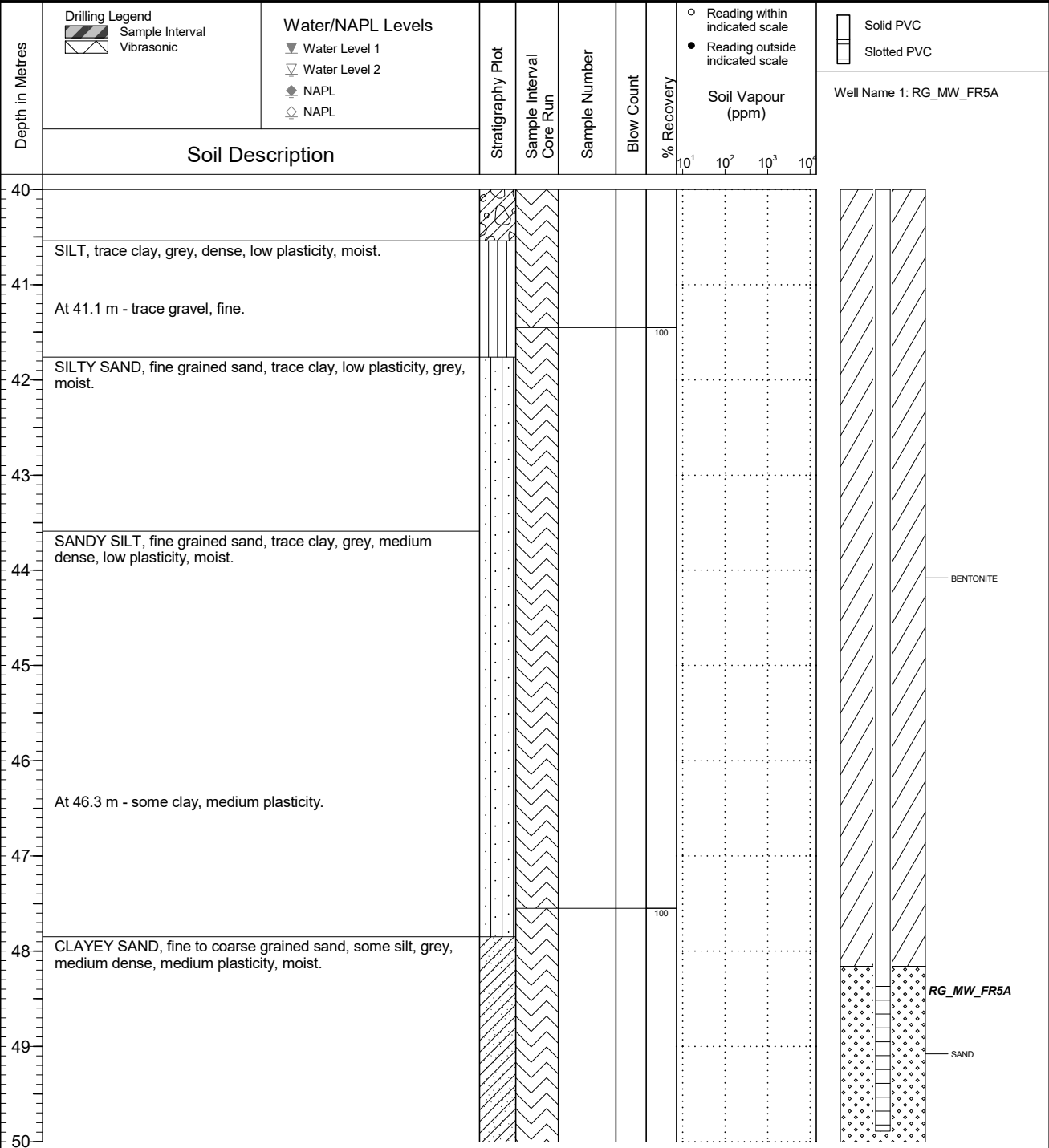


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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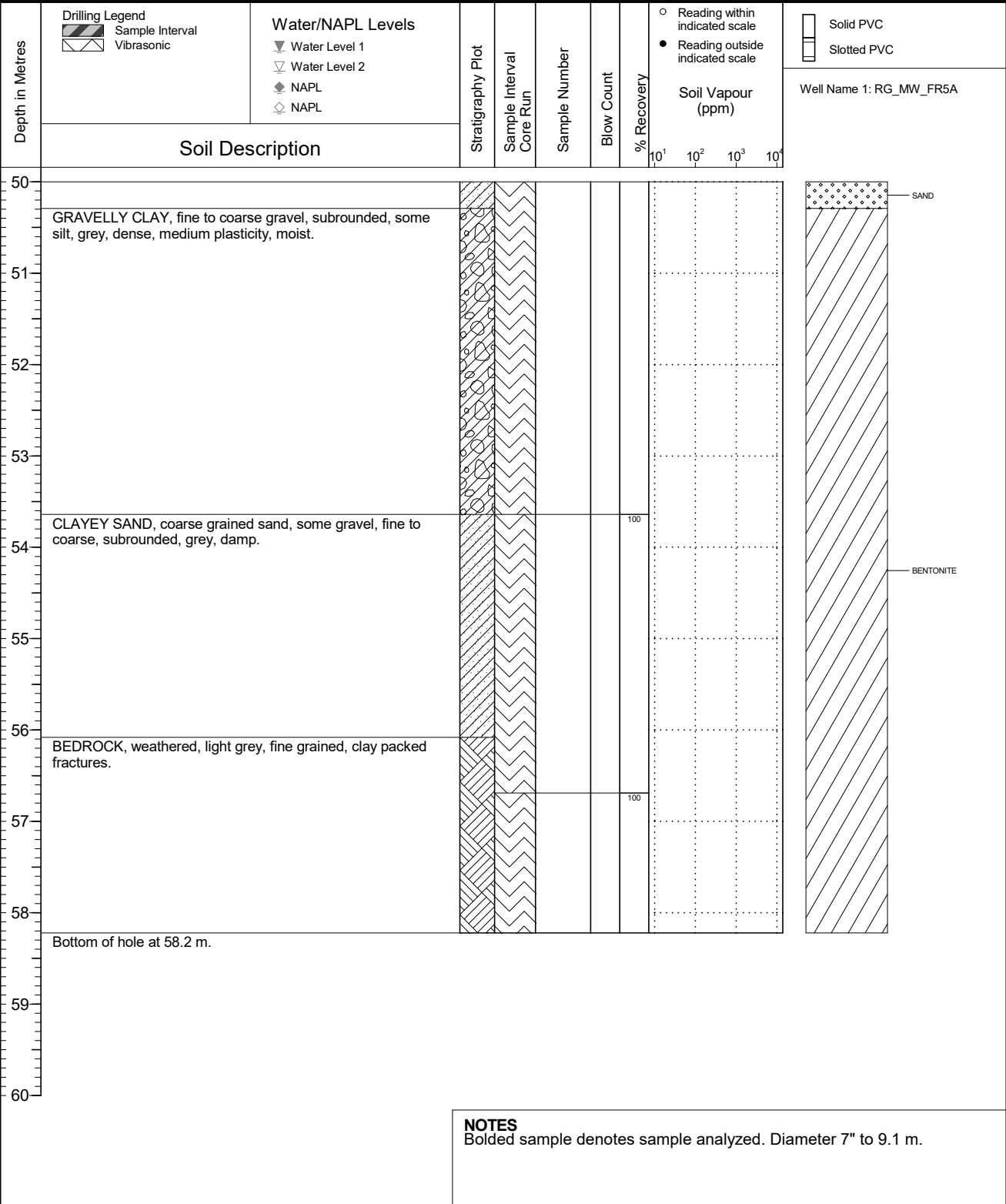


NOTES
 Bolded sample denotes sample analyzed. Diameter 7" to 9.1 m.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5A
	Location Regional Groundwater Monitoring	PAGE 6 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.144 Top of Casing Elev. (m): 1566.937 Northing: 5556260.737 Easting: 653572.546	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR5B

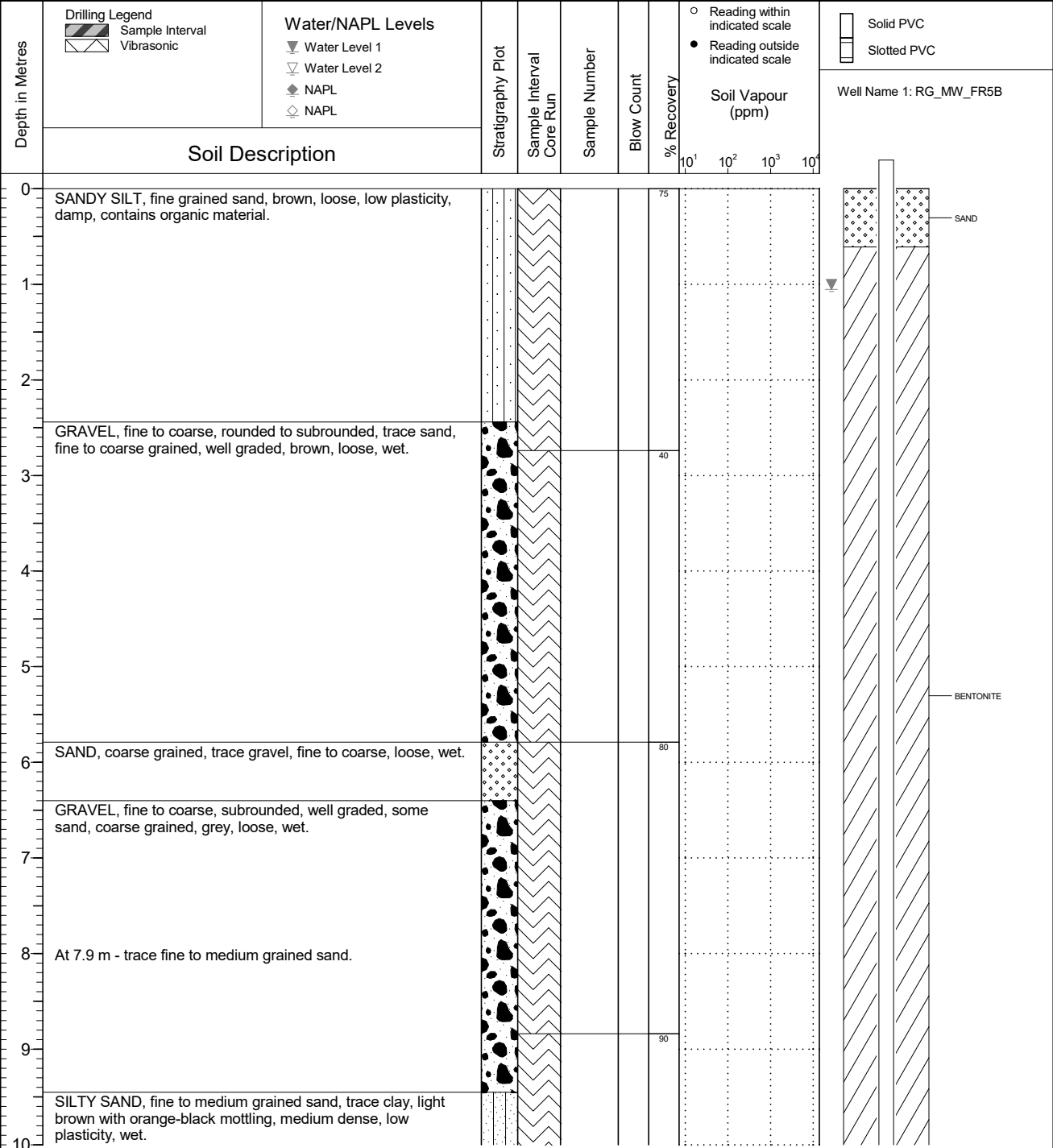
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1566.291
 Top of Casing Elev. (m): 1567.027
 Northing: 5556257.368 Easting: 653573.816

Project Number: 631283
 Borehole Logged By: AH
 Date Drilled: 2020 09 06
 Log Typed By: VL



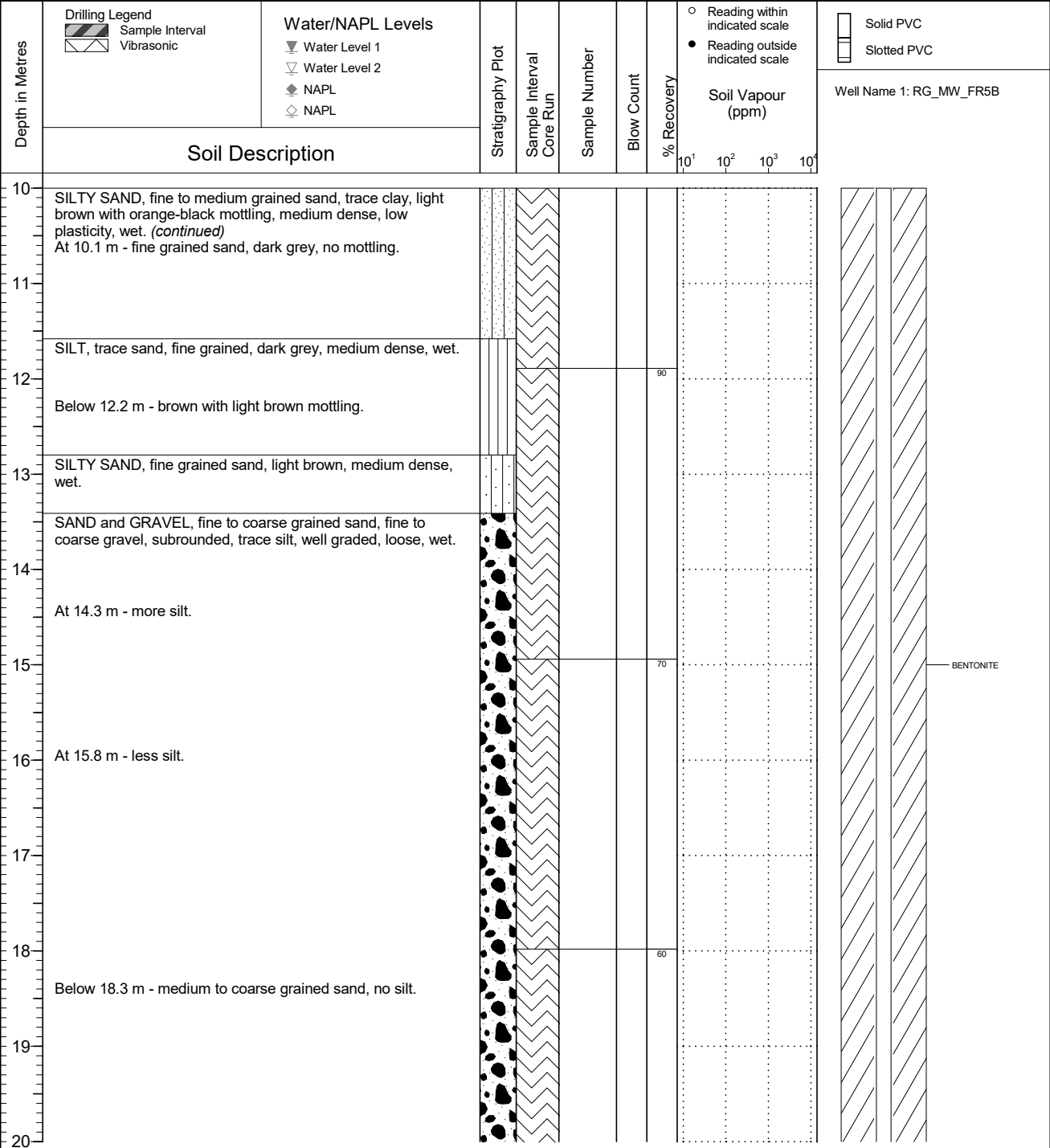
NOTES

QA/QC: LLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5B
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.291 Top of Casing Elev. (m): 1567.027 Northing: 5556257.368 Easting: 653573.816	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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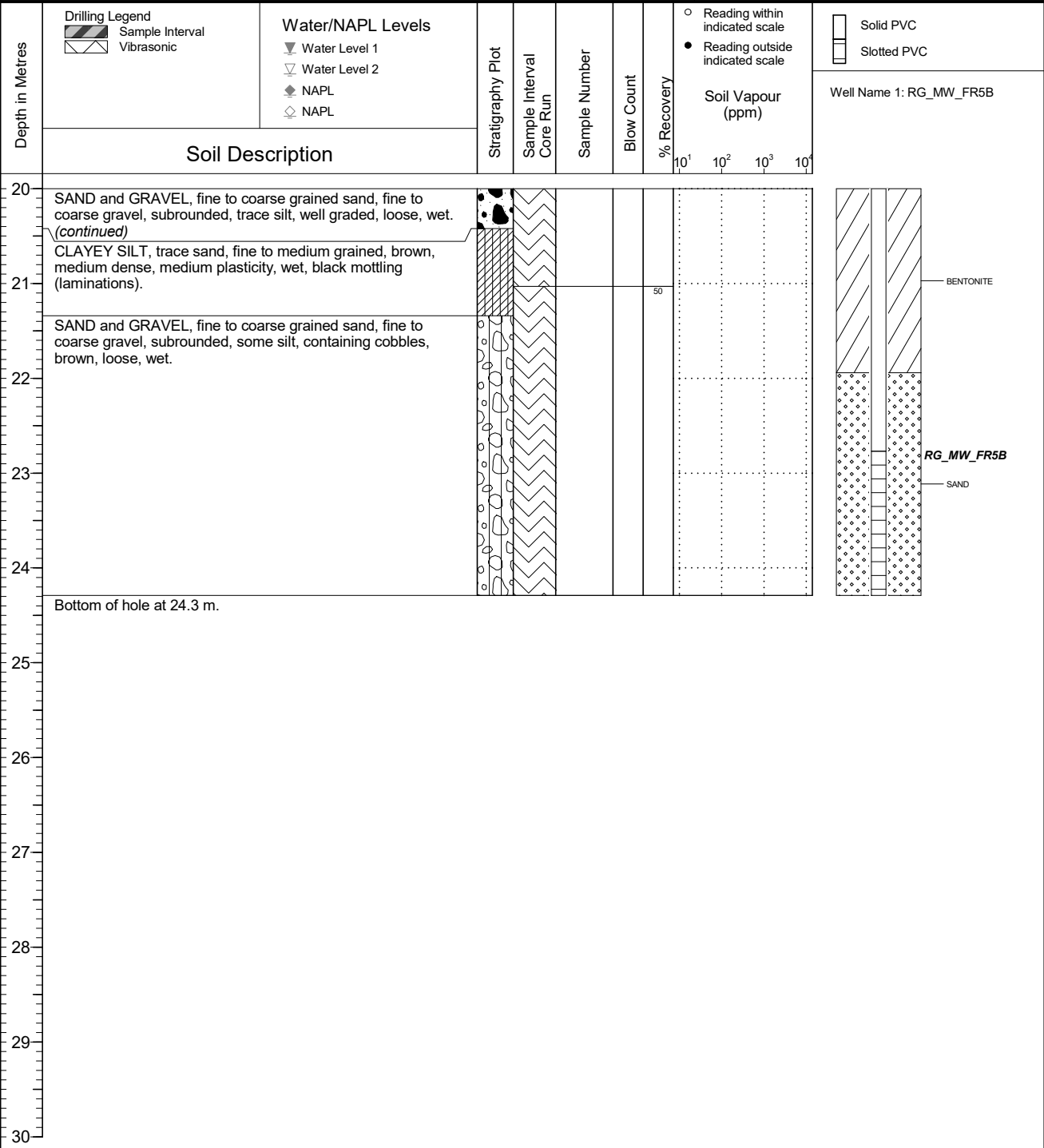


NOTES

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR5B
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.291 Top of Casing Elev. (m): 1567.027 Northing: 5556257.368 Easting: 653573.816	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 06 Log Typed By: VL
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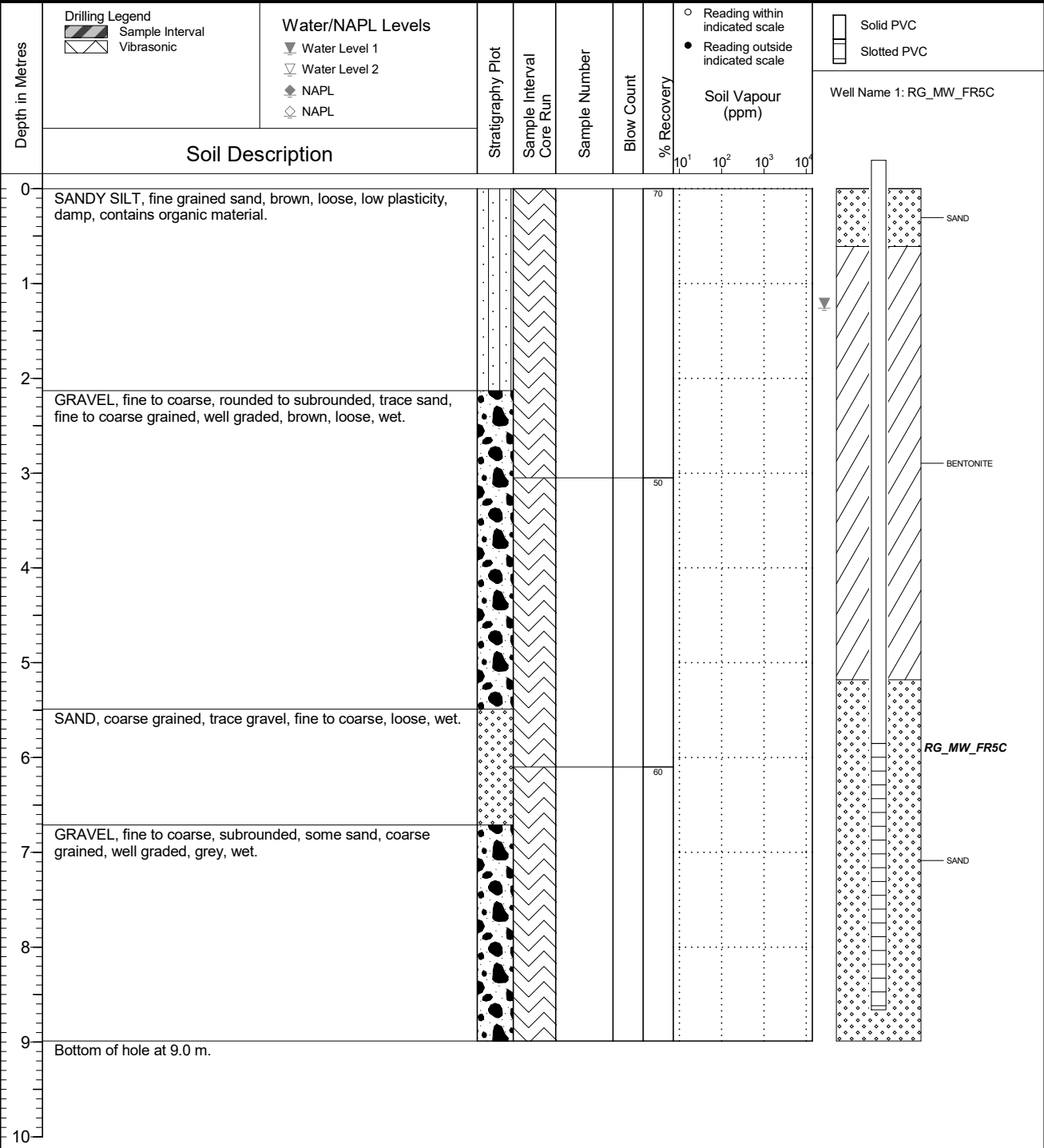


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR5C
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.10/0.10	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1566.118 Top of Casing Elev. (m): 1567.184 Northing: 5556259.086 Easting: 653570.541	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2020 09 08 Log Typed By: VL
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NOTES

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_FR6A

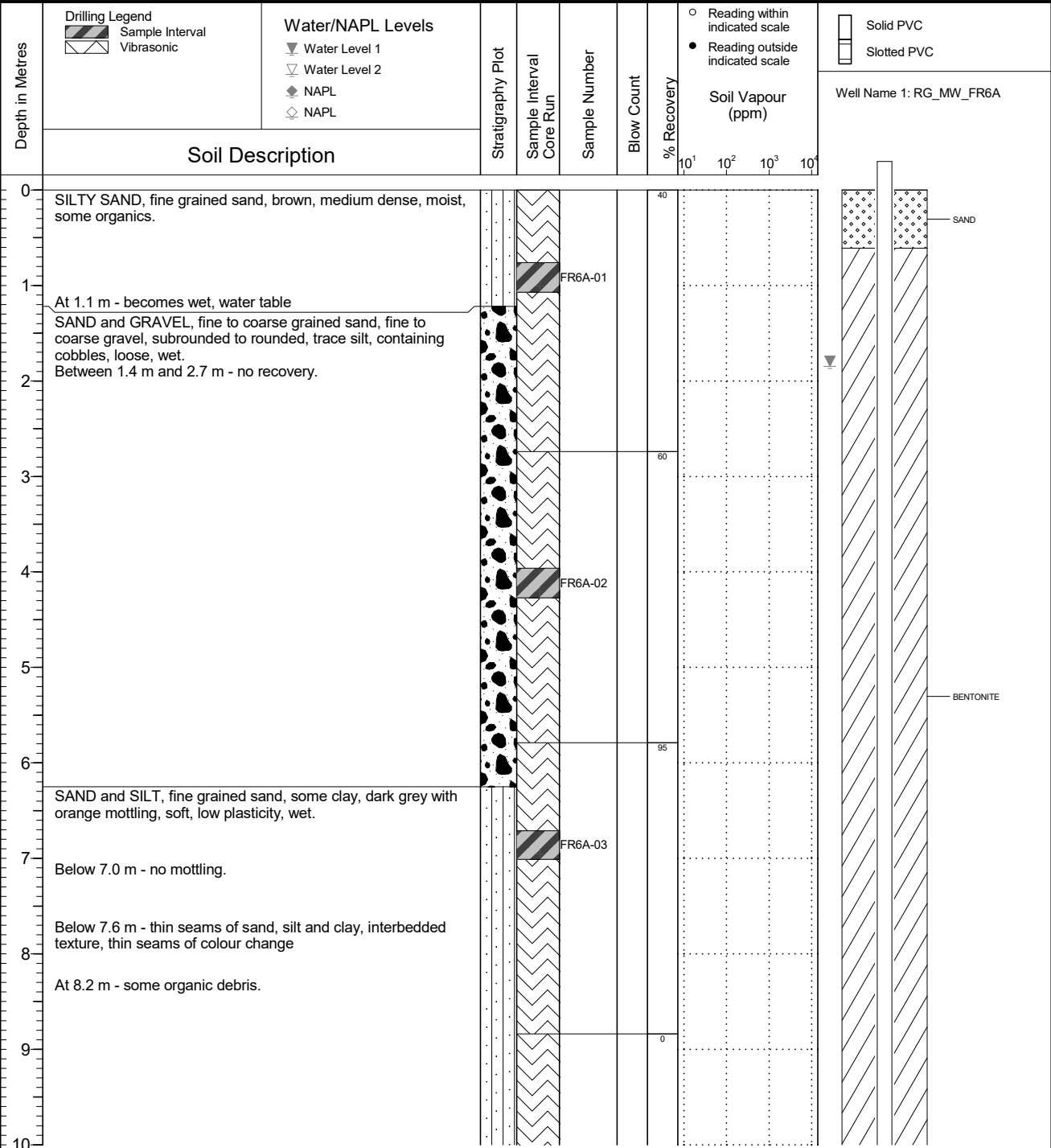
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1564.890
 Top of Casing Elev. (m): 1566.012
 Northing: 5556055.300
 Easting: 653598.462

Project Number: 631283
 Borehole Logged By: GG
 Date Drilled: 2020 09 09
 Log Typed By: VL



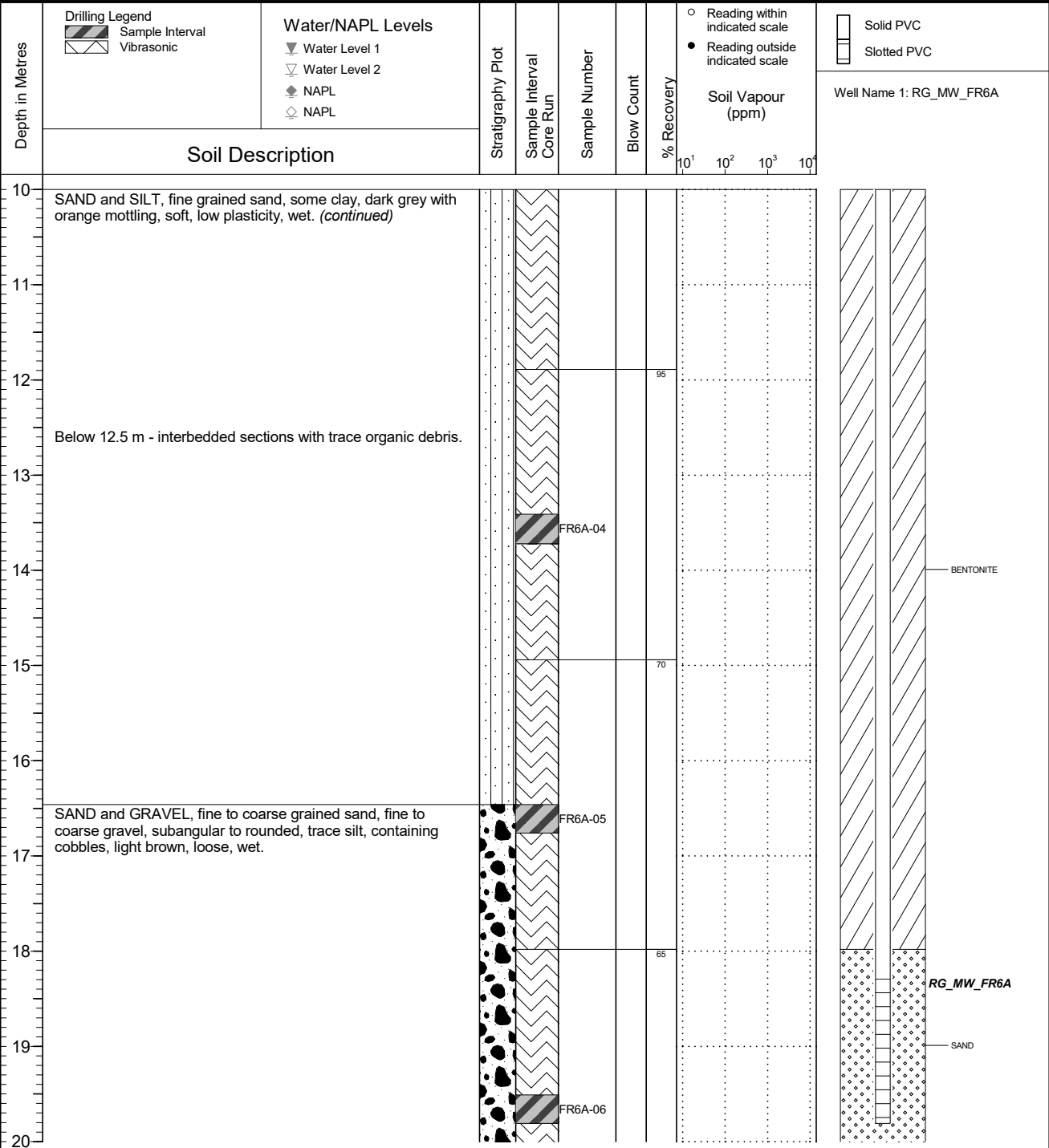
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR6A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.890 Top of Casing Elev. (m): 1566.012 Northing: 5556055.300 Easting: 653598.462	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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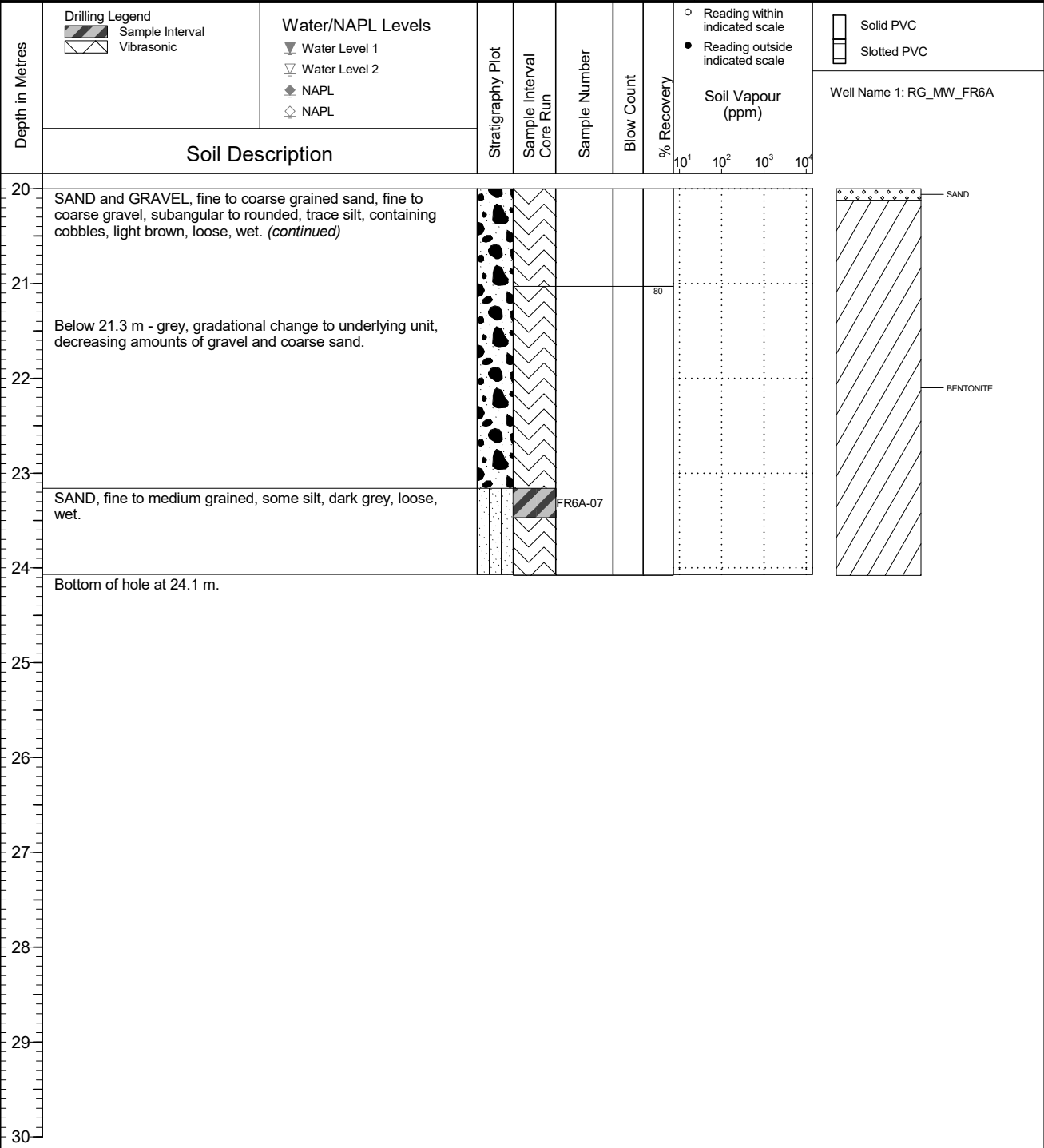


NOTES
 Bolded sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR6A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.890 Top of Casing Elev. (m): 1566.012 Northing: 5556055.300 Easting: 653598.462	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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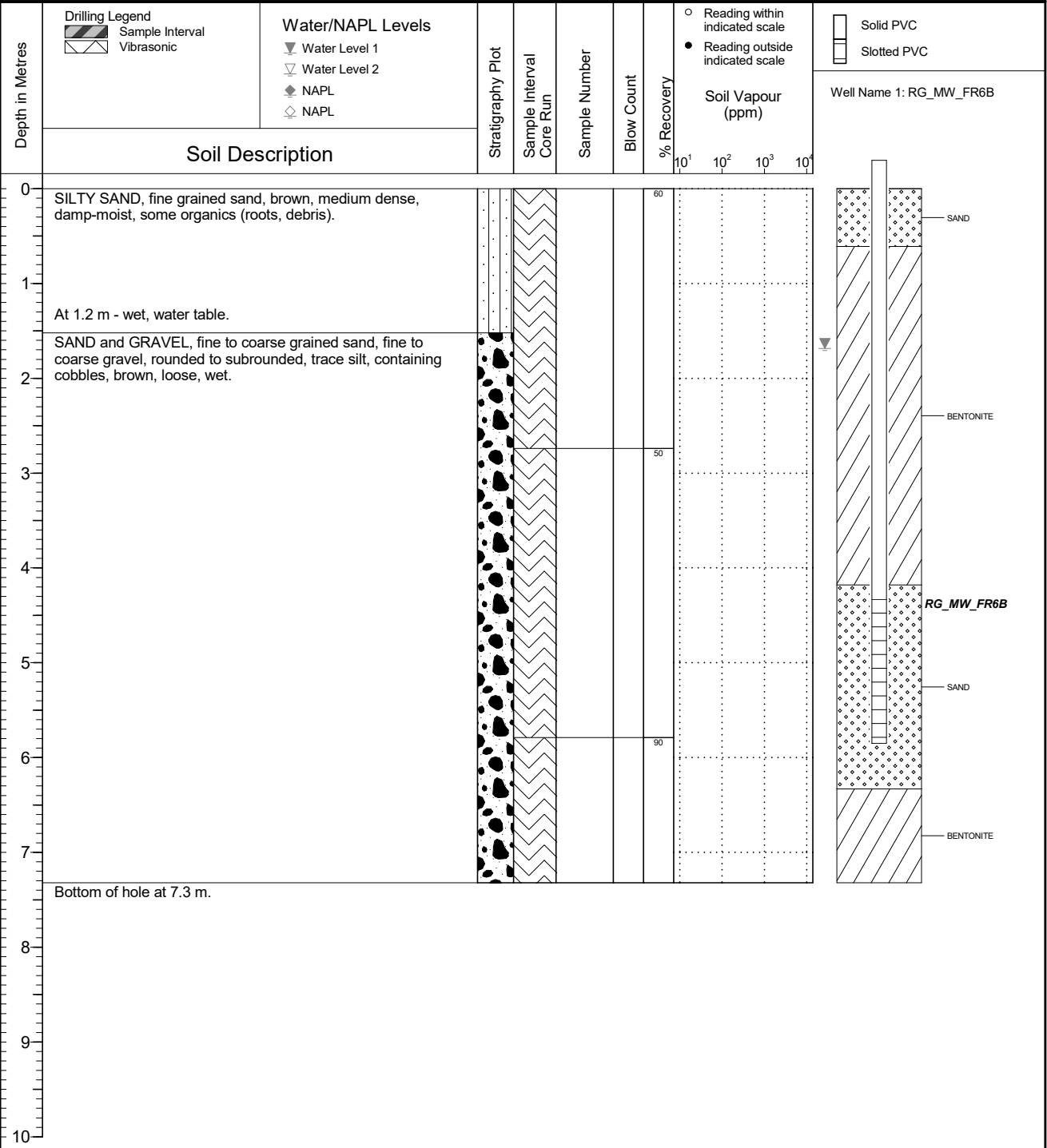
NOTES
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR6B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1564.886 Top of Casing Elev. (m): 1566.047 Northing: 5556055.582 Easting: 653596.404	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 09 Log Typed By: VL
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Bottom of hole at 7.3 m.

NOTES

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

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Client
Teck Coal Limited

Borehole No. : RG_BH_FR7A

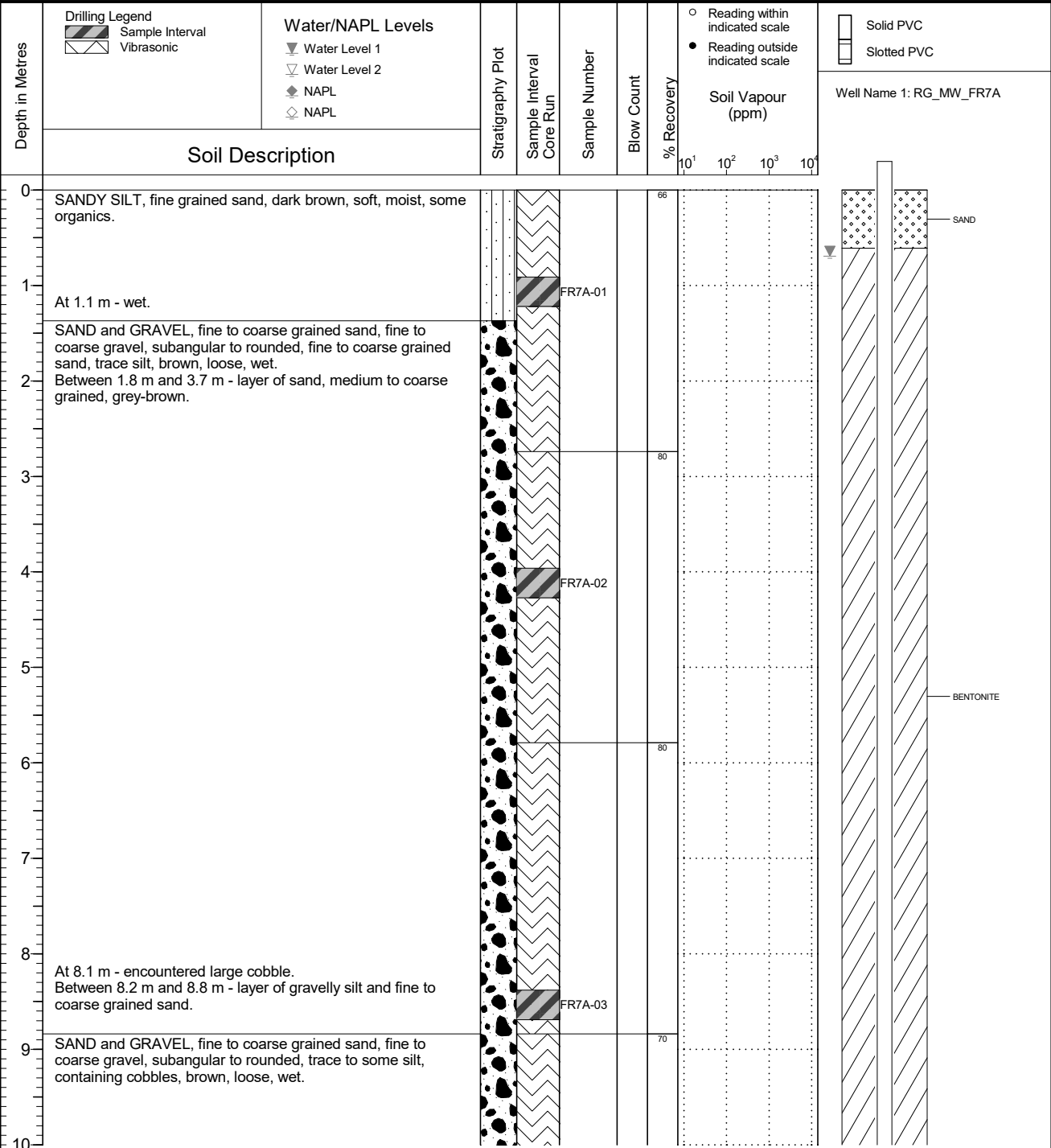
Location
Regional Groundwater Monitoring

PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd.
 Drilling Method: Vibratory Sonic
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2020 10 08
 Ground Surface Elev. (m): 1561.889
 Top of Casing Elev. (m): 1562.972
 Northing: 5555487.319 Easting: 653634.836

Project Number: 631283
 Borehole Logged By: GG
 Date Drilled: 2020 09 10
 Log Typed By: VL



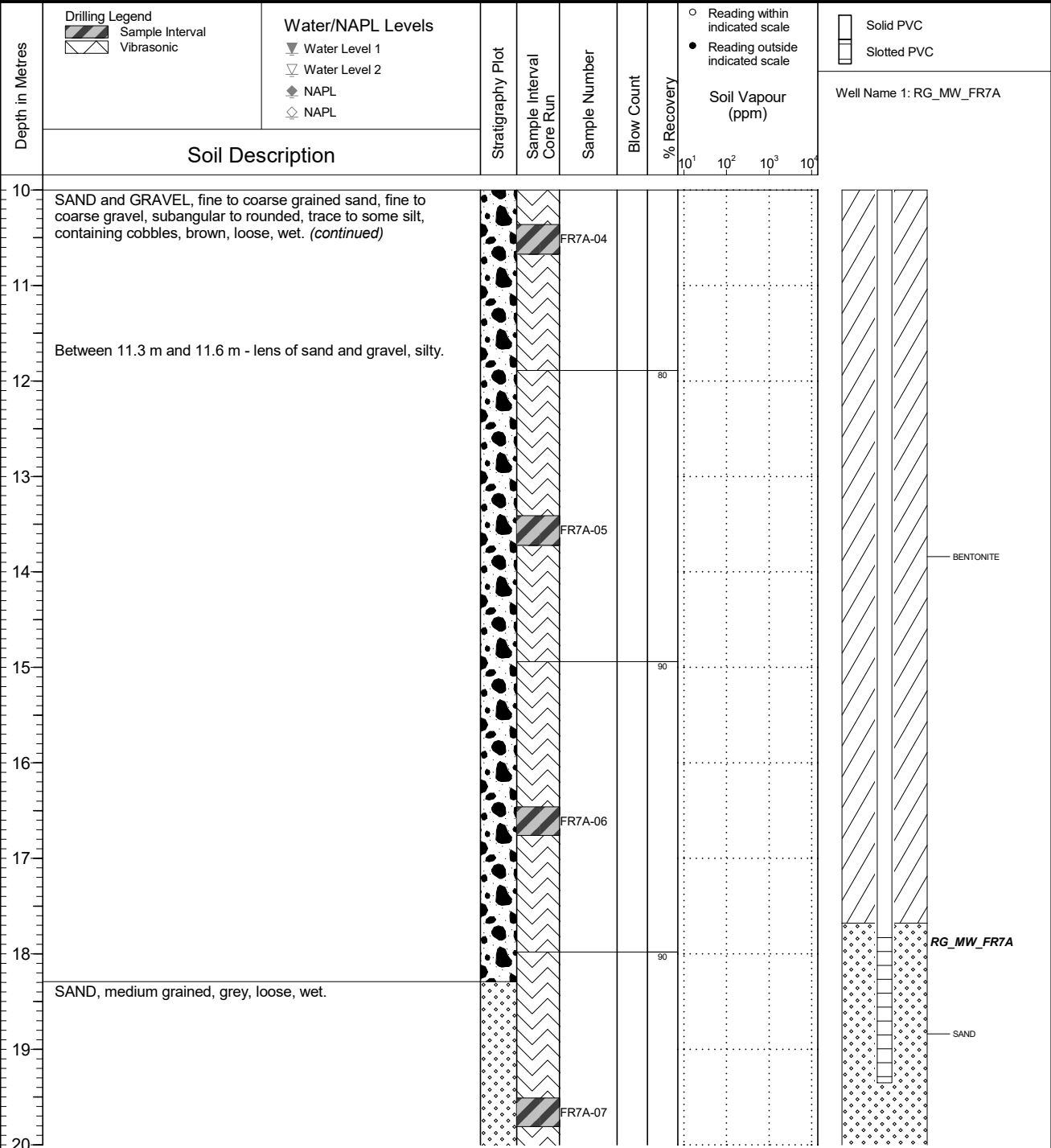
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : RG_BH_FR7A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.889 Top of Casing Elev. (m): 1562.972 Northing: 5555487.319 Easting: 653634.836	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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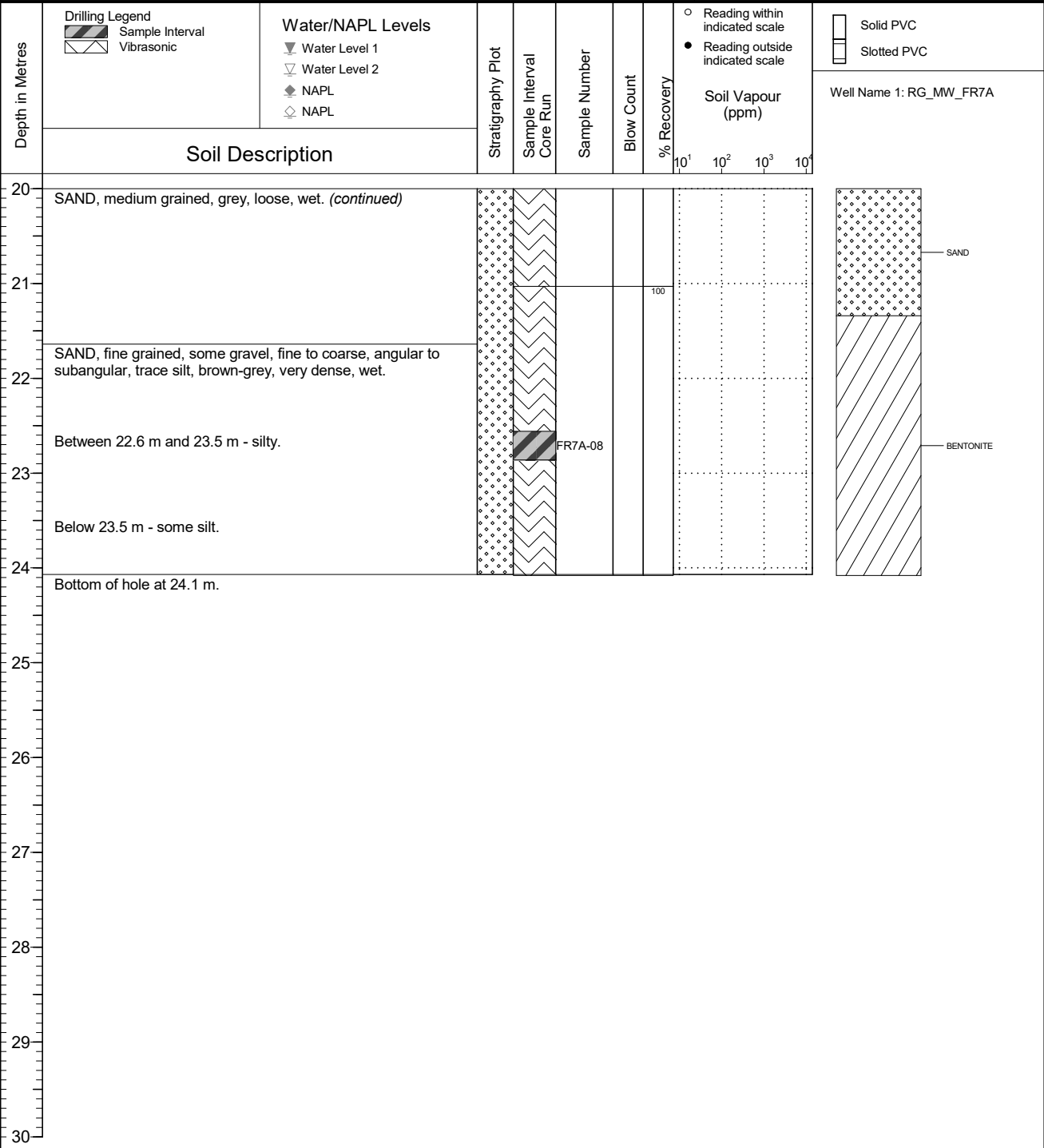
NOTES
 Bolded sample denotes sample analyzed.

QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR7A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.889 Top of Casing Elev. (m): 1562.972 Northing: 5555487.319 Easting: 653634.836	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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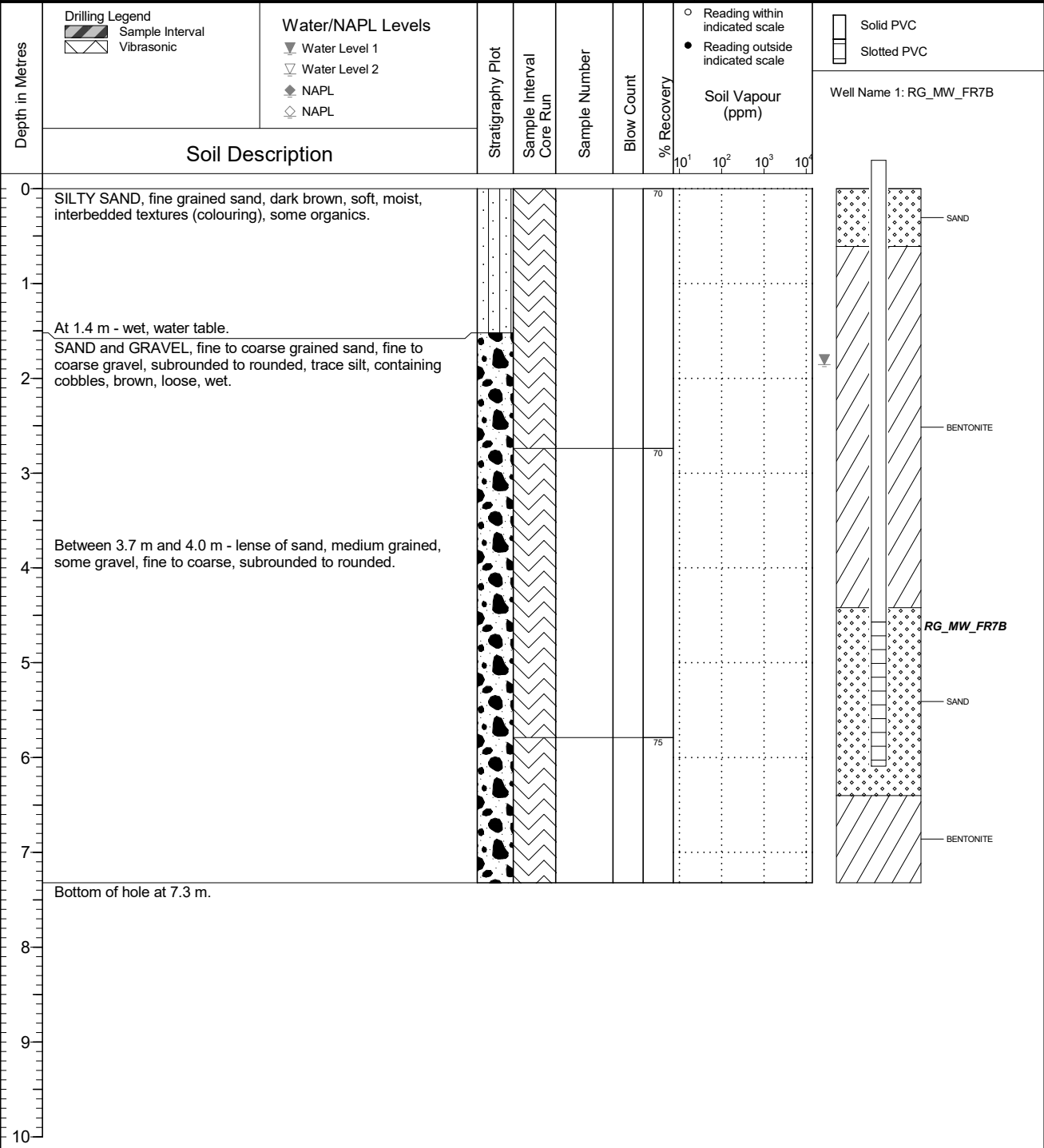
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QA/QC: LLLH 2020 10 20 Print Date: 2020-12-02

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_FR7B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2020 10 08 Ground Surface Elev. (m): 1561.841 Top of Casing Elev. (m): 1562.856 Northing: 5555484.973 Easting: 653634.015	Project Number: 631283 Borehole Logged By: GG Date Drilled: 2020 09 10 Log Typed By: VL
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NOTES

RECORD OF FR MW20-01D

Note Elevations are in FRO DATUM **wood.**

Project Number: **VE52842** Drilling Coordinates: **652228.95 N, 5558243.47 E** Surface Elevation: **1599.05 m**
 Project Client: **Teck Coal** Drilling Method: **Diamond** Datum: **UTM NAD 83** Logged by: **B.Chernoff**
 Project Name: **FRO Swift Ponds Seepage** Location: **FRO Swift Pond** Dip (from Horiz.): **90°** Reviewed by: **D.Kennedy**
 Project Location: **Fording River Operations** Date Started: **Dec 10, 20** Date Completed: **Dec 11, 20** Drilled Depth: **12.4 m** Revision No.: **1, 1/21/21**

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown clasts of boulders and cobbles. Sub-angular to sub-round clasts. Clasts consist of mudstone, siltstone and limey siltstone/shale.	9				HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 2.58 mbgs
3	1596							
4	1595							
5	1594							HW Surface casing advanced to 5.9 mbgs.
6	1593		Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	60	60	25		
				94	74	32		
7	1592			100	90	80		
8	1591			100	89	74		
9	1590			95	58	0		
10	1589			100	77	64		
11	1588							
12	1587			97	87	87		
								End of Borehole @ 12.4 mbgs. 51mm diameter PVC monitoring well installed to 11 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 7.9 to 10.9 mbgs. 10/20 Filter sand from 7 to 11.2 mbgs. Time release bentonite tablets from 11.2 to 12.4 mbgs and from 0.0 to 7.0 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-01S



Project Number: VE52842 Drilling Coordinates: 652228.43 N, 5558245.26 E Surface Elevation: 1599.03 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 12, 20 Date Completed: Dec 12, 20 Drilled Depth: 5.7 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	Graphic Plot	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown clasts of boulders and cobbles. Sub-angular to sub-round clasts. Clasts consist of Mudstone, Siltstone and Limey Siltstone/Shale.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 2.23 mbgs
3	1596			10				HW Surface casing advanced to 5.7 mbgs.
4	1595							
5	1594							
			Interbedded dark and light grey bands of lithified silt and clay.	100	100	65		51mm diameter PVC monitoring well installed to 5.6 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 4 to 5.5 mbgs. 10/20 Filter sand from 3.5 to 5.65 mbgs. Time release bentonite tablets from 5.65 to 5.7 mbgs and from 0.0 to 3.5 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-02D



Project Number: VE52842 Drilling Coordinates: 652176.55 N, 5558372.53 E Surface Elevation: 1598.93 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 13, 20 Date Completed: Dec 14, 20 Drilled Depth: 15.7 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown cobbles and gravel. Trace clay and silt, some sand. Sub-round clasts composed of limestone/limey shale, mudstone, quartzite.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 4.08 mbgs
3	1596							
4	1595							
5	1594							
6	1593							HW Surface casing advanced to 6.7 mbgs.
7	1592		Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	80	0	0		
8	1591			100	32	30		
9	1590			100	98	94		
10	1589			100	64	43		
11	1588			100	90	83		
12	1587			90	77	65		
13	1586			98	95	82		
14	1585			100	80	65		
15	1584			100	76	65		
<p>End of Borehole @ 15.7 mbgs. 51mm diameter PVC monitoring well installed to 15.6 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 12.6 to 15.6 mbgs. 10/20 Filter sand from 9.5 to 15.7 mbgs. Time release bentonite tablets from 0.0 to 9.5 mbgs. Monument style protective casing.</p> <p>Pressure and temperature datalogger installed on hourly reading schedule.</p>								

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RECORD OF FR MW20-02S



Project Number: VE52842 Drilling Coordinates: 652175.93 N, 5558374.39 E Surface Elevation: 1598.94 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 14, 20 Date Completed: Dec 15, 20 Drilled Depth: 6.3 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	Graphic Plot	LITHOLOGY PROFILE	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
			SOIL/ROCK DESCRIPTION	Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1598		Grey to brown cobbles and gravel. Trace silt and clay, some sand. Sub-round clasts composed of limestone/limey shale, mudstone, quartzite.					HQ (96mm diameter) diamond core through overburden.
2	1597							16/12/20 - After well install and development. Water level @ 2.67 mbgs
3	1596							HW Surface casing advanced to 6.3 mbgs.
4	1595							
5	1594							
6	1593							End of Borehole @ 6.3 mbgs. 51mm diameter PVC monitoring well installed to 6.3 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 4.6 to 6.1 mbgs. 10/20 Filter sand from 3.8 to 6.3 mbgs. Time release bentonite tablets from 0.0 to 3.8 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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RECORD OF FR MW20-03D



Project Number: VE52842 Drilling Coordinates: 652186.64 N, 5558167.42 E Surface Elevation: 1600.71 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 15, 20 Date Completed: Dec 16, 20 Drilled Depth: 14 m Revision No.: 1, 1/21/21

DEPTH (m)	ELEVATION (m)	GRAPHIC PLOT	LITHOLOGY PROFILE SOIL/ROCK DESCRIPTION	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
				Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1	1600		Brown to grey gravel and cobbles. Trace silt and some sand. Sub-round clasts composed of sandstone and siltstone.				<p>HQ (96mm diameter) diamond core through overburden.</p> <p>17/12/20 - After well install and development. Water Level @ 2.03 mbgs.</p> <p>HW Surface casing advanced to 4.5 mbgs.</p>	
2	1599			9				
3	1598							
4	1597							
5	1596		Interbedded dark and light grey bands of lithified silt and clay, occasional calcite filled fractures, bedding dips between 60 and 75 degrees from horizontal	100	72	33	<p>End of Borehole @ 14.0 mbgs. 51mm diameter PVC monitoring well installed to 14.0 meters below ground surface (mbgs). 3.0 meter long, 10 slot PVC screen from 10 to 13 mbgs. 10/20 Filter sand from 9.0 to 13.4 mbgs. Time release bentonite tablets from 0.0 to 9.0 mbgs and from 13.4 to 14.0 mbgs. Monument style protective casing.</p> <p>Pressure and temperature datalogger installed on hourly reading schedule.</p>	
6	1595			100	50	0		
7	1594			96	90	61		
8	1593			97	78	64		
9	1592			87.5	50	43		
10	1591			94	77	34		
11	1590			98	95	0		
12	1589			100	80	0		
13	1588			100	76	0		
14	1587			40	27	0		
				100	37	17		
				100	53	18		

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RECORD OF FR MW20-03S



Project Number: VE52842 Drilling Coordinates: 652187.38 N, 5558165.82 E Surface Elevation: 1600.70 m
 Project Client: Teck Coal Drilling Method: Diamond Datum: UTM NAD 83 Logged by: B.Chernoff
 Project Name: FRO Swift Ponds Seepage Location: FRO Swift Pond Dip (from Horiz.): 90° Reviewed by: D.Kennedy
 Project Location: Fording River Operations Date Started: Dec 17, 20 Date Completed: Dec 17, 20 Drilled Depth: 4.2 m Revision No.: 1, 1/21/21

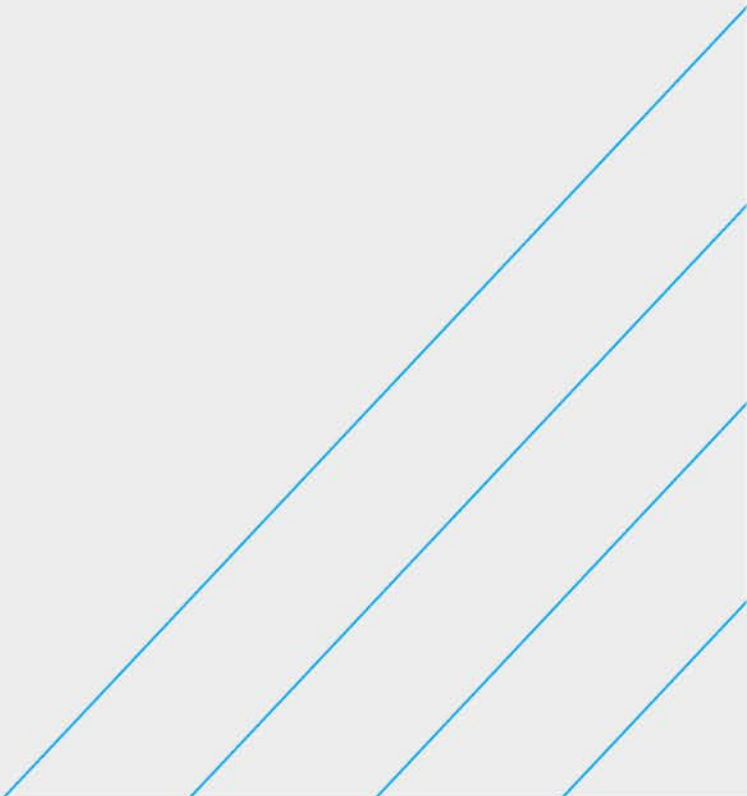
DEPTH (m)	ELEVATION (m)	Graphic Plot	LITHOLOGY PROFILE SOIL/ROCK DESCRIPTION	CORE RECOVERY			WELL INSTALLATION DETAILS	COMMENTS
				Total Core Recovery (%)	Solid Core Recovery (%)	Rock Quality Designation (%)		
				20 40 60 80	20 40 60 80	20 40 60 80		
1 2 3 4	1600 1599 1598 1597		Brown to grey gravel and cobbles. Trace silt and clay, some sand Sub-round clasts comprised of sandstone and siltstone.	11				HQ (96mm diameter) diamond core through overburden. 16/12/20 - After well install and development. Water level @ 2.21 mbgs HW Surface casing advanced to 4.2 mbgs.
								End of Borehole @ 4.2mbgs. 51mm diameter PVC monitoring well installed to 4.2 meters below ground surface (mbgs). 1.5 meter long, 10 slot PVC screen from 2.5 to 4.0 mbgs. 10/20 Filter sand from 2.0 to 4.2 mbgs. Time release bentonite tablets from 0.0 to 2.0 mbgs. Monument style protective casing. Pressure and temperature datalogger installed on hourly reading schedule.

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Borehole details as presented do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Engineer. In addition, borehole information should be read in conjunction with the report for which it was commissioned and the accompanying 'General Report Notes'. For explanation of terms and symbols used in soil and rock logging, refer to Appendix - A.

Greenhills Operations Borehole Logs – Wells for Evaluation





Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

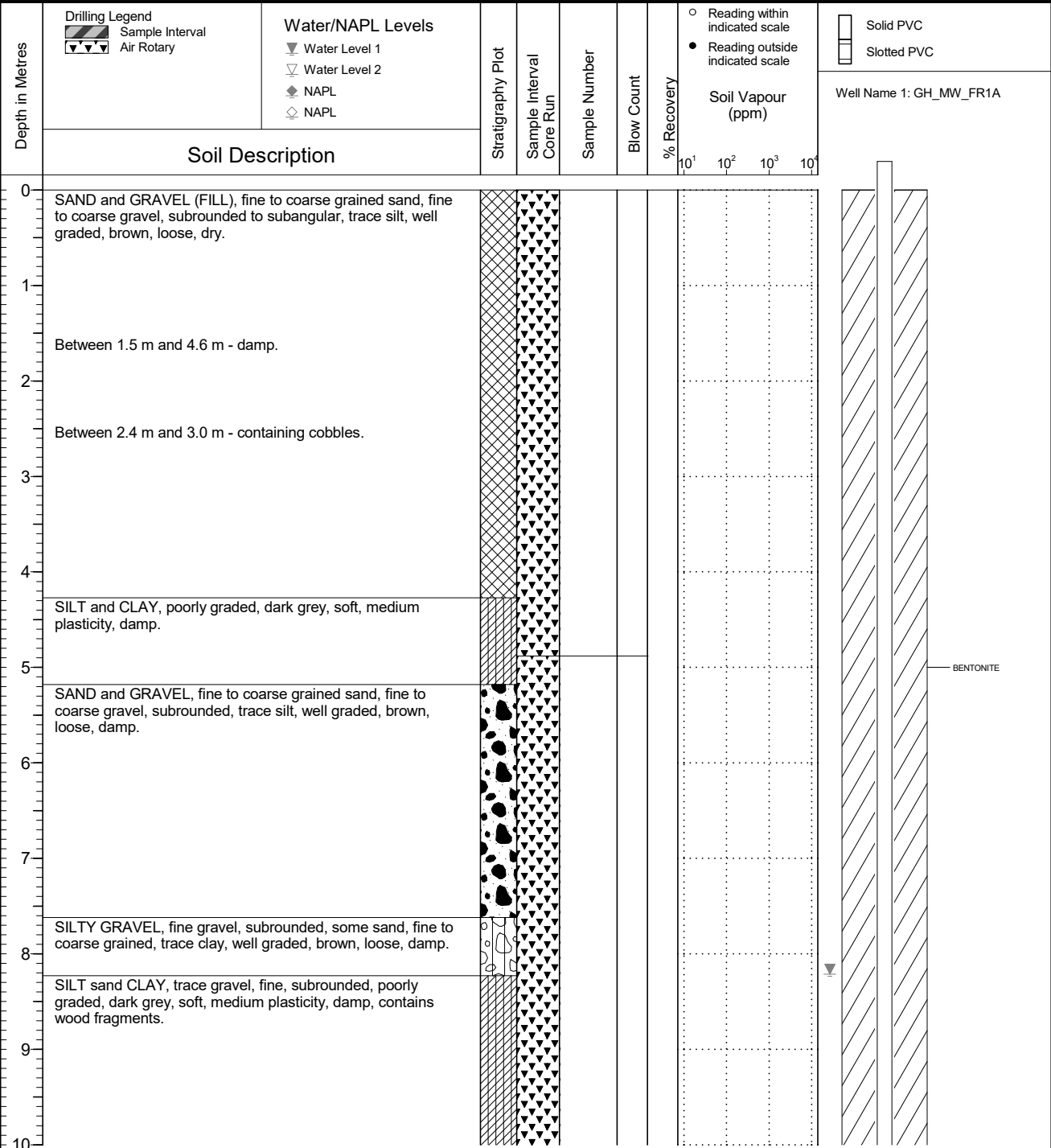
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

Location
Teck Coal Regional Groundwater

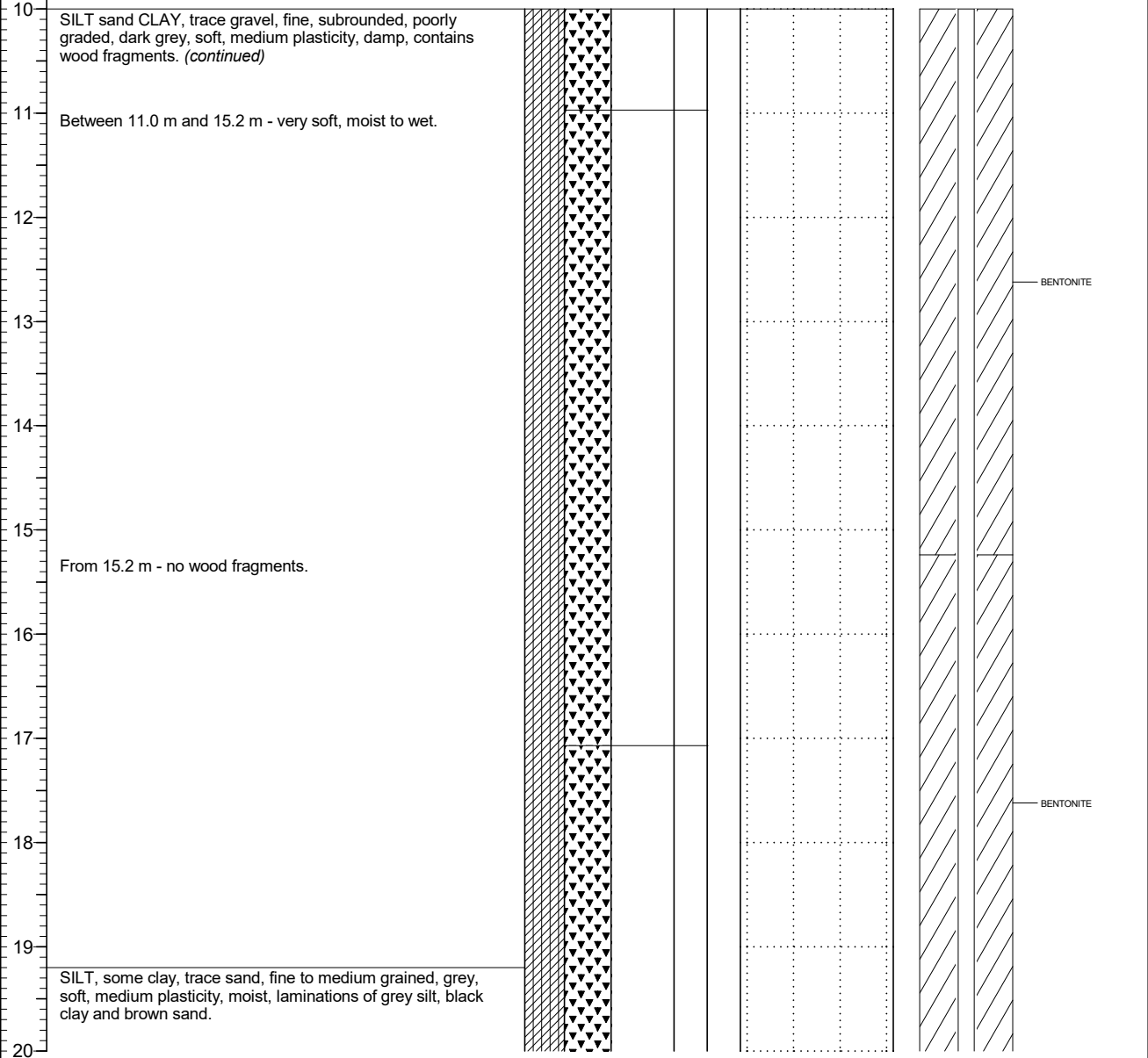
PAGE 2 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

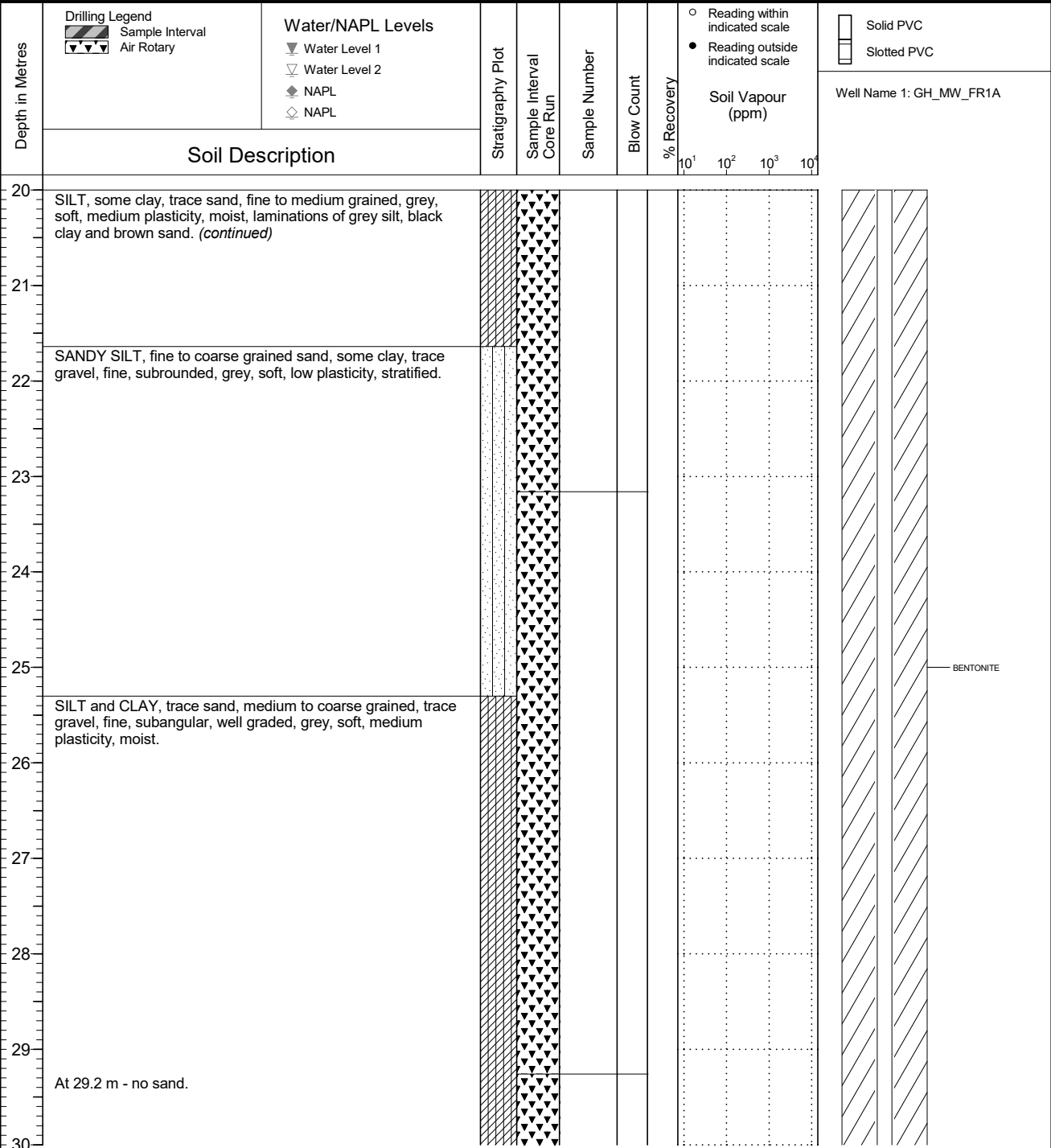
Location
Teck Coal Regional Groundwater

PAGE 3 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES

Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

Location
Teck Coal Regional Groundwater

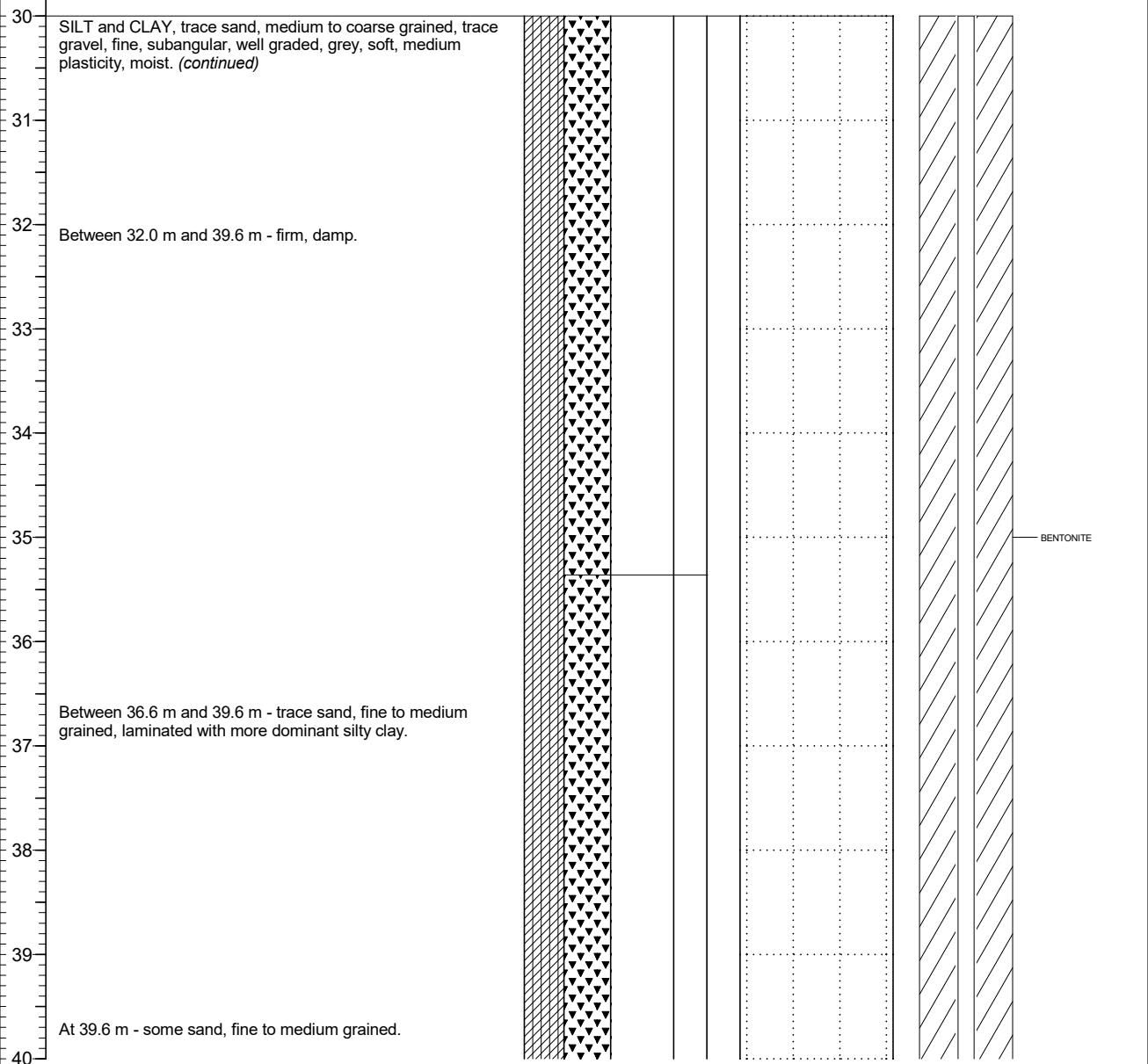
PAGE 4 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

Location
Teck Coal Regional Groundwater

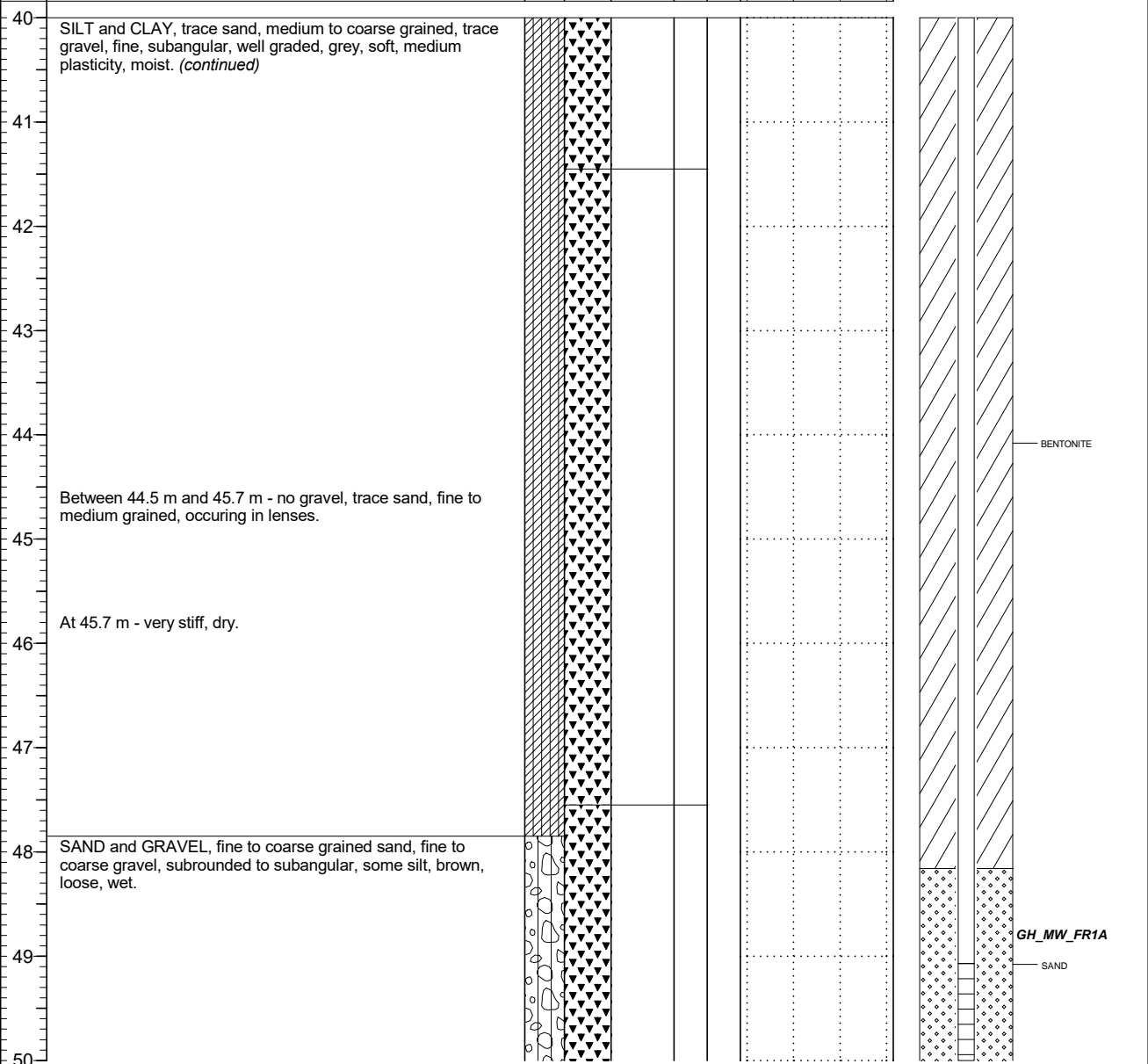
PAGE 5 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1A

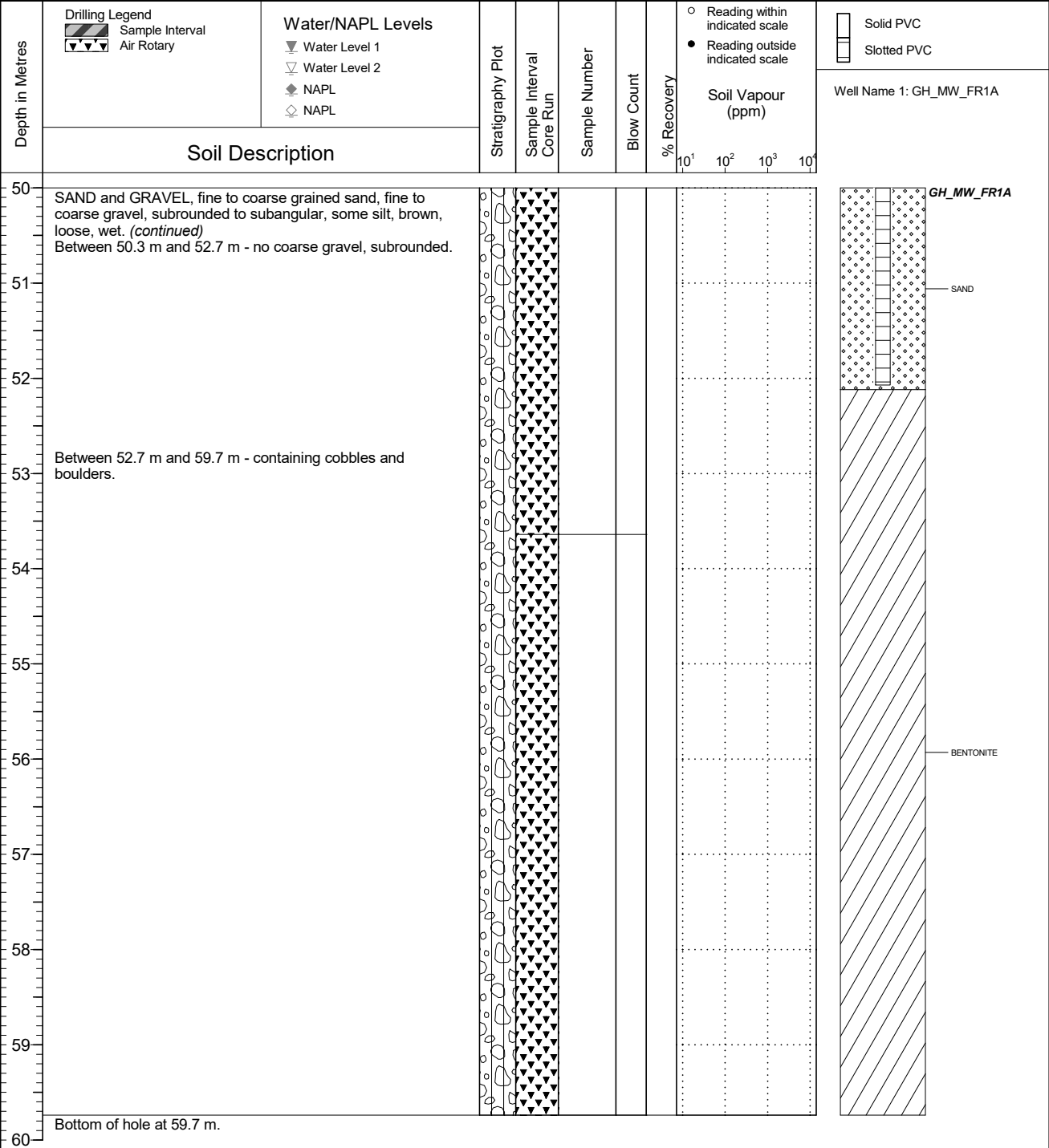
Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1495.263
Top of Casing Elev. (m) 1496.099
Northing: 5545628.645 Easting: 653461.219

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 01
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

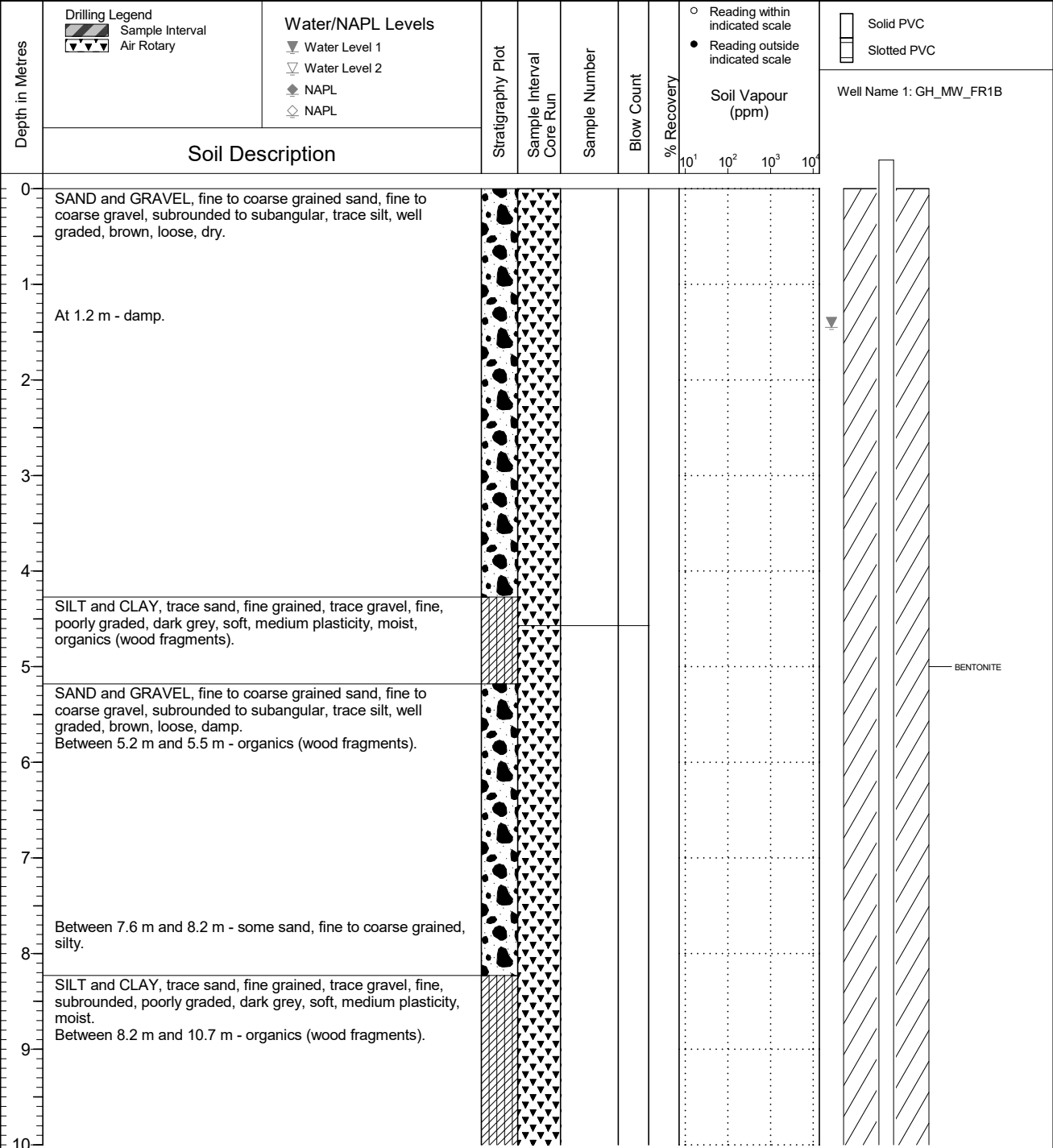
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1495.257
Top of Casing Elev. (m) 1496.116
Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 08
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

Location
Teck Coal Regional Groundwater

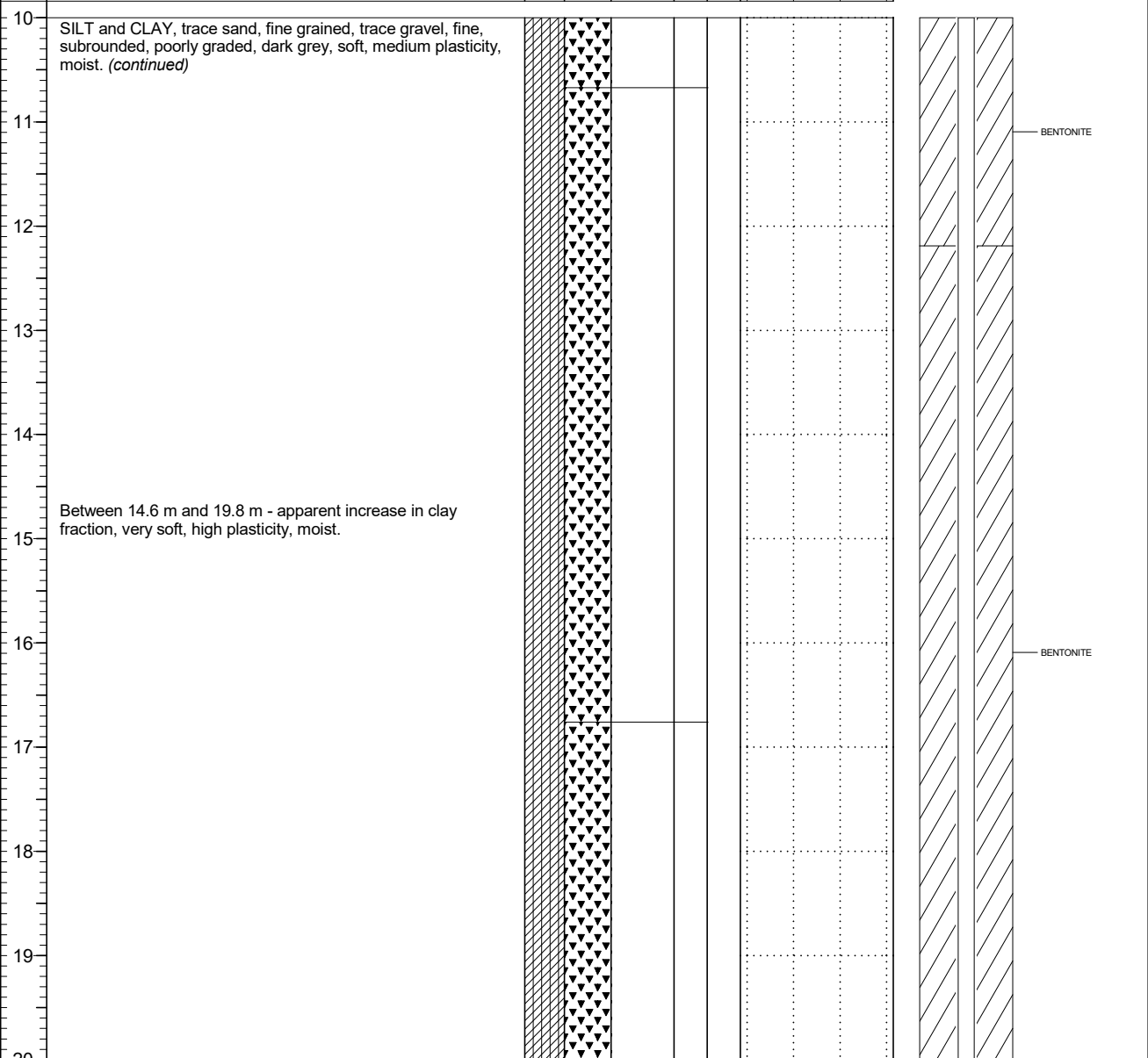
PAGE 2 OF 3

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1495.257
Top of Casing Elev. (m) 1496.116
Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 08
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR1B



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR1B

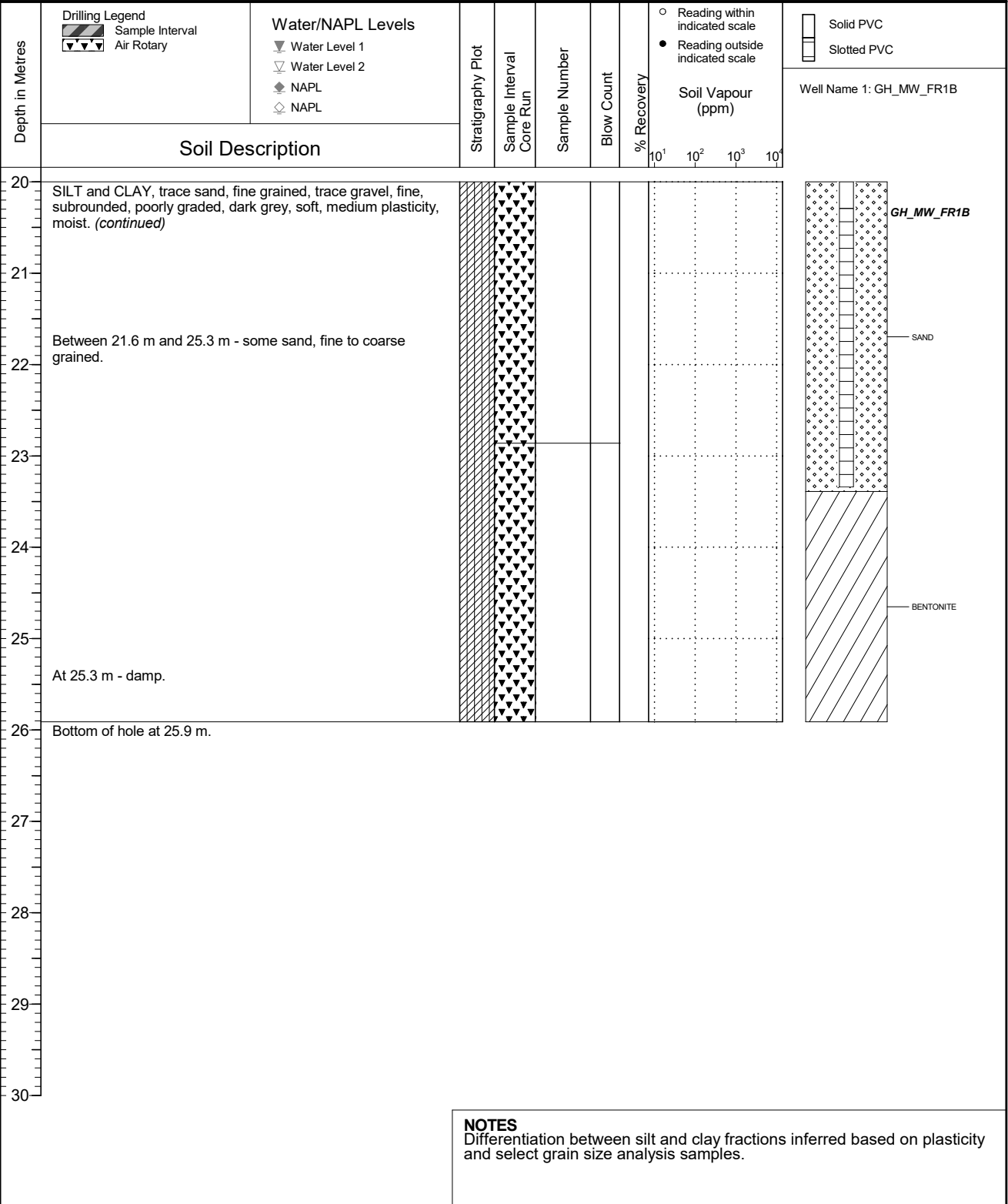
Location
Teck Coal Regional Groundwater

PAGE 3 OF 3

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1495.257
Top of Casing Elev. (m) 1496.116
Northing: 5545627.431 Easting: 653460.331

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 08
Log Typed By: VL





Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

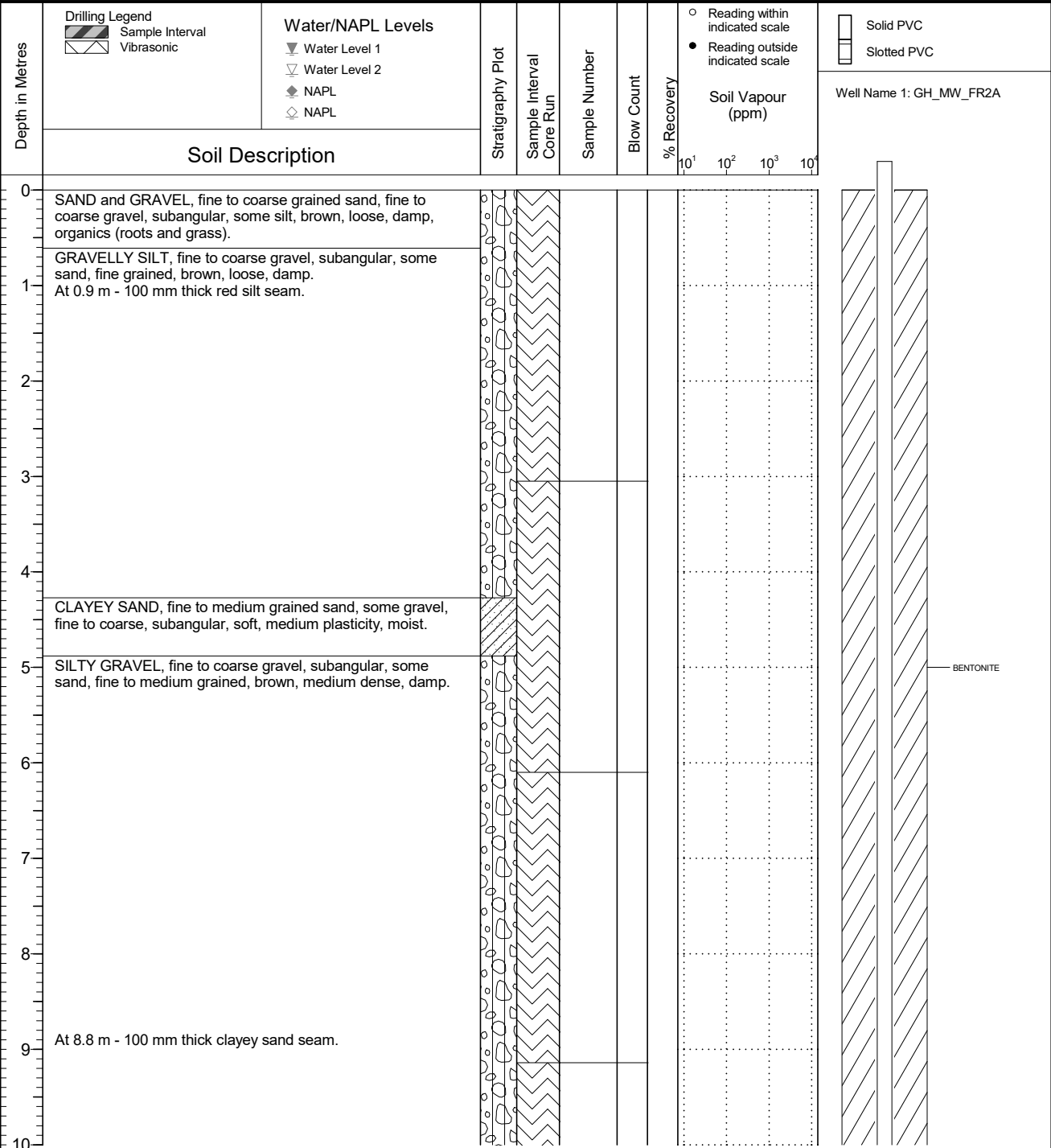
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

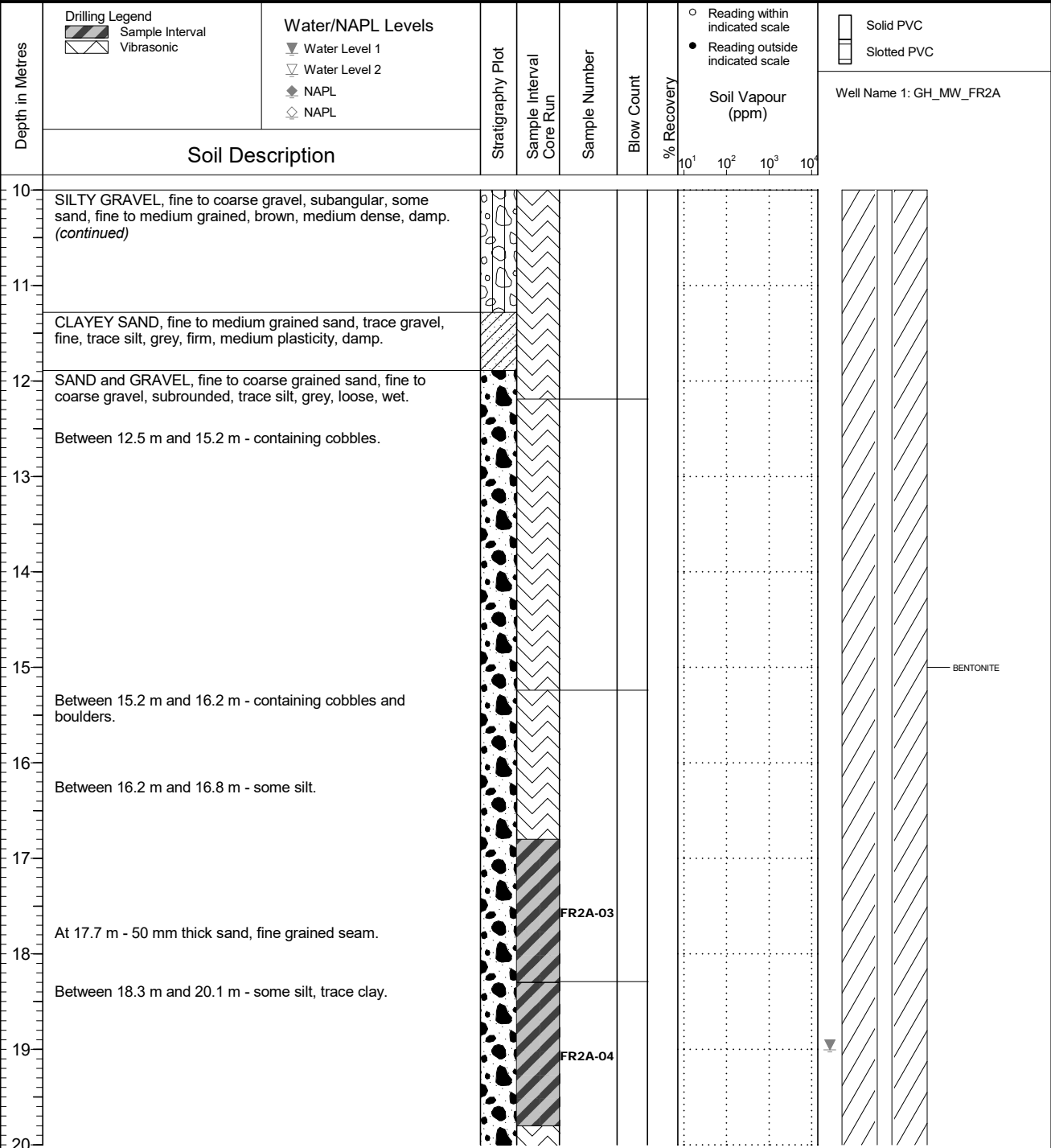
Location
Teck Coal Regional Groundwater

PAGE 2 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2A

Location
Teck Coal Regional Groundwater

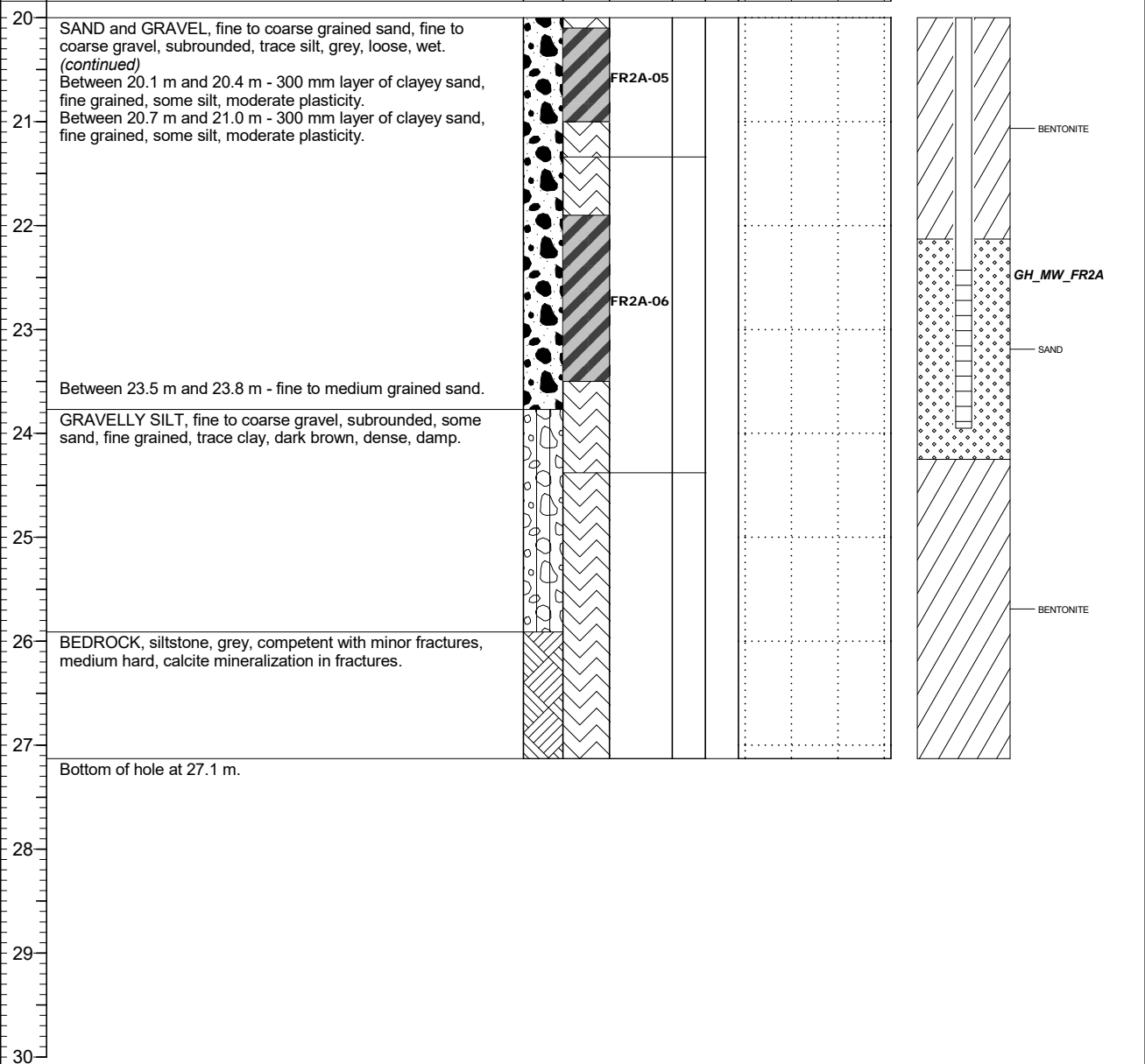
PAGE 3 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 07
Ground Surface Elev. (m) 1504.631
Top of Casing Elev. (m) 1505.466
Northing: 5545366.071 Easting: 654322.395

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR2A



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2B

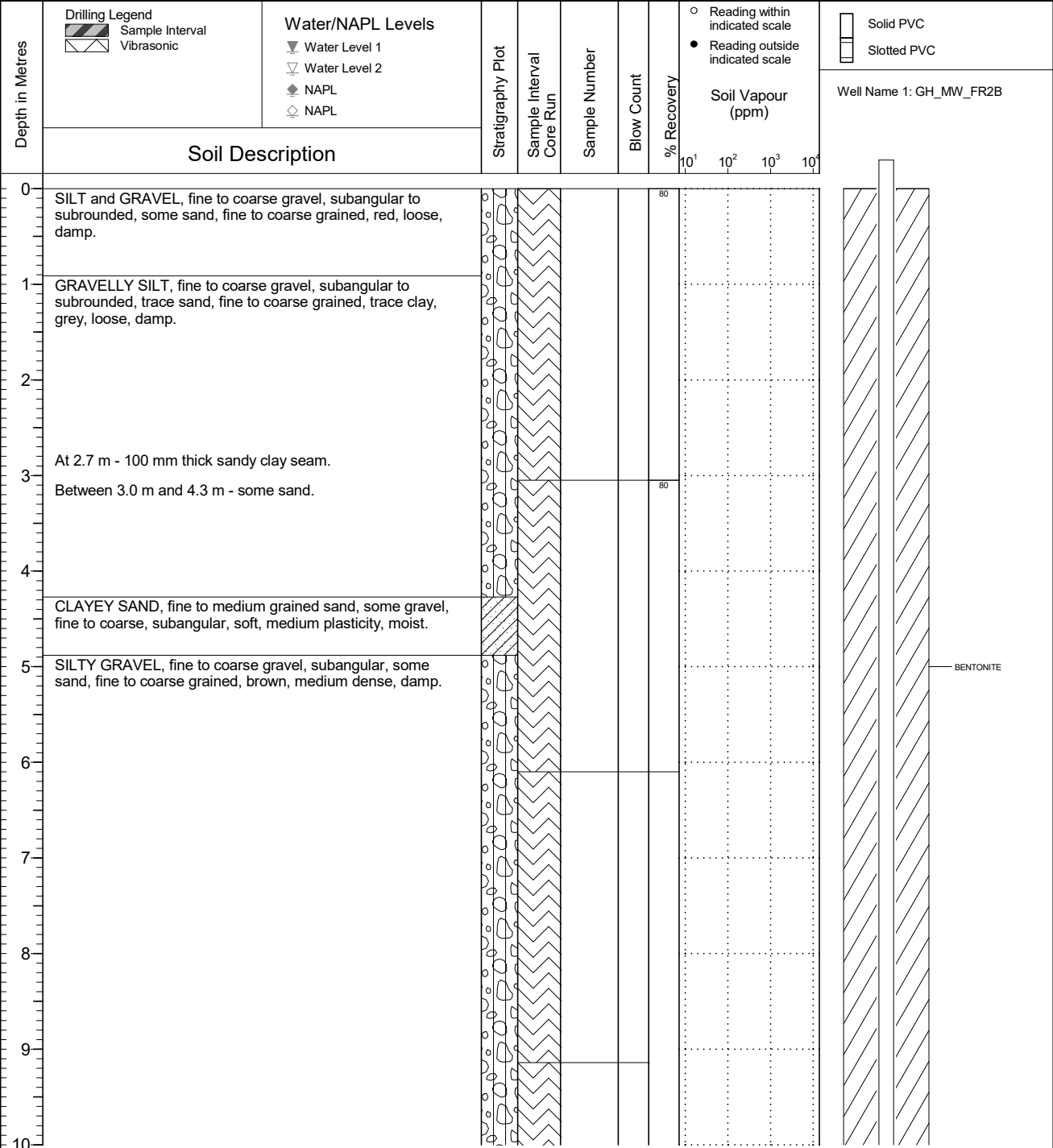
Location
Teck Coal Regional Groundwater

PAGE 1 OF 2

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1504.686
Top of Casing Elev. (m) 1505.483
Northing: 5545365.024 Easting: 654323.277

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR2B

Location
Teck Coal Regional Groundwater

PAGE 2 OF 2

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1504.686
Top of Casing Elev. (m) 1505.483
Northing: 5545365.024 Easting: 654323.277

Project Number: 684431
Borehole Logged By: AH
Date Drilled: 2021 09 27
Log Typed By: VL

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: GH_MW_FR2B	
							10 ¹	10 ²	10 ³	10 ⁴		
10	SILTY GRAVEL, fine to coarse gravel, subangular, some sand, fine to coarse grained, brown, medium dense, damp. (continued)											
11	CLAYEY SAND, fine to medium grained sand, some gravel, fine to coarse, subangular, trace silt, grey, medium dense, moderate plasticity, moist.											
12	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, grey, loose, wet.											
13												
14												
15												
Bottom of hole at 15.2 m.												
16												
17												
18												
19												
20												

NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

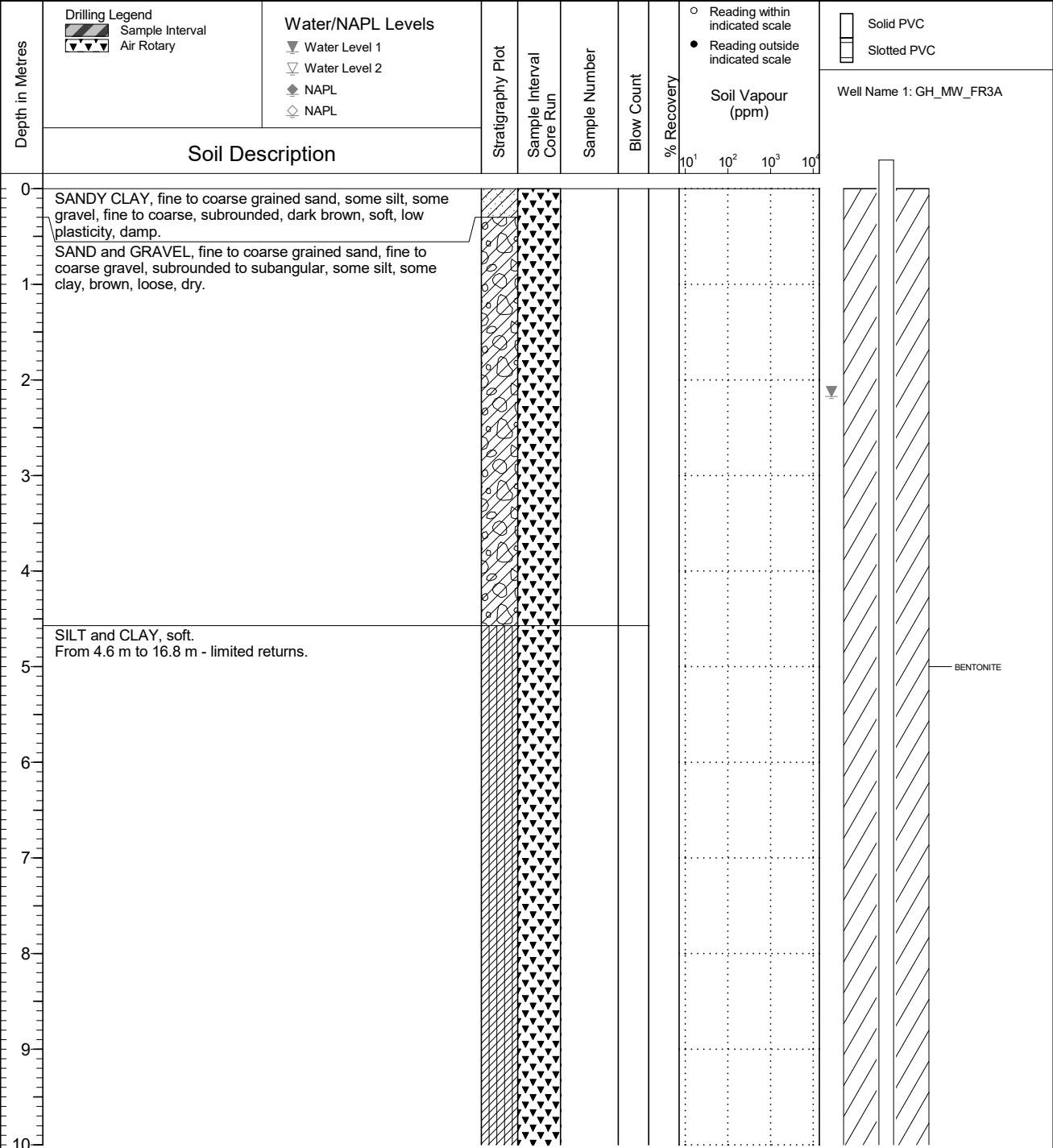
Location
Teck Coal Regional Groundwater

PAGE 1 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

Location
Teck Coal Regional Groundwater

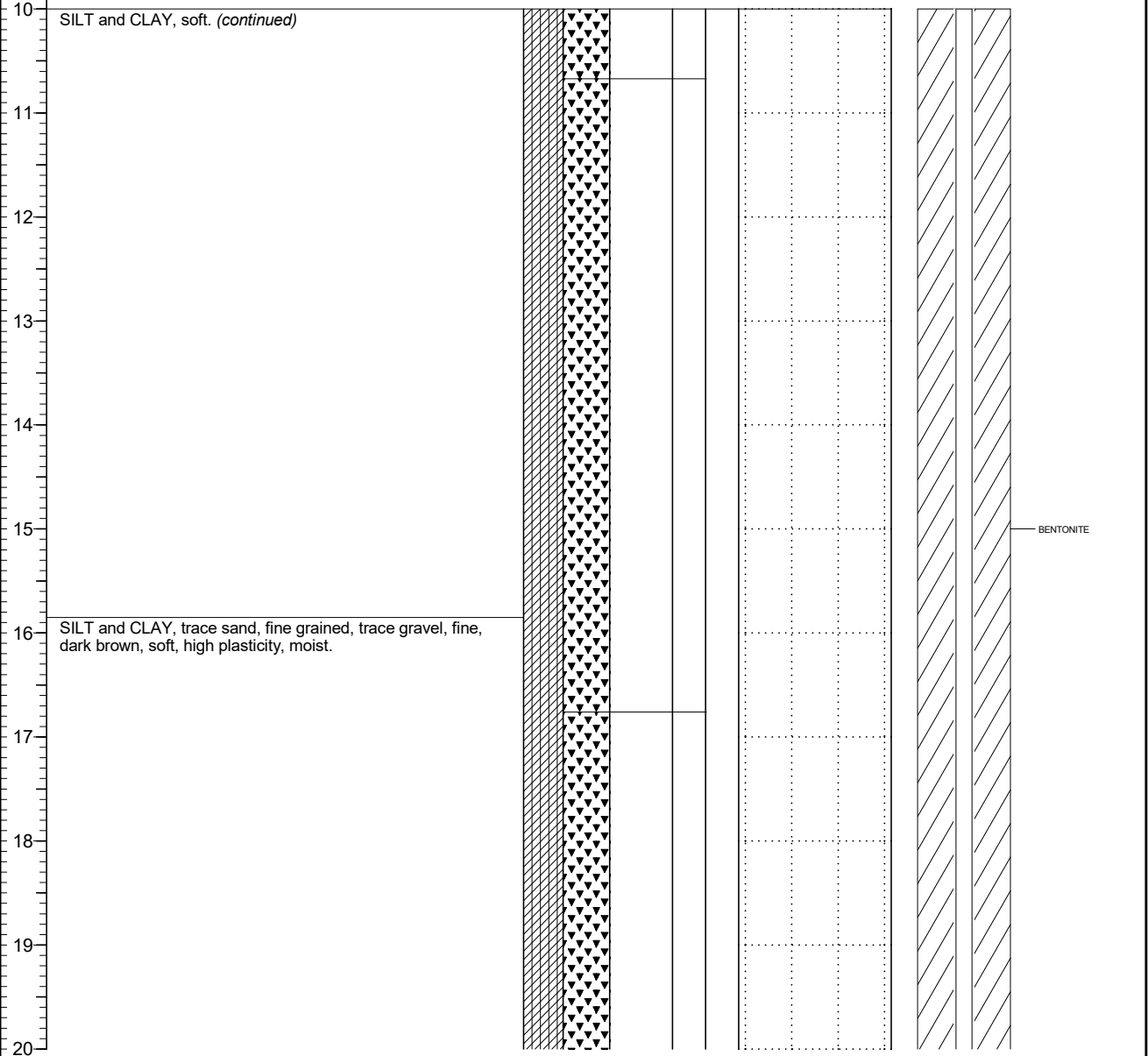
PAGE 2 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR3A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

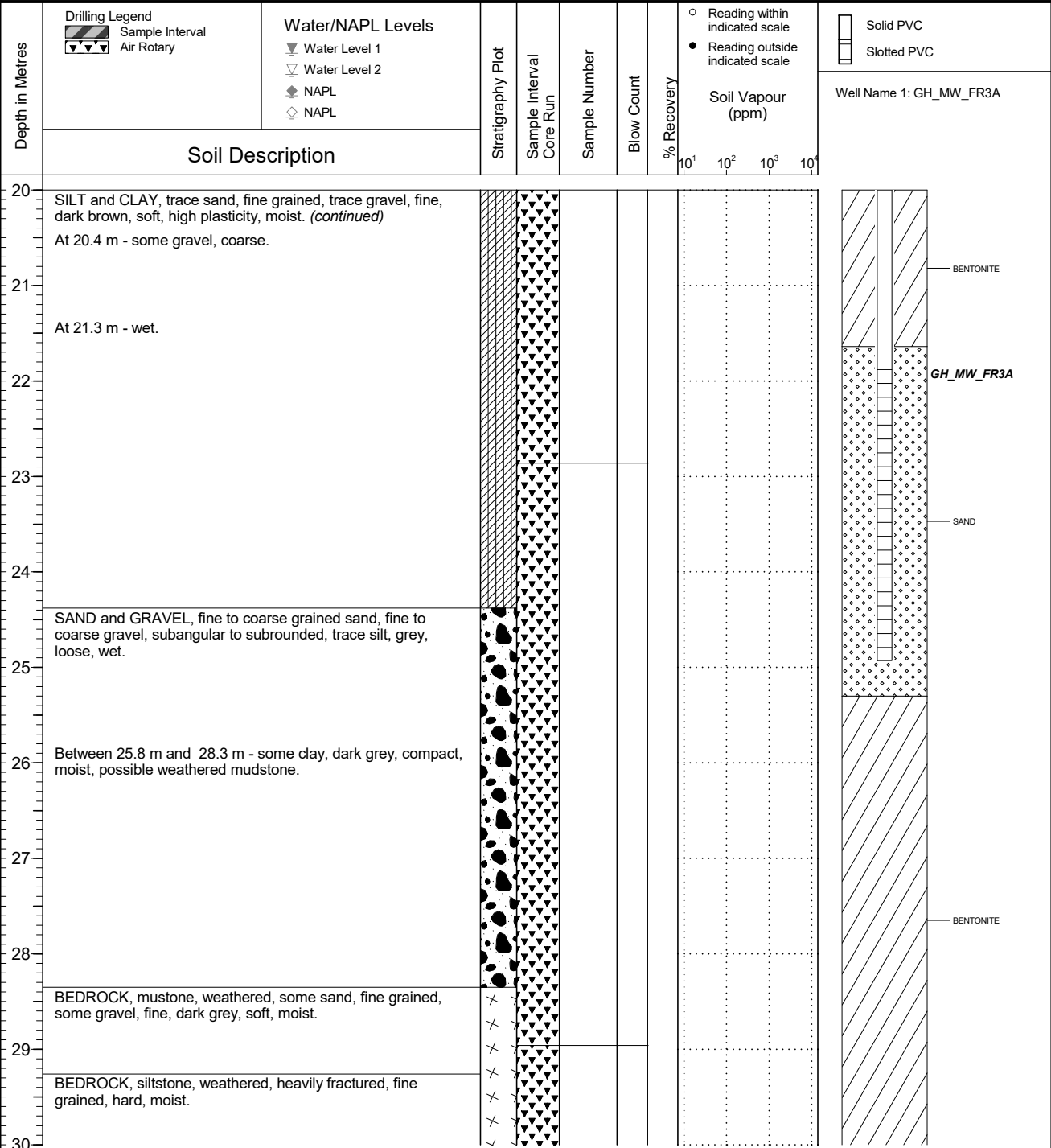
Location
Teck Coal Regional Groundwater

PAGE 3 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

Location
Teck Coal Regional Groundwater

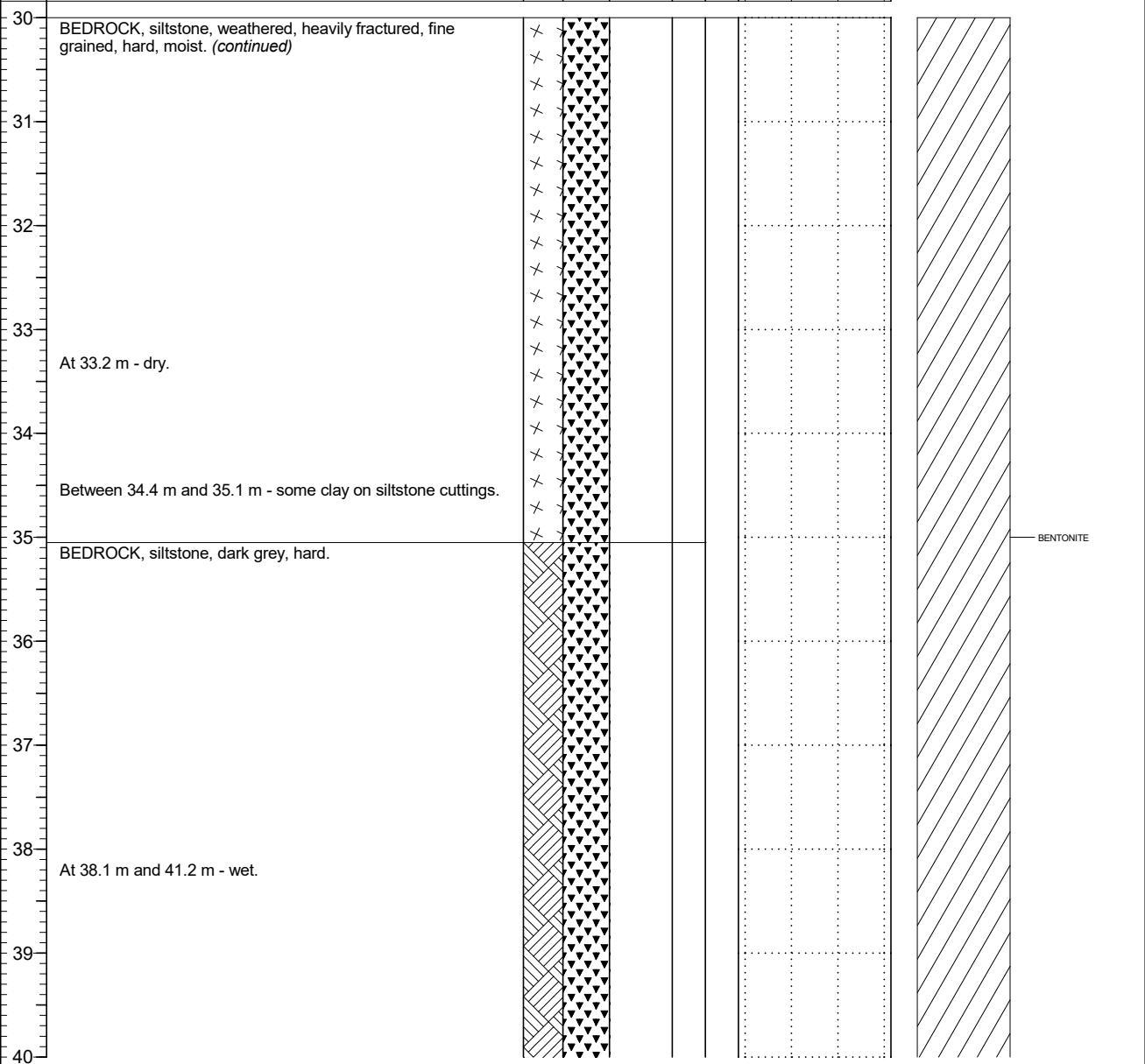
PAGE 4 OF 5

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1487.555
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Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 14
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR3A



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3A

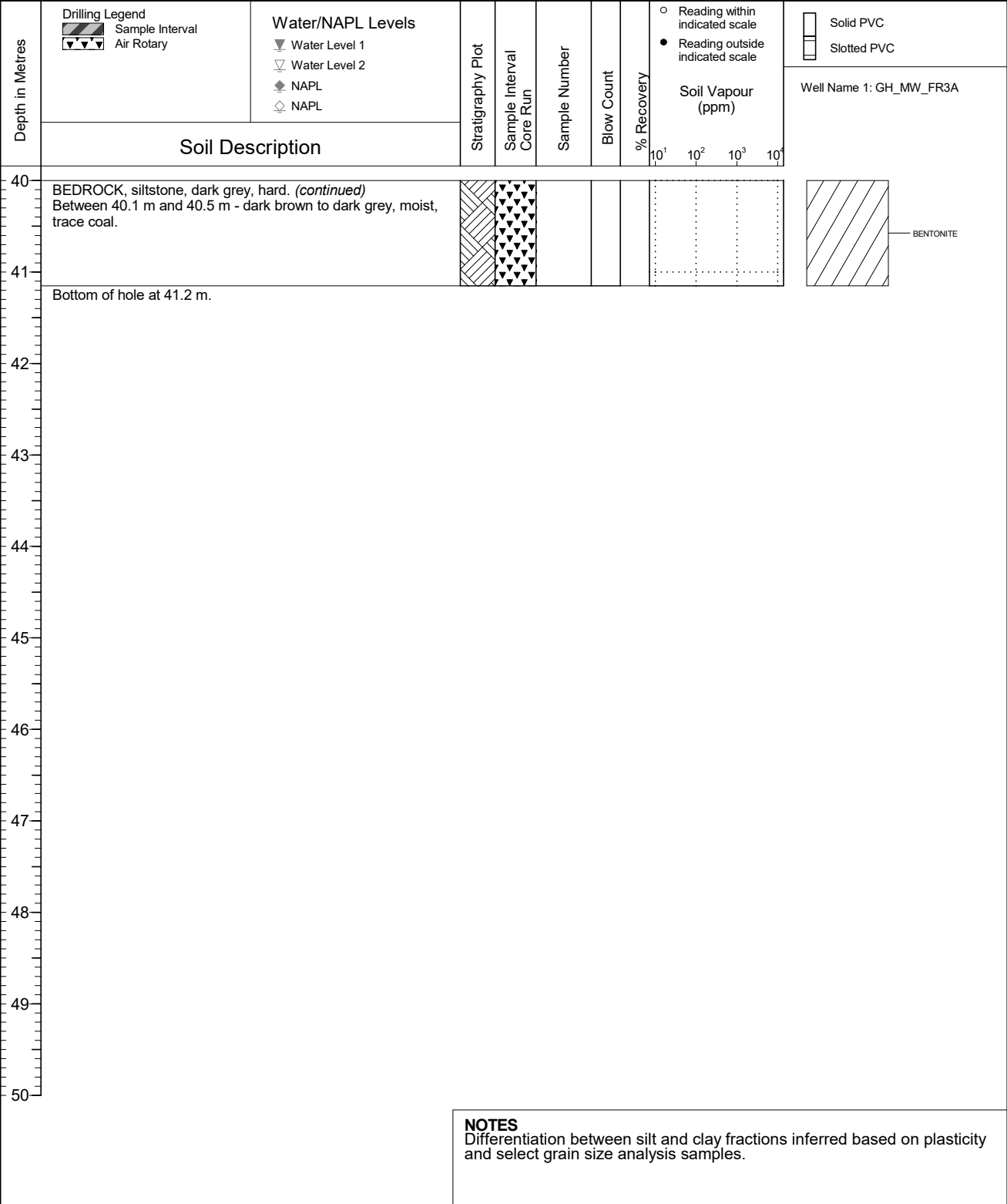
Location
Teck Coal Regional Groundwater

PAGE 5 OF 5

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1487.555
Top of Casing Elev. (m) 1488.372
Northing: 5545568.361 Easting: 653085.614

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 14
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR3B

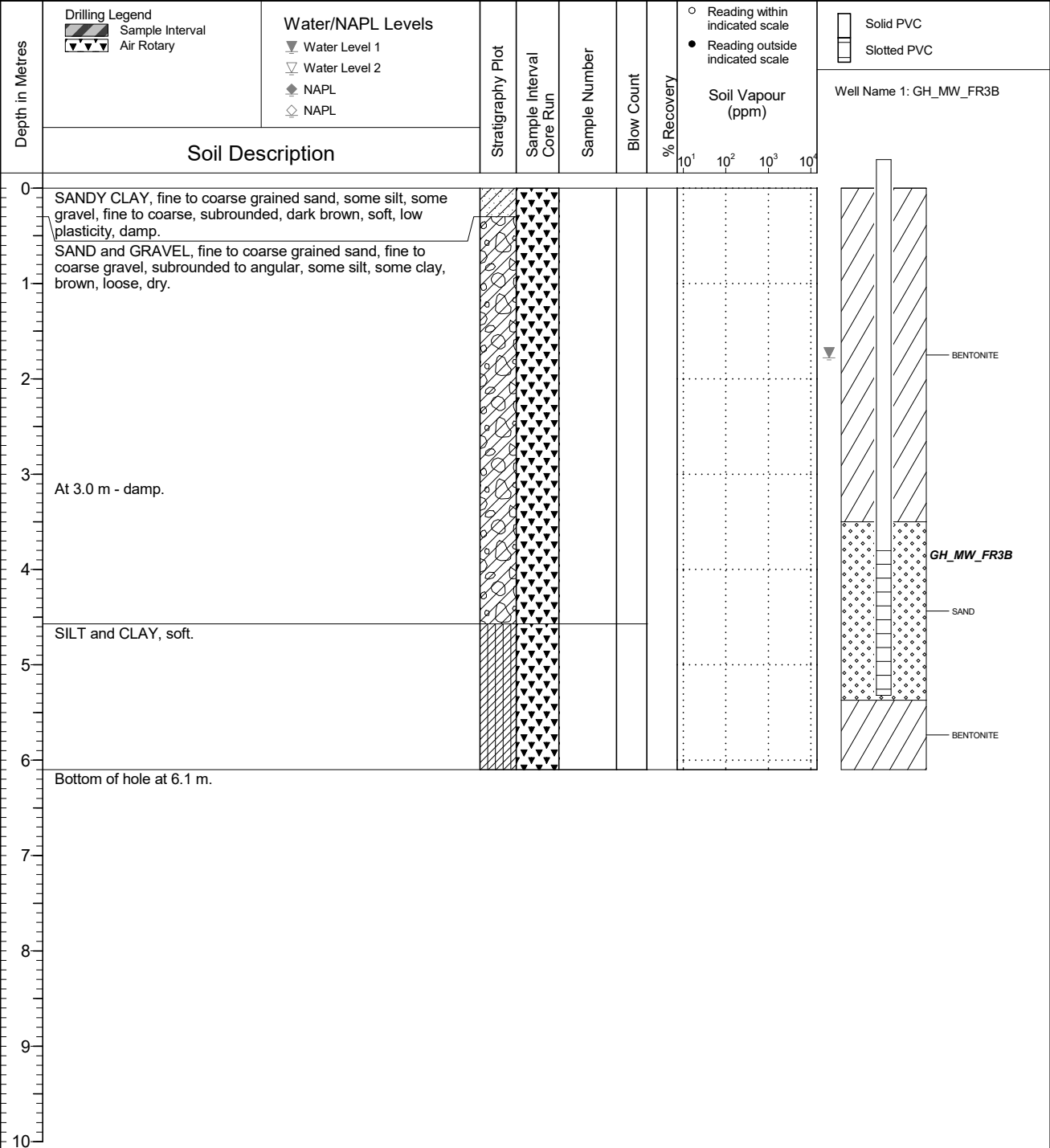
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1487.546
 Top of Casing Elev. (m) 1488.377
 Northing: 5545567.504 Easting: 653086.809

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 16
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

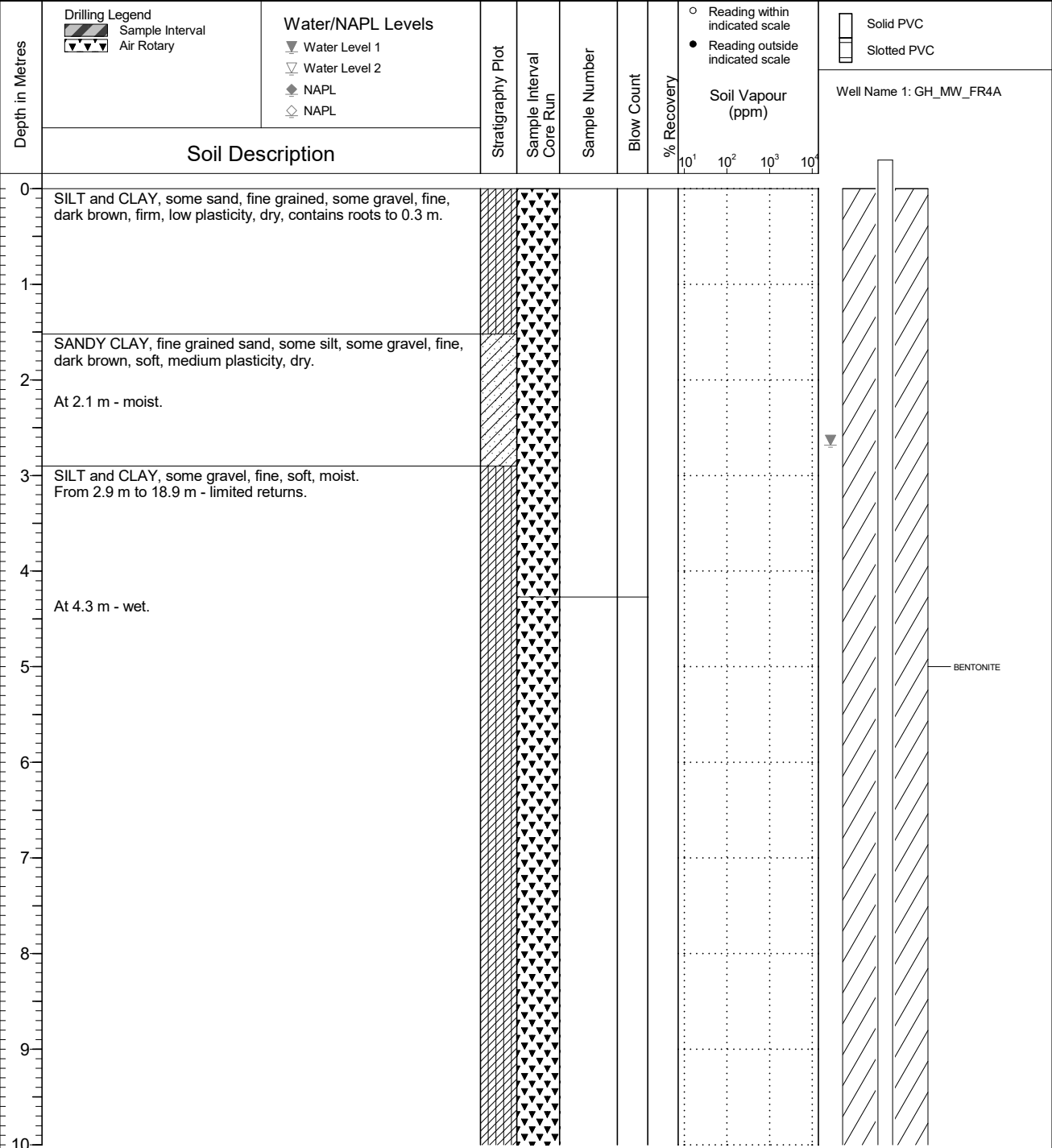
Location
Teck Coal Regional Groundwater

PAGE 1 OF 4

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1492.543
Top of Casing Elev. (m) 1493.240
Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 17
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

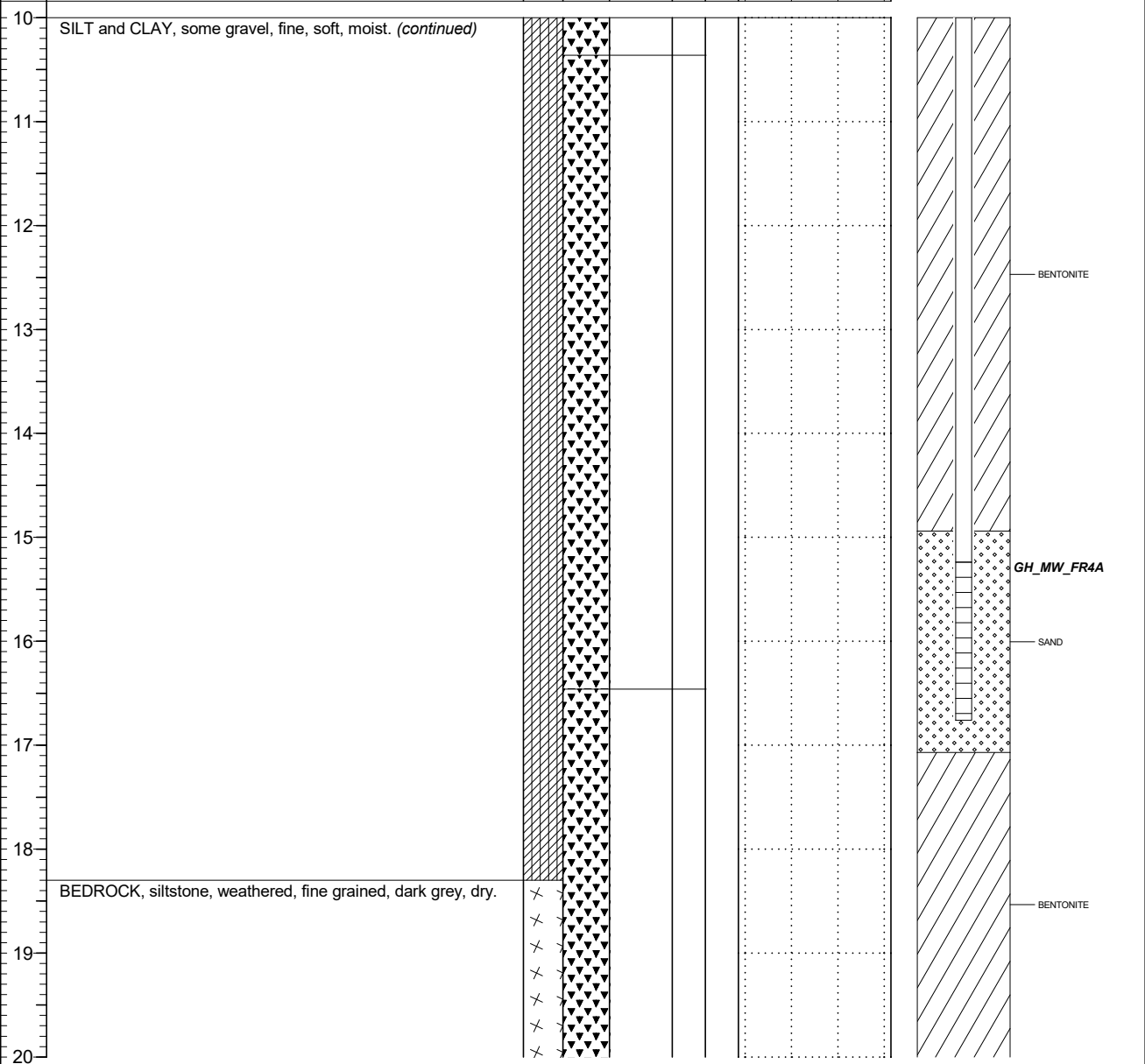
PAGE 2 OF 4

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.543
 Top of Casing Elev. (m) 1493.240
 Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 17
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="radio"/> Reading within indicated scale <input checked="" type="radio"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR4A



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

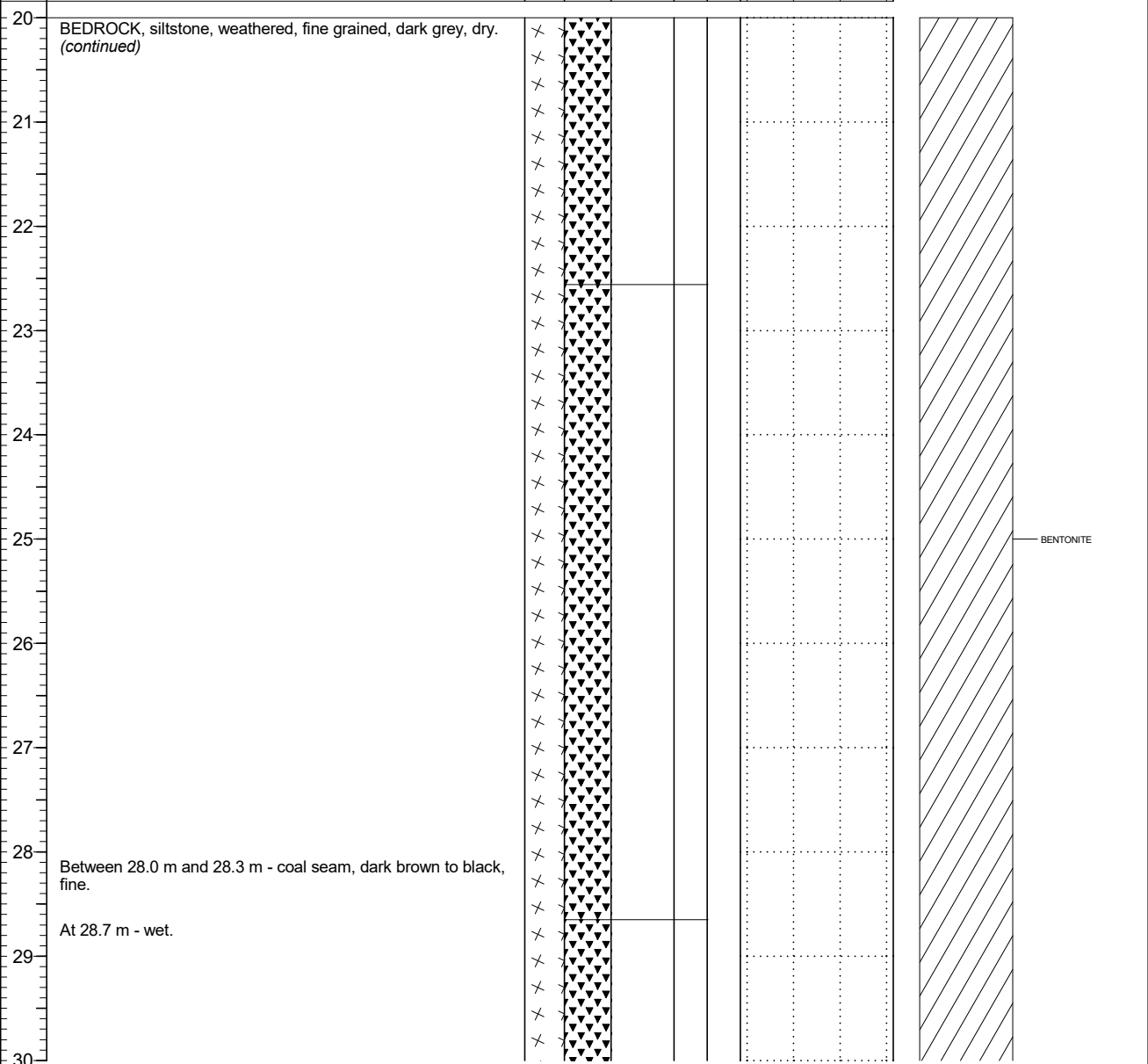
PAGE 3 OF 4

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
Ground Surface Elev. (m) 1492.543
Top of Casing Elev. (m) 1493.240
Northing: 5545820.830 Easting: 653169.216

Project Number: 684431
Borehole Logged By: JM
Date Drilled: 2021 09 17
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4A

Location
Teck Coal Regional Groundwater

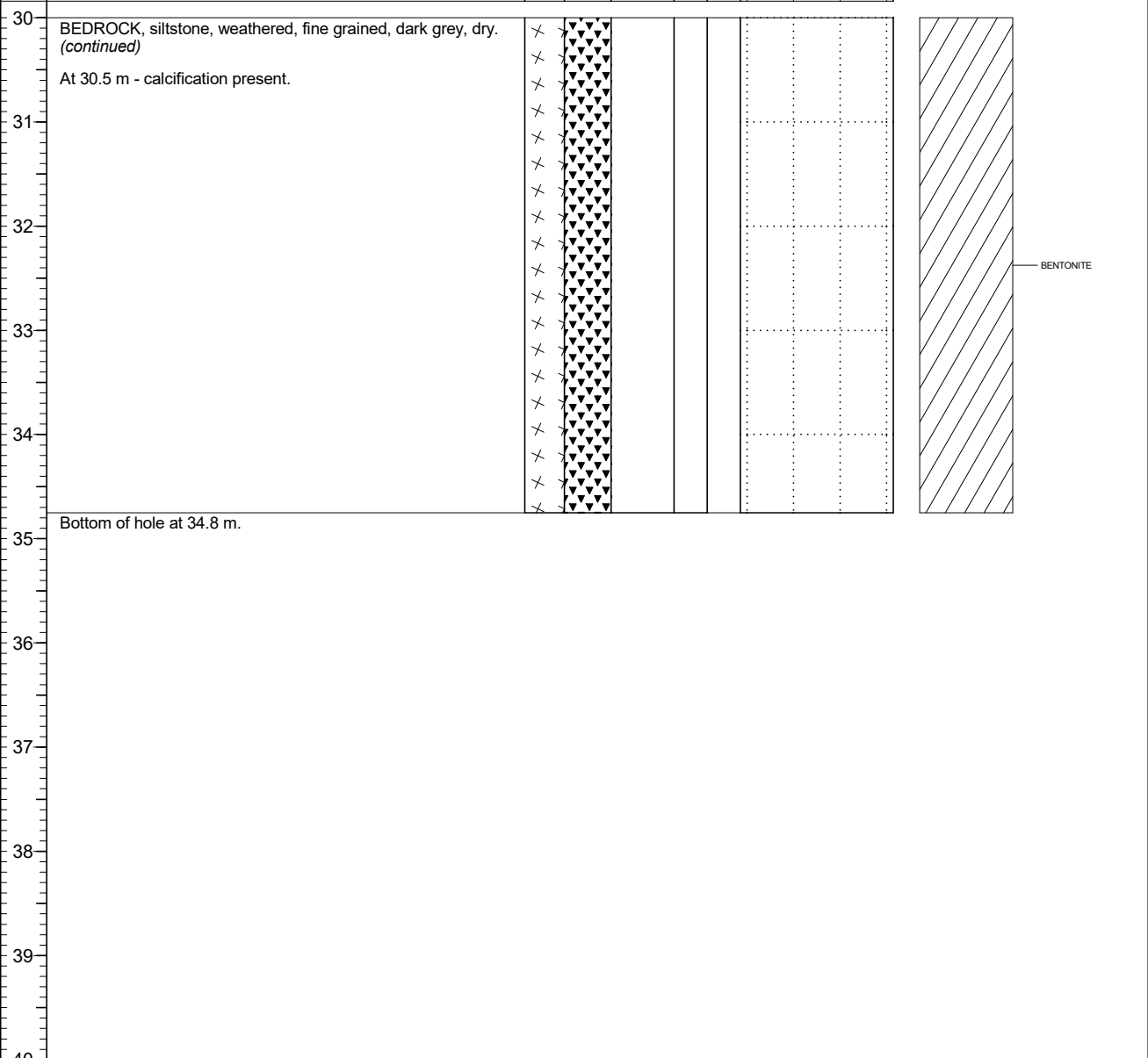
PAGE 4 OF 4

Drilling Contractor: JR Drilling
 Drilling Method: Dual Rotary
 Borehole Dia. (m): 0.15
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: 2021 11 21
 Ground Surface Elev. (m): 1492.543
 Top of Casing Elev. (m): 1493.240
 Northing: 5545820.830
 Easting: 653169.216

Project Number: 684431
 Borehole Logged By: JM
 Date Drilled: 2021 09 17
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR4B

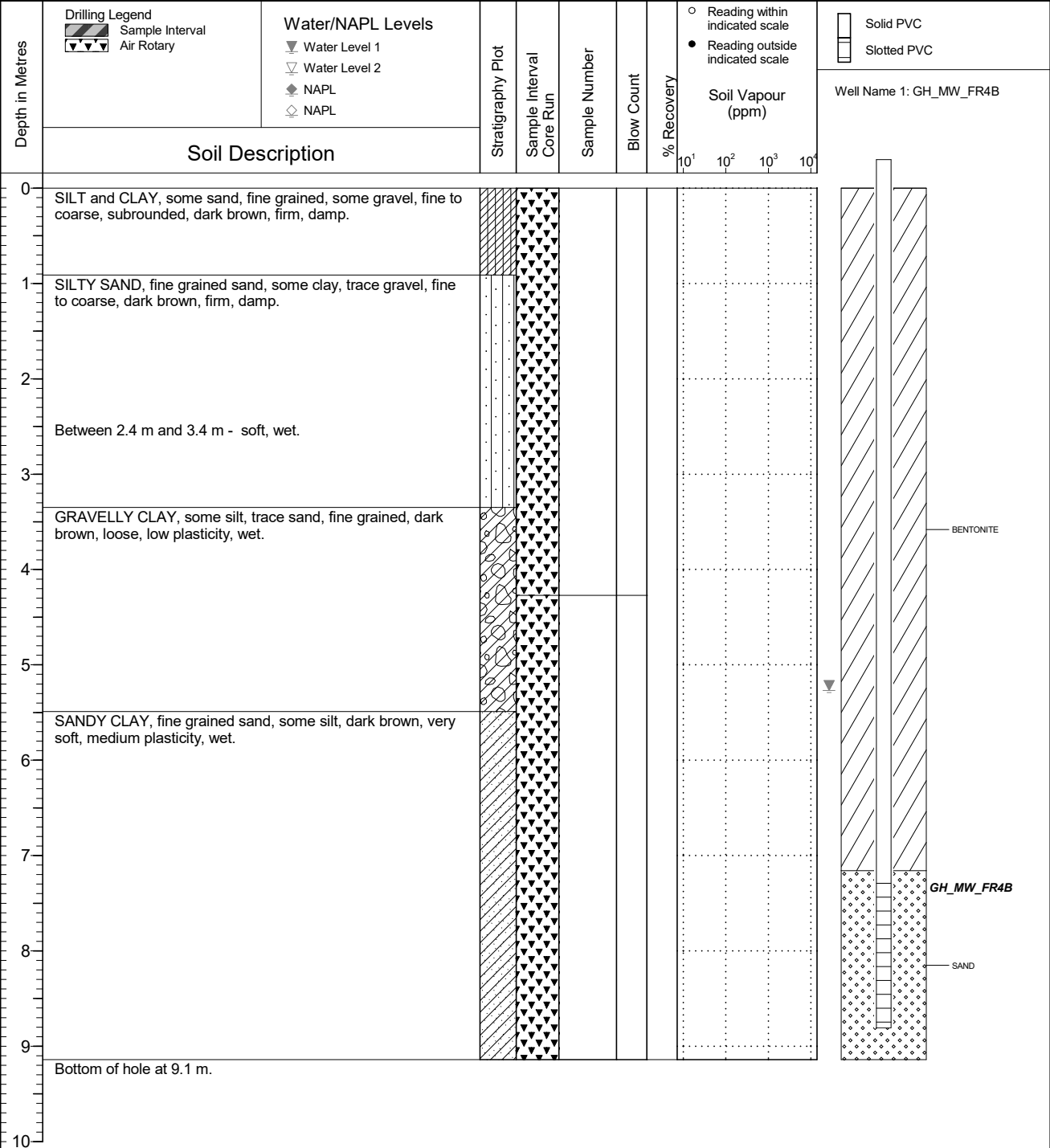
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor JR Drilling
 Drilling Method Dual Rotary
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 11 21
 Ground Surface Elev. (m) 1492.597
 Top of Casing Elev. (m) 1493.467
 Northing: 5545819.767 Easting: 653171.344

Project Number: 684431
 Borehole Logged By: AH
 Date Drilled: 2021 09 17
 Log Typed By: VL



NOTES
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

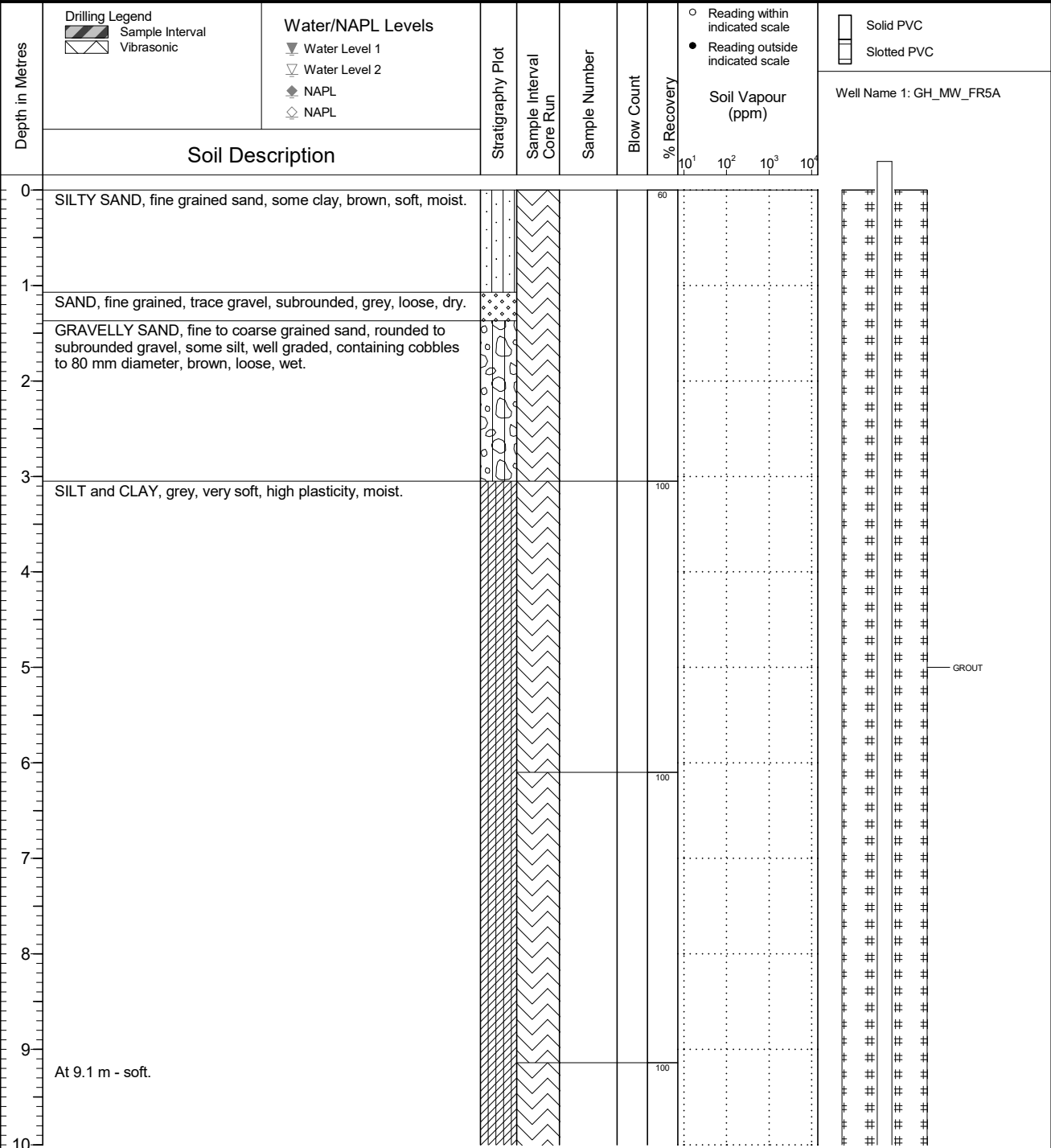
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

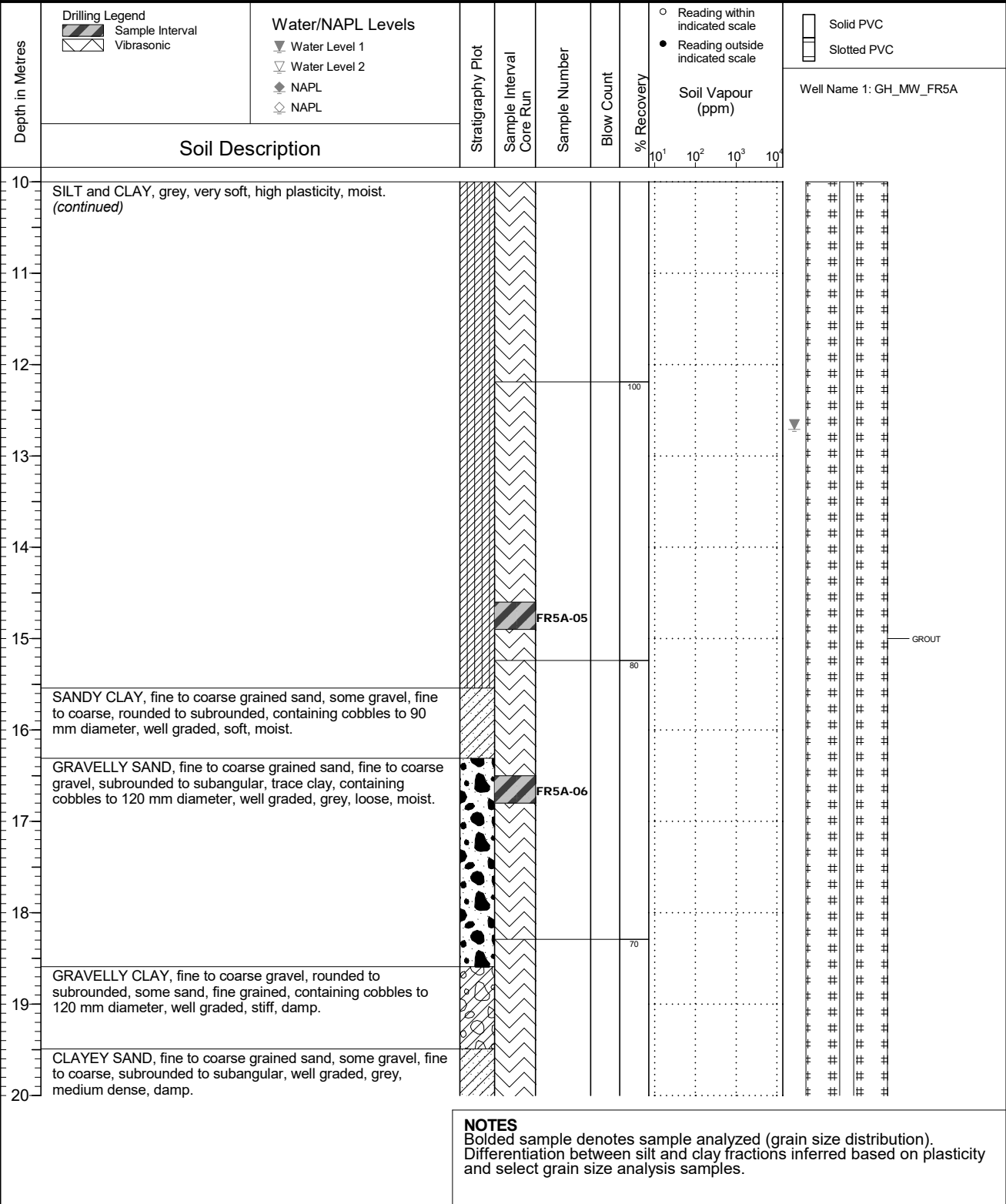
Location
Teck Coal Regional Groundwater

PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

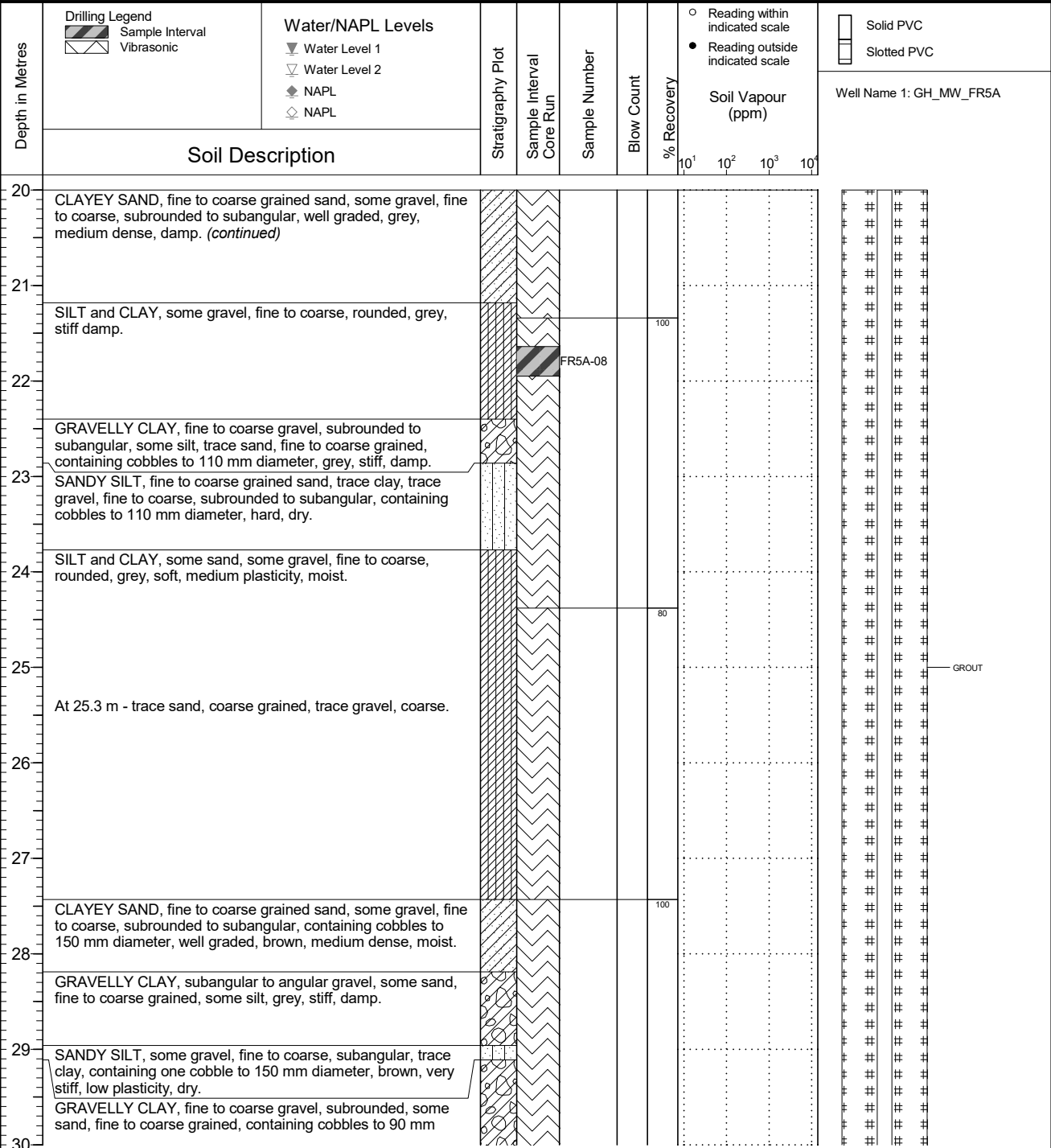
Location
Teck Coal Regional Groundwater

PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

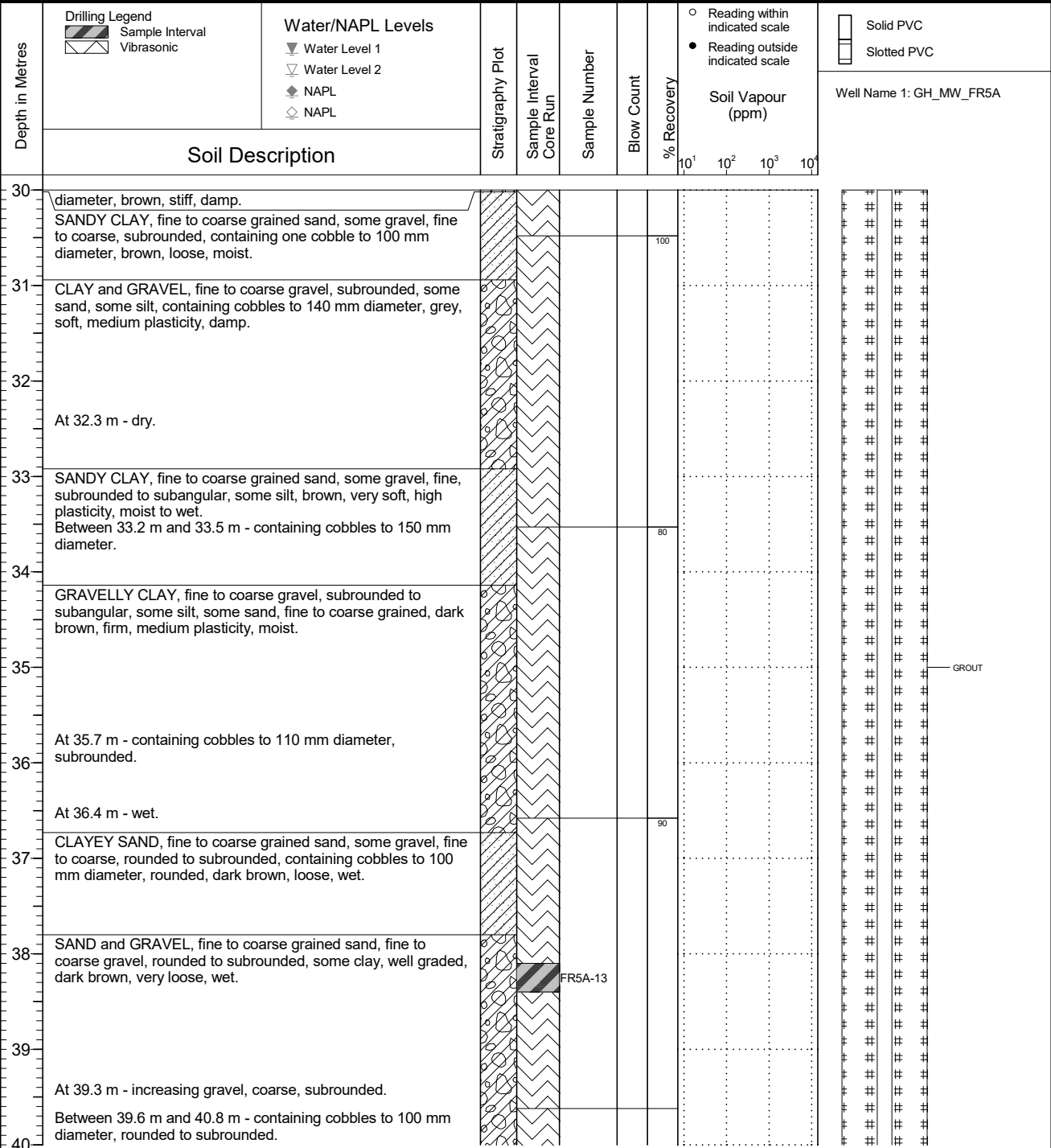
Location
Teck Coal Regional Groundwater

PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

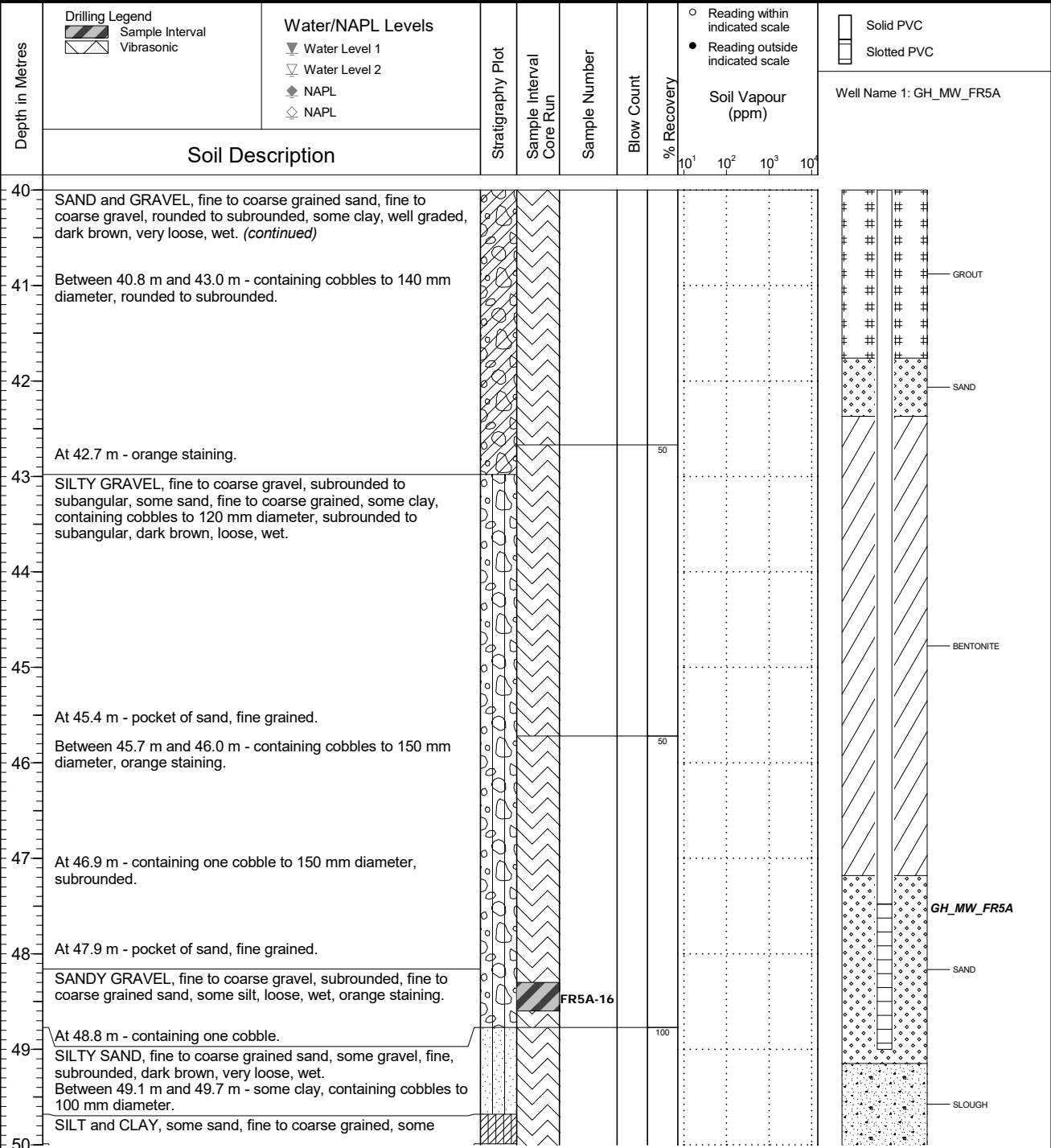
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5A

Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.844
Top of Casing Elev. (m) 1488.769
Northing: 5545476.854 Easting: 653287.722

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)				Well Name 1: GH_MW_FR5A	
							10 ¹	10 ²	10 ³	10 ⁴		
50	gravel, containing cobbles to 90 mm diameter, very stiff, low plasticity. BEDROCK, siltstone, weathered, grey, dry. (continued) BEDROCK, mudstone, weathered, dark grey, damp.	X	X									
51	Bottom of hole at 50.9 m.	X	X									
52												
53												
54												
55												
56												
57												
58												
59												
60												

NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

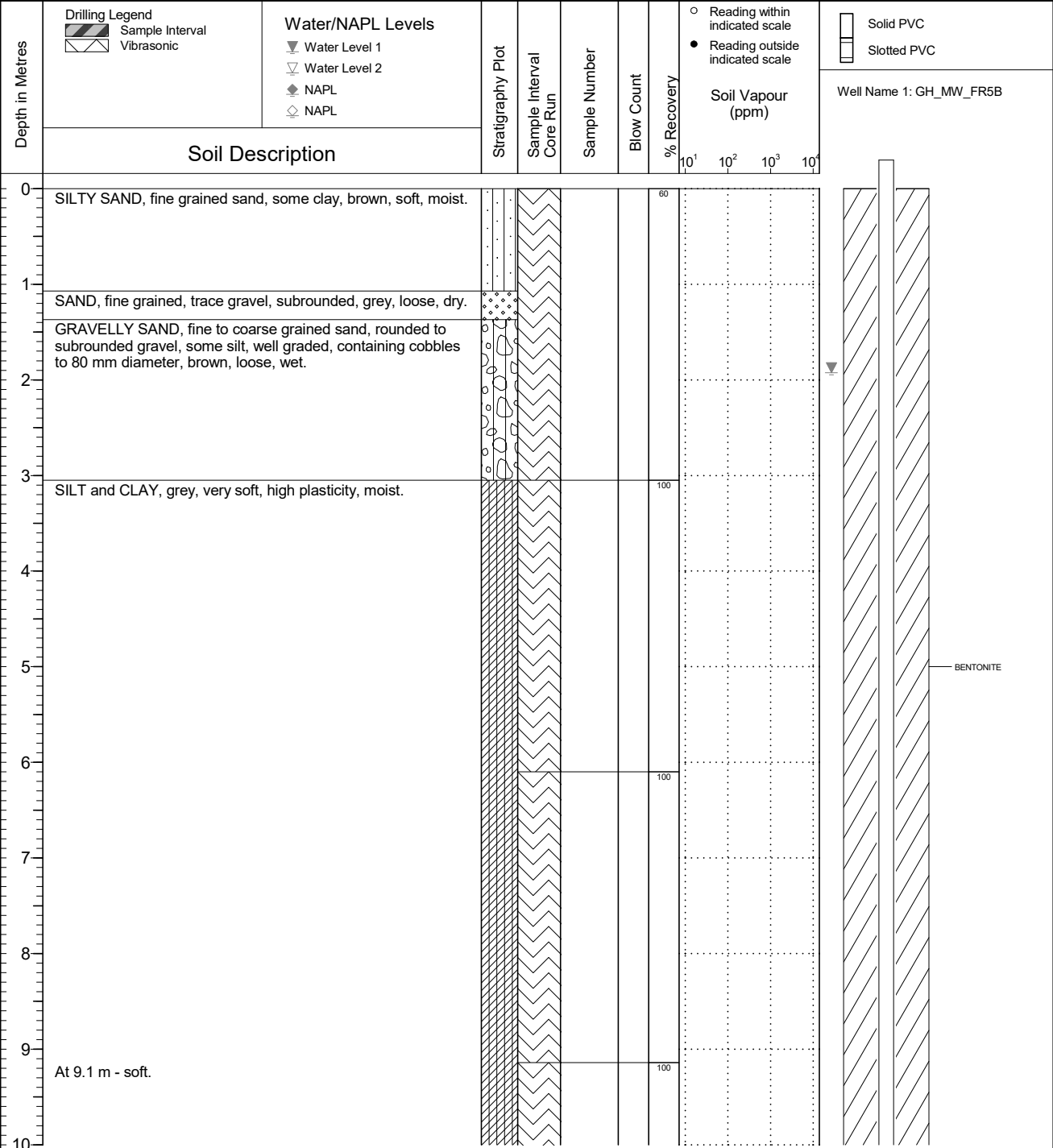
Location
Teck Coal Regional Groundwater

PAGE 1 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

Location
Teck Coal Regional Groundwater

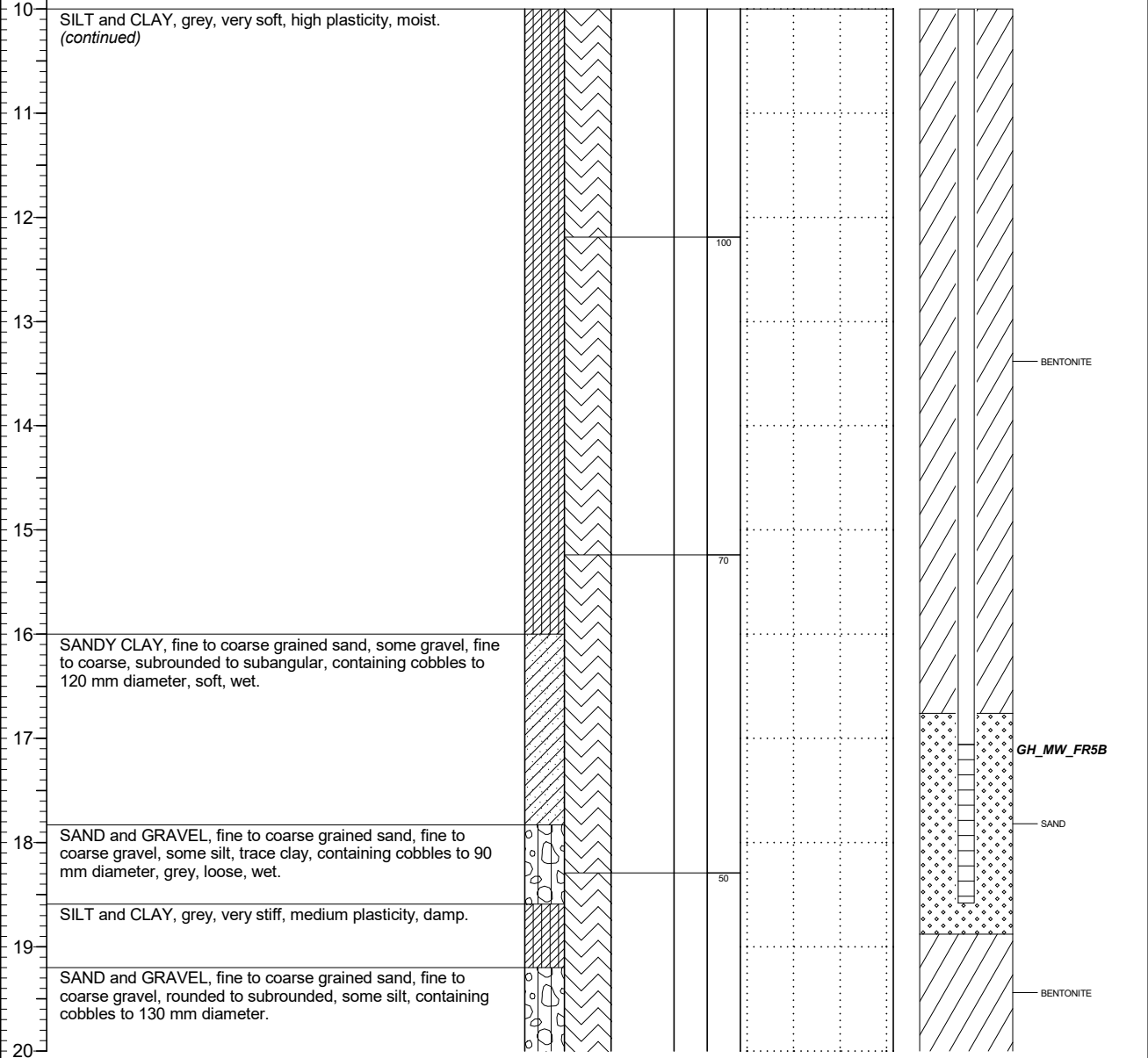
PAGE 2 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description	Soil Vapour (ppm)						Well Name 1: GH_MW_FR5B	



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR5B

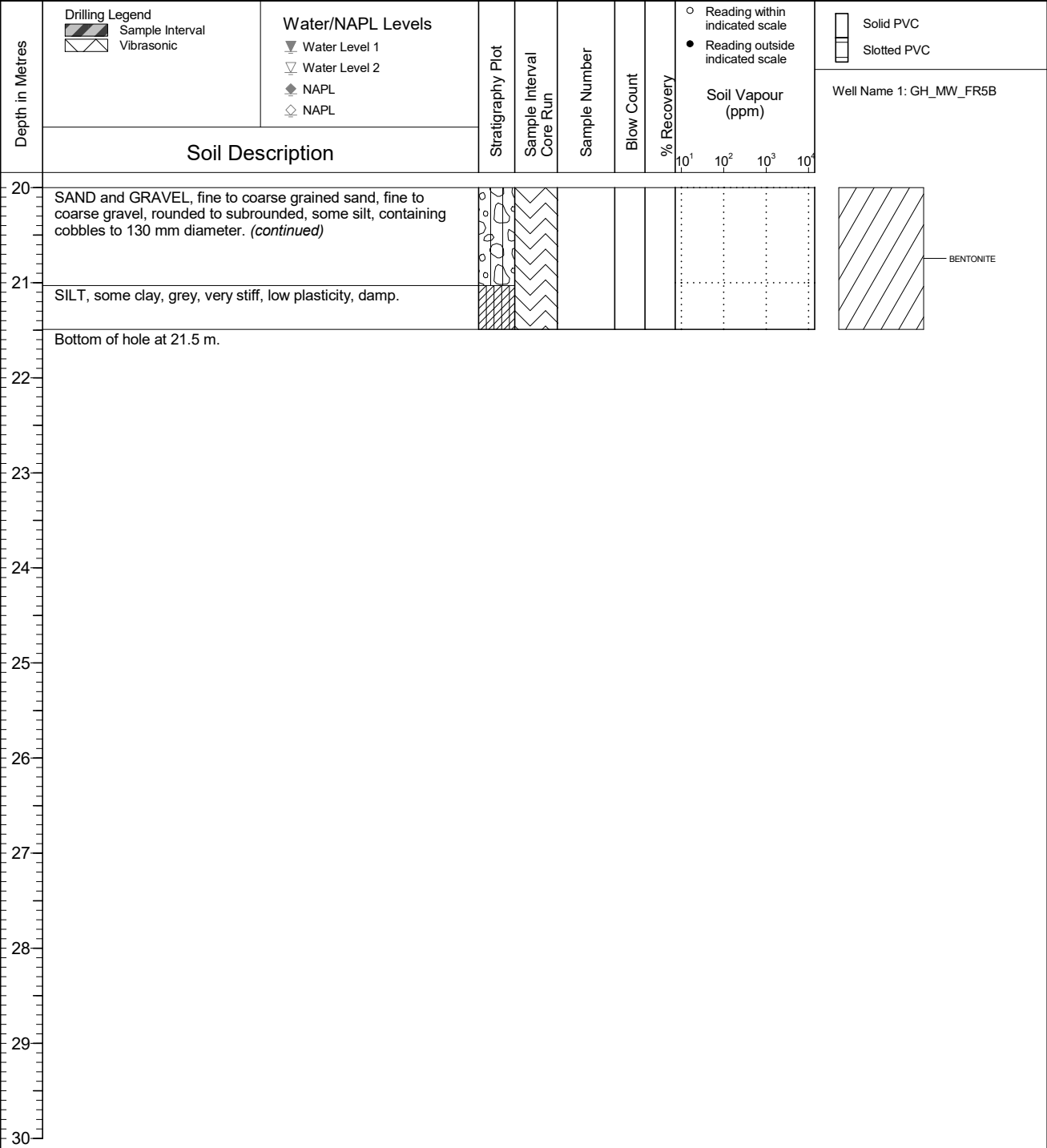
Location
Teck Coal Regional Groundwater

PAGE 3 OF 3

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1487.888
Top of Casing Elev. (m) 1488.672
Northing: 5545478.055 Easting: 653286.675

Project Number: 684431
Borehole Logged By: TC
Date Drilled: 2021 09 21
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR6

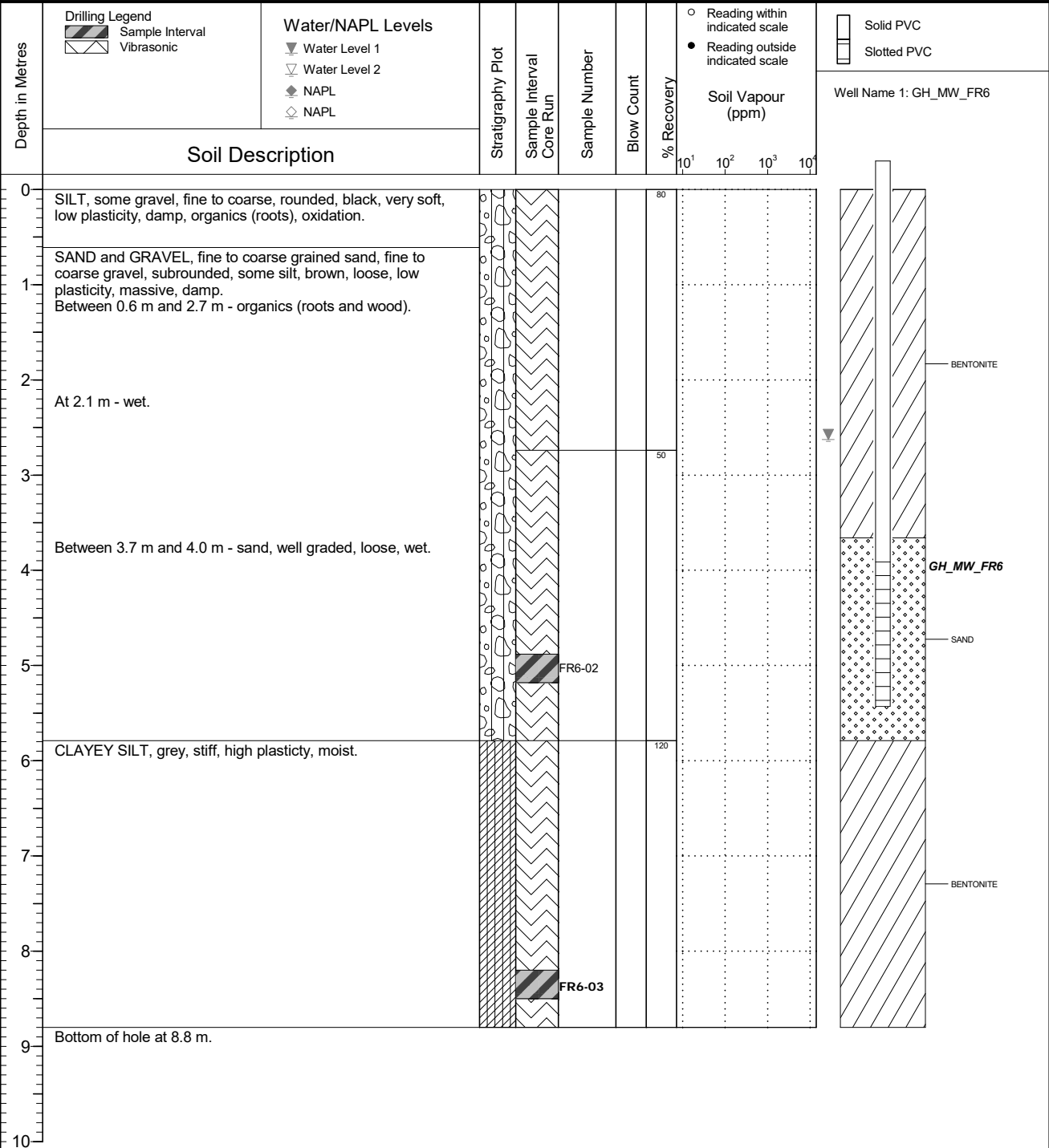
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1490.767
Top of Casing Elev. (m) 1491.537
Northing: 5545300.974 Easting: 653861.040

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 26
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

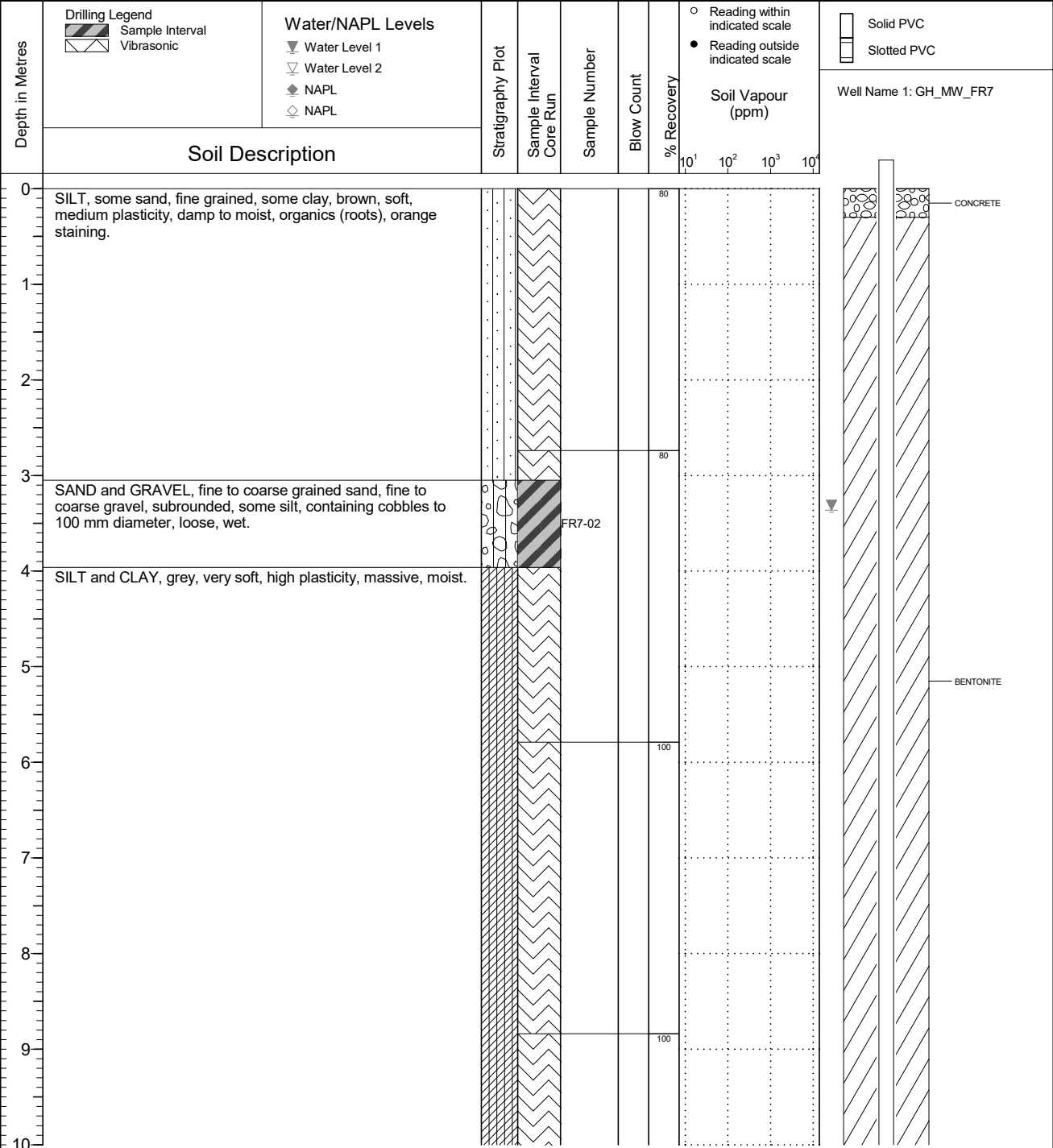
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

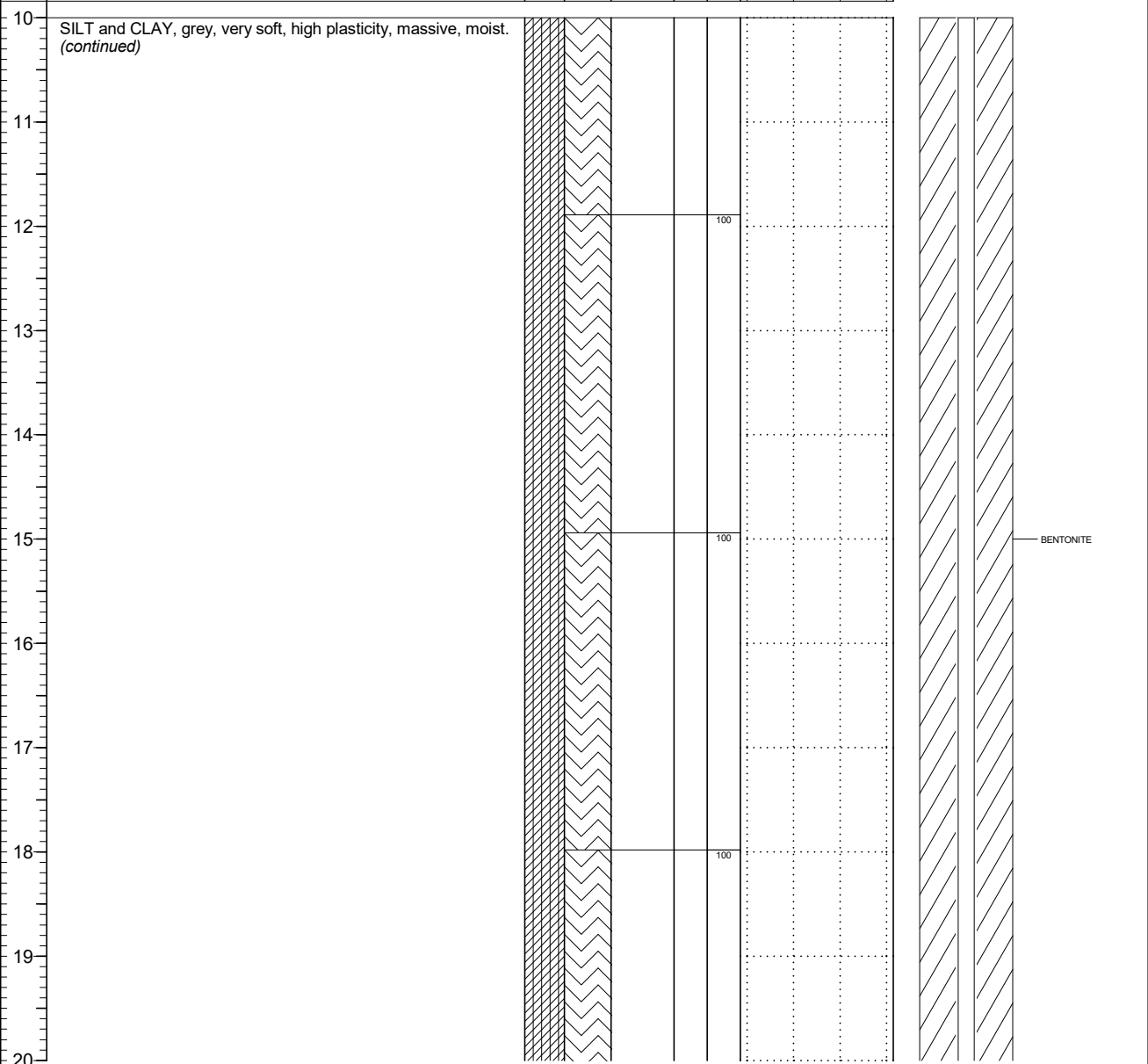
PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

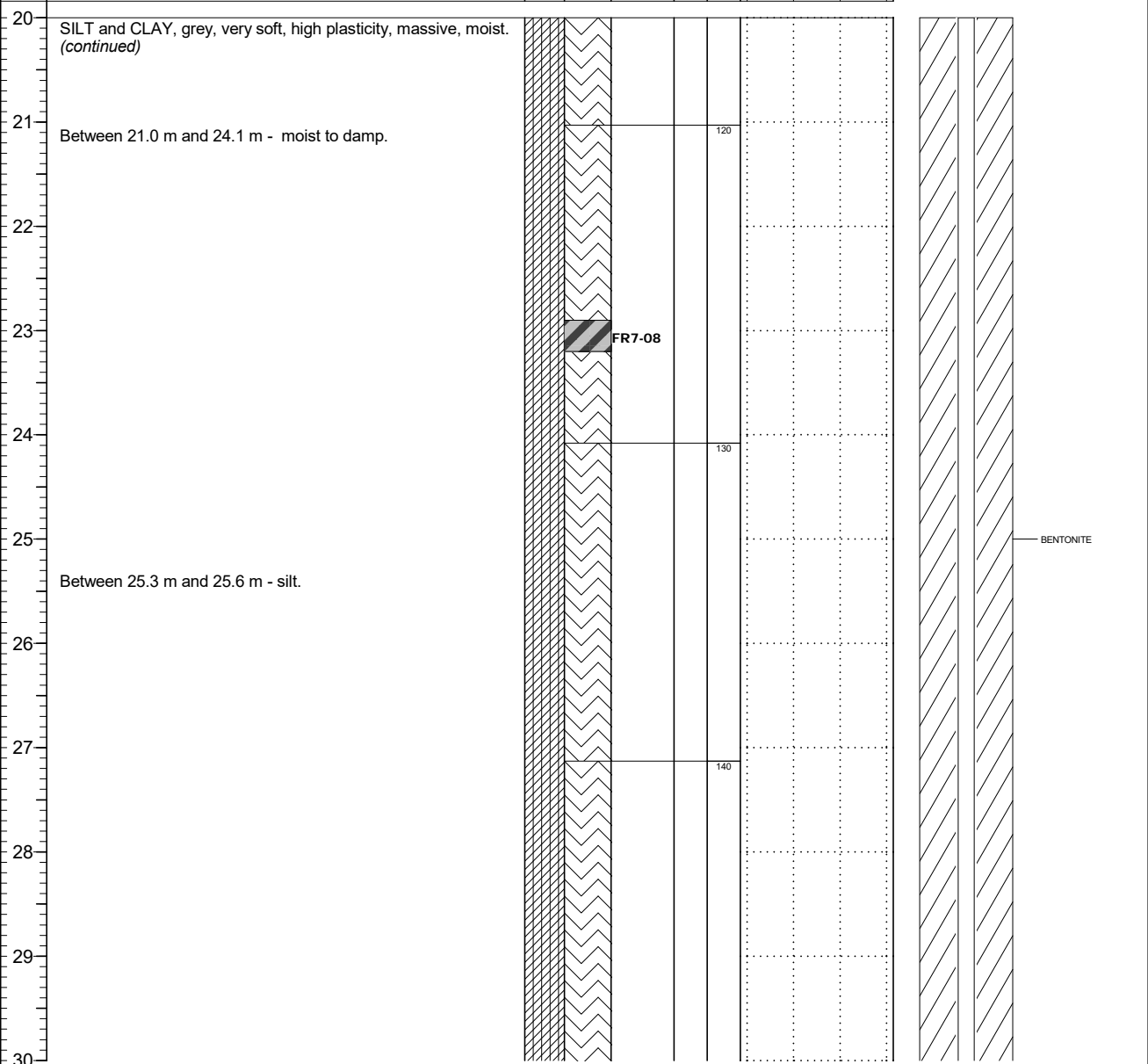
PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES

Bolded sample denotes sample analyzed (grain size distribution).
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

Location
Teck Coal Regional Groundwater

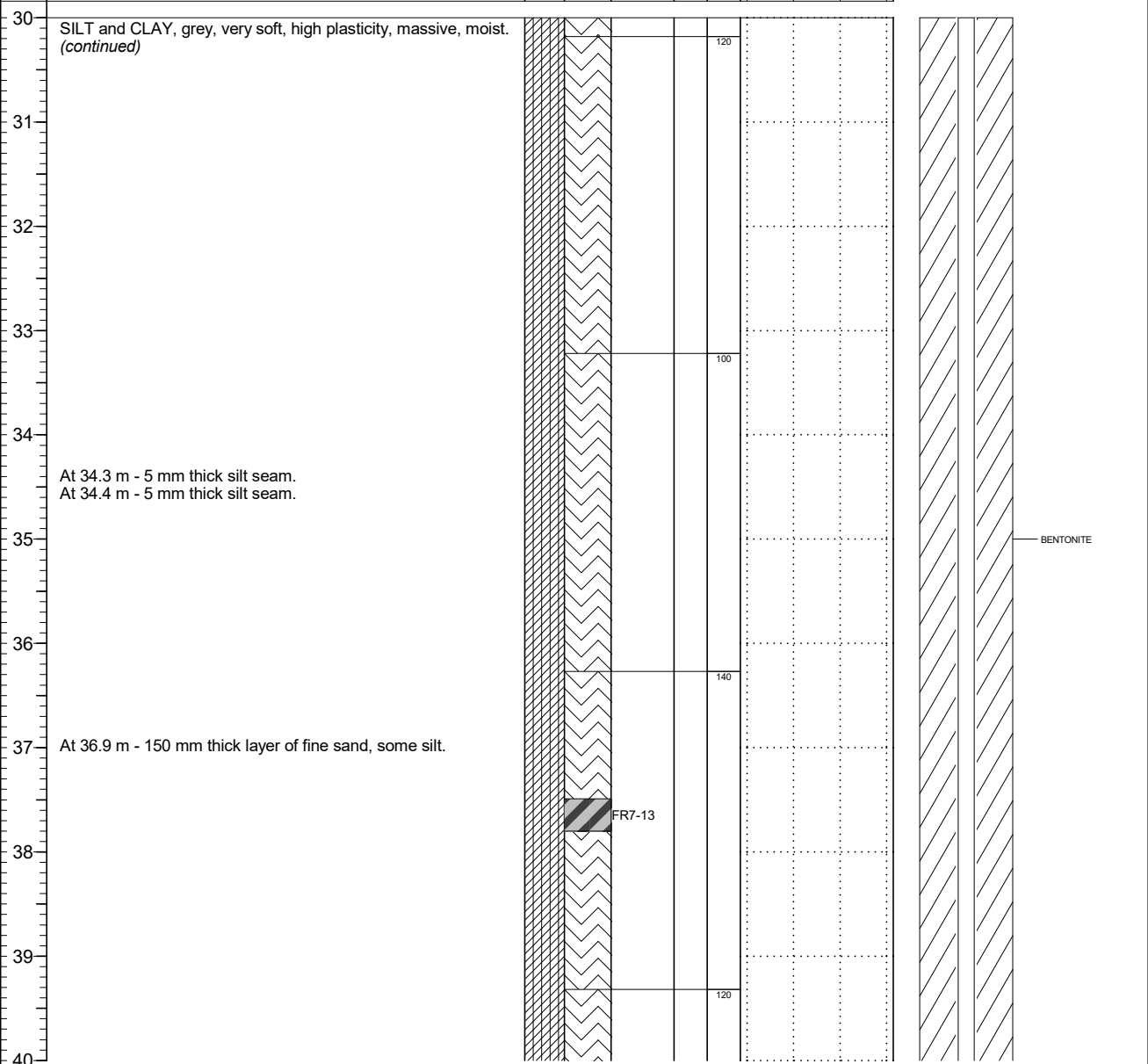
PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR7



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

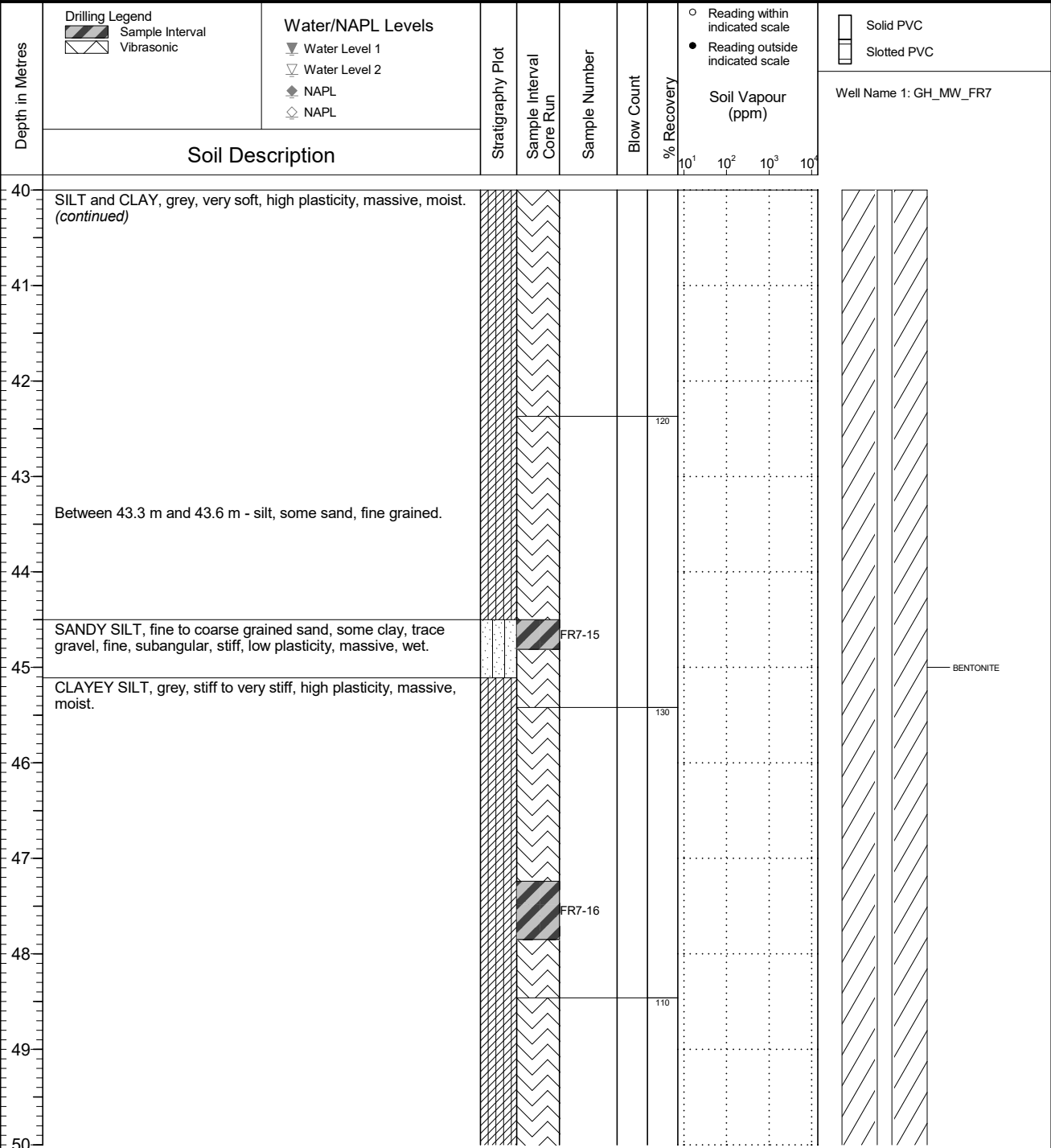
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR7

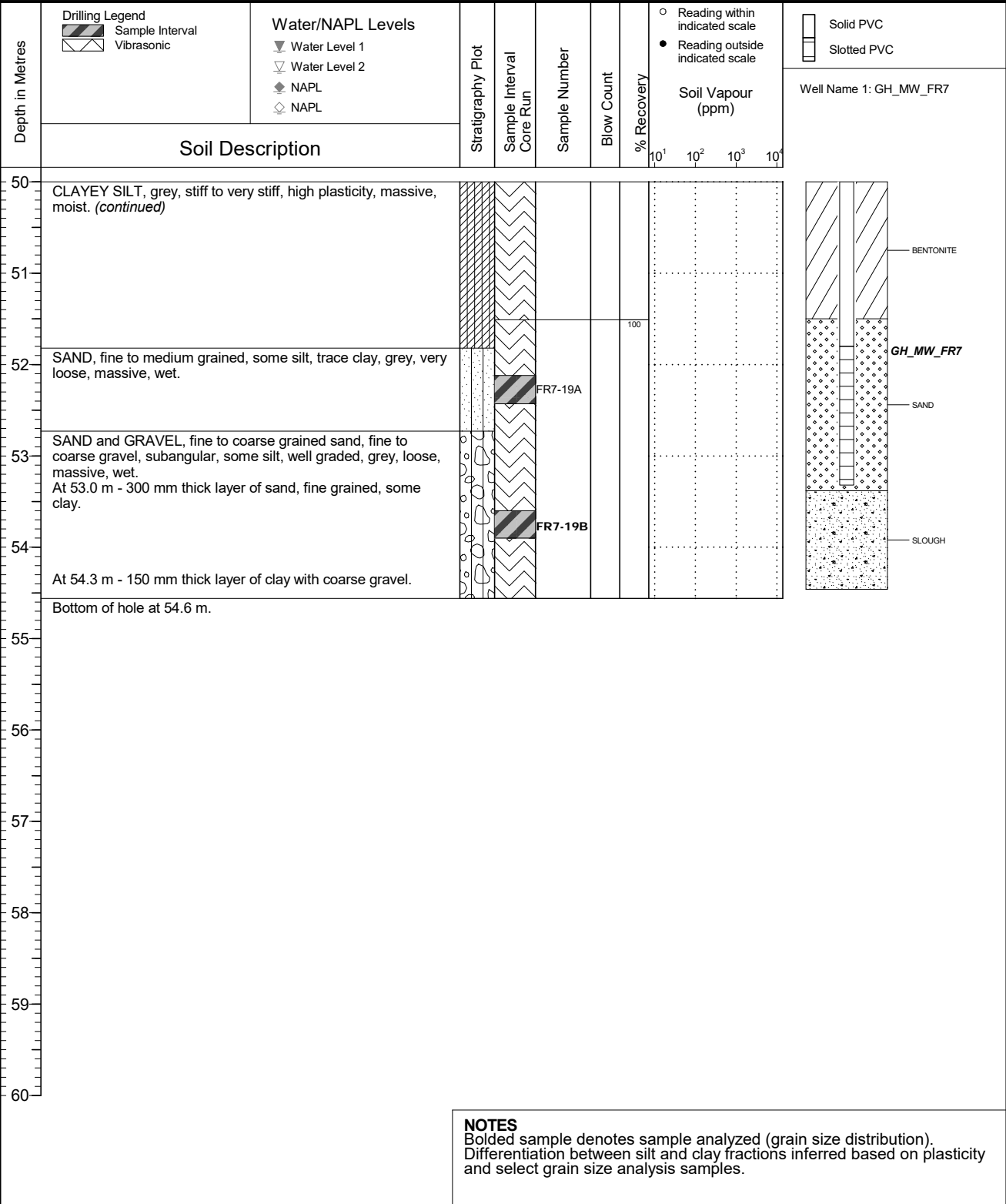
Location
Teck Coal Regional Groundwater

PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 06
Ground Surface Elev. (m) 1491.862
Top of Casing Elev. (m) 1492.519
Northing: 5545431.541 Easting: 653753.238

Project Number: 684431
Borehole Logged By: MM
Date Drilled: 2021 09 25
Log Typed By: VL



NOTES
 Bolded sample denotes sample analyzed (grain size distribution).
 Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

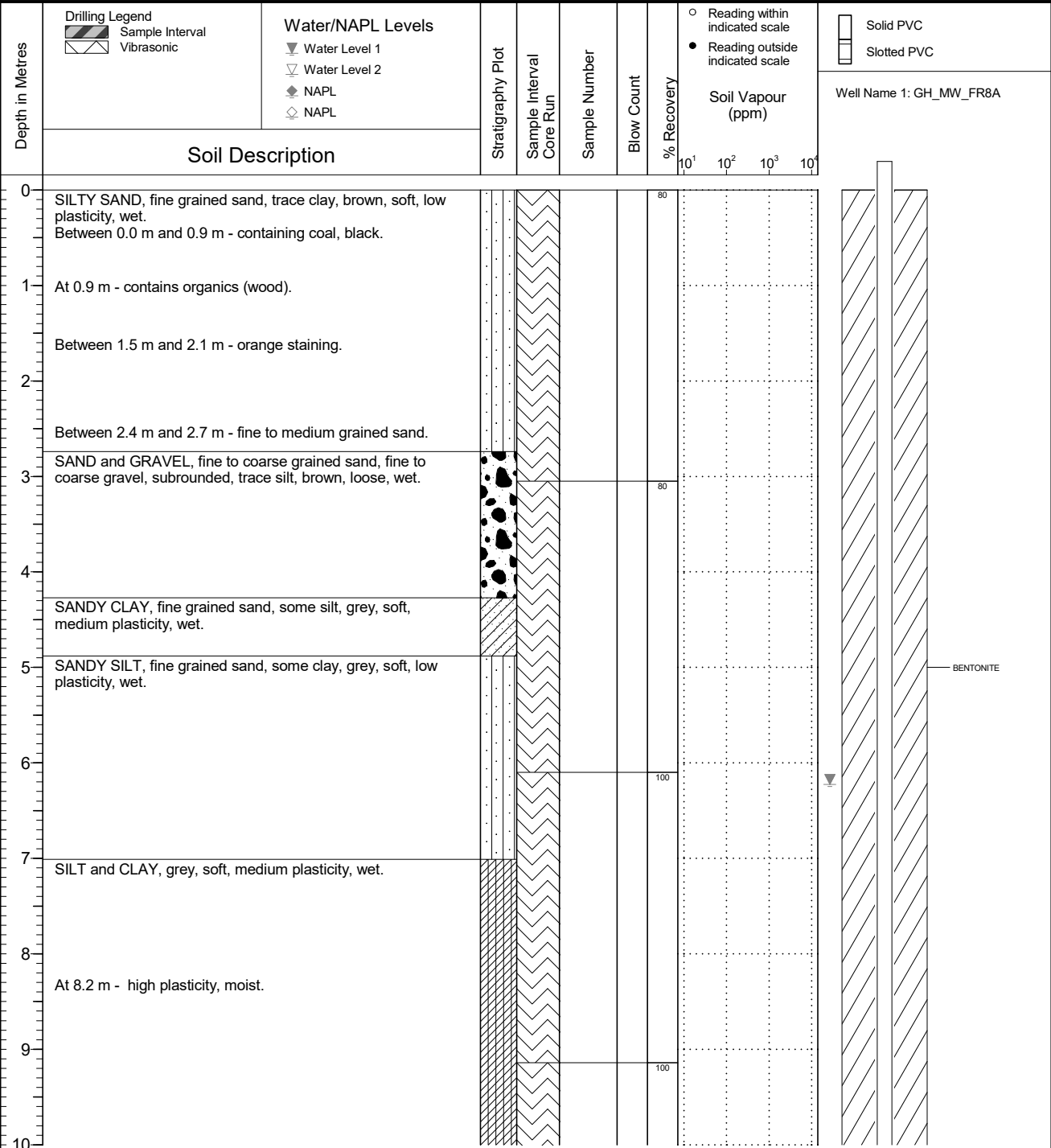
Location
Teck Coal Regional Groundwater

PAGE 1 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

QA/QC: TC 2021 11 10 Print Date: 2023-03-24



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

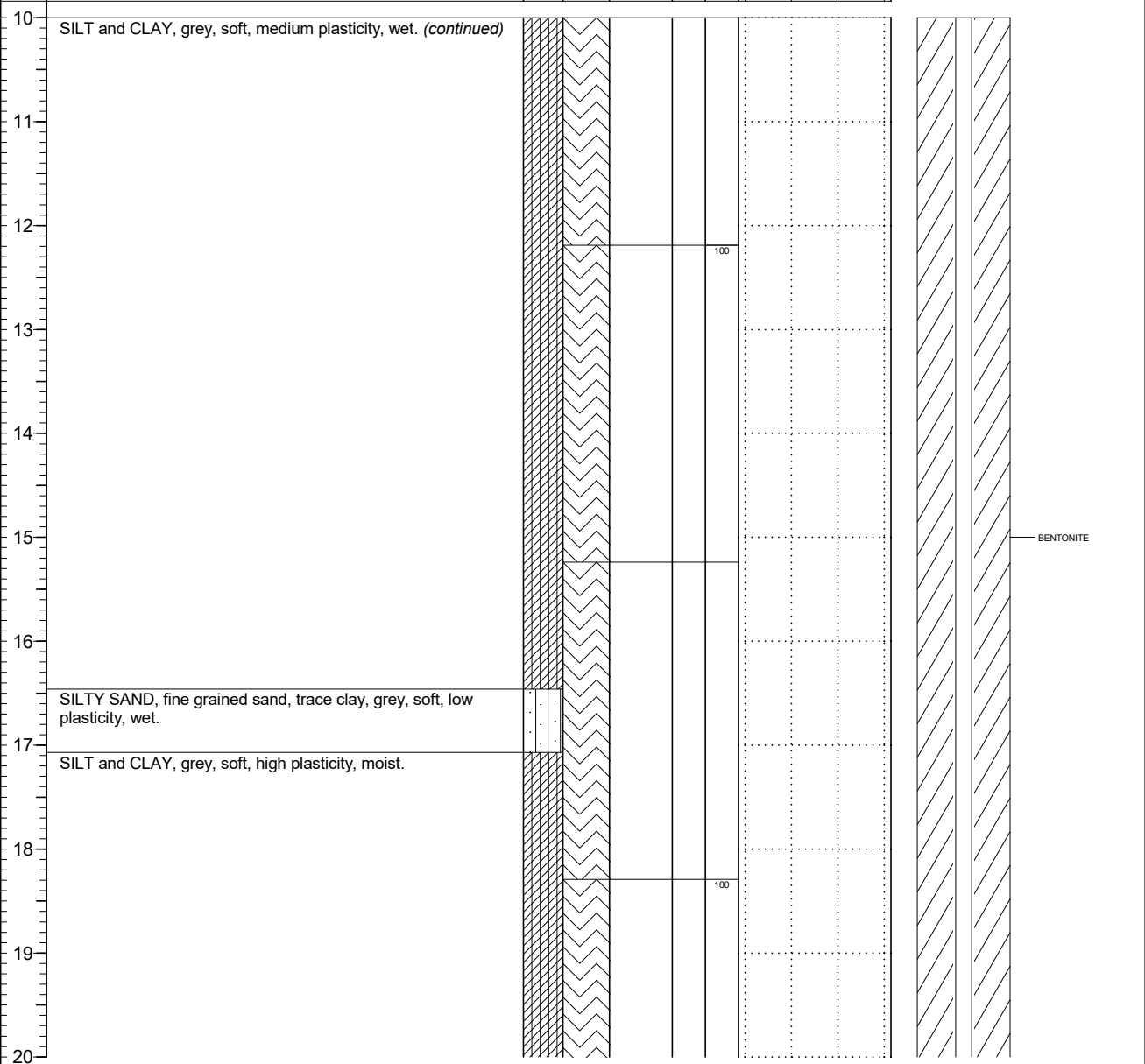
PAGE 2 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR8A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

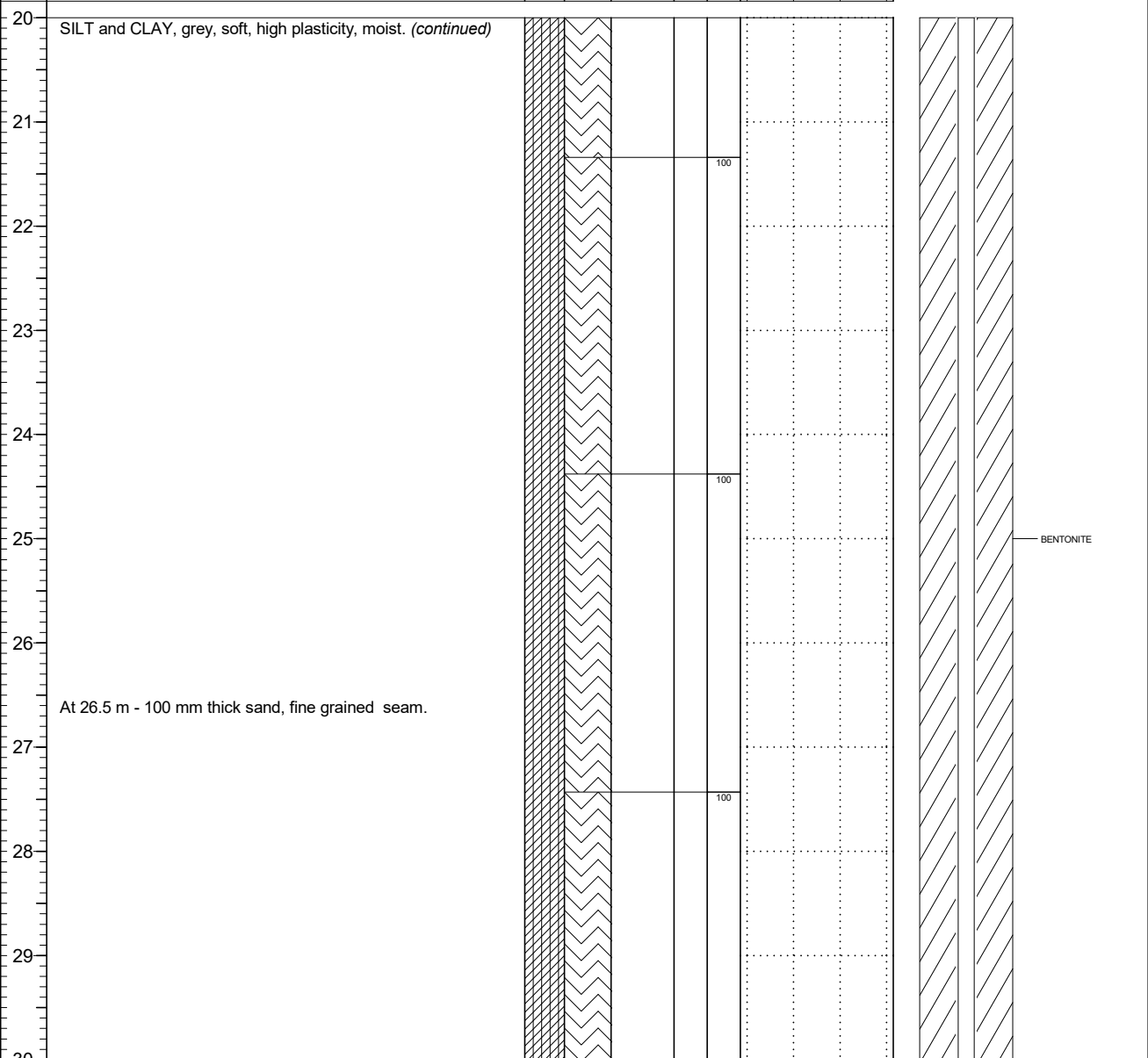
PAGE 3 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR8A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

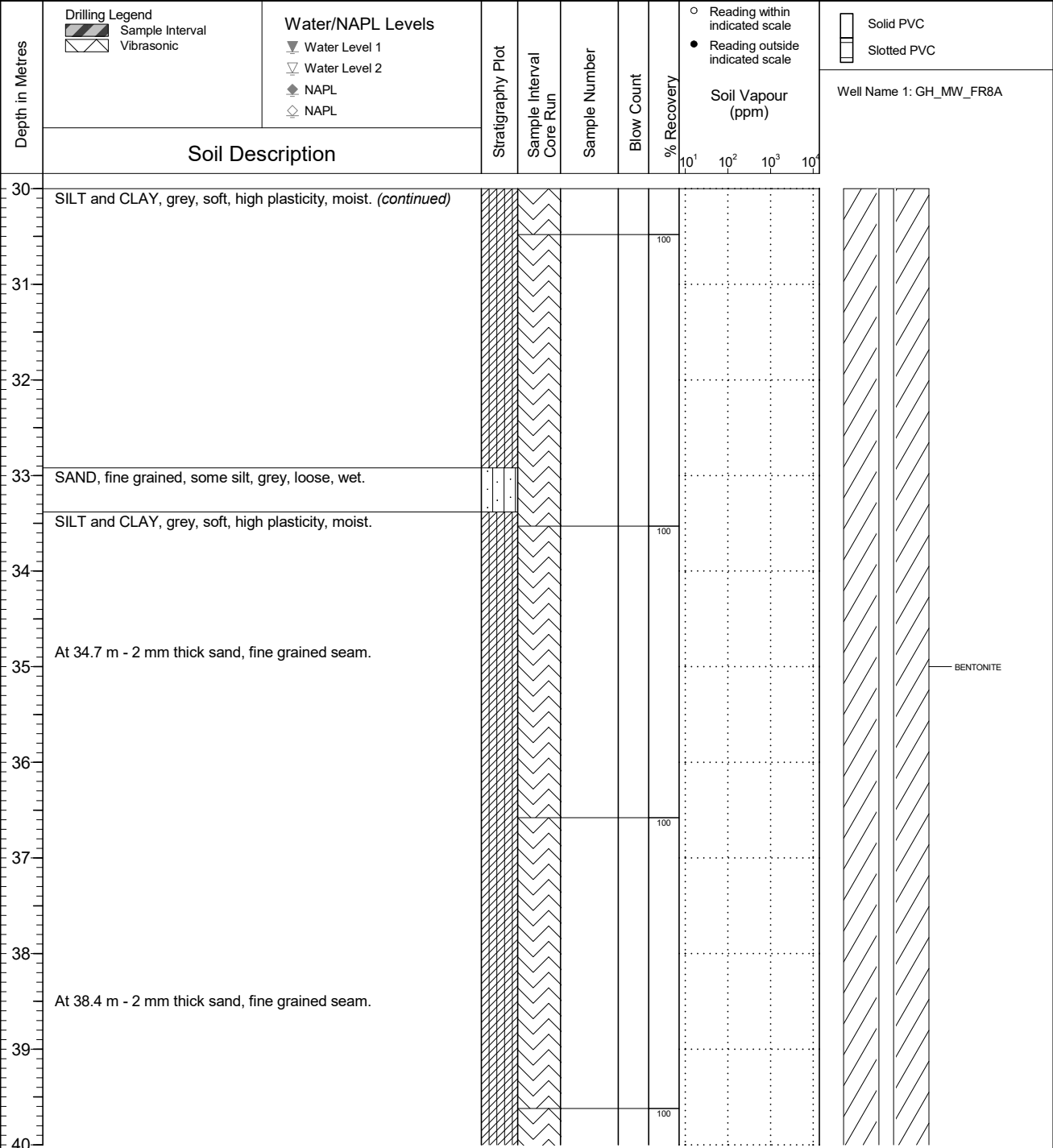
Location
Teck Coal Regional Groundwater

PAGE 4 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

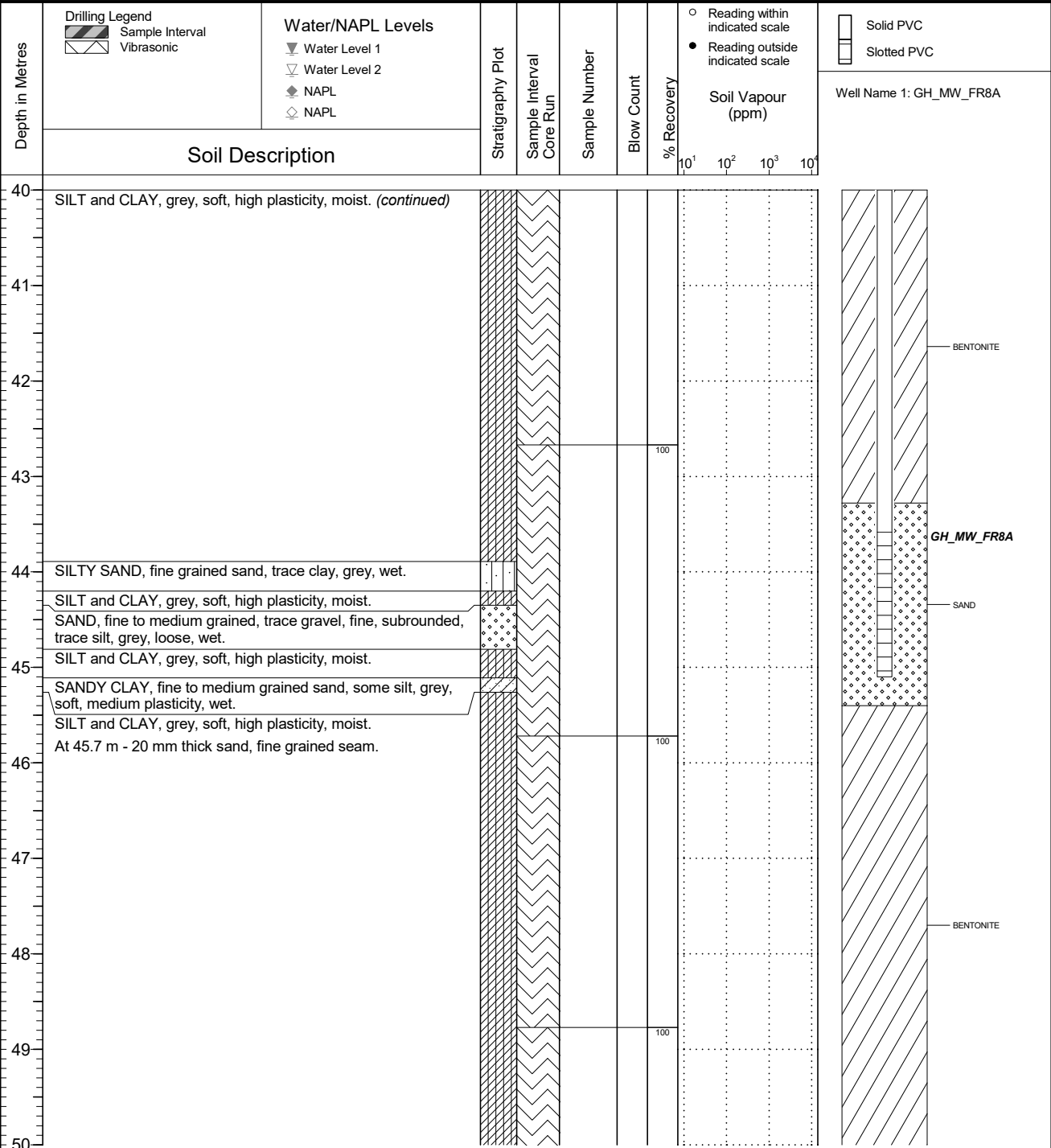
Location
Teck Coal Regional Groundwater

PAGE 5 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8A

Location
Teck Coal Regional Groundwater

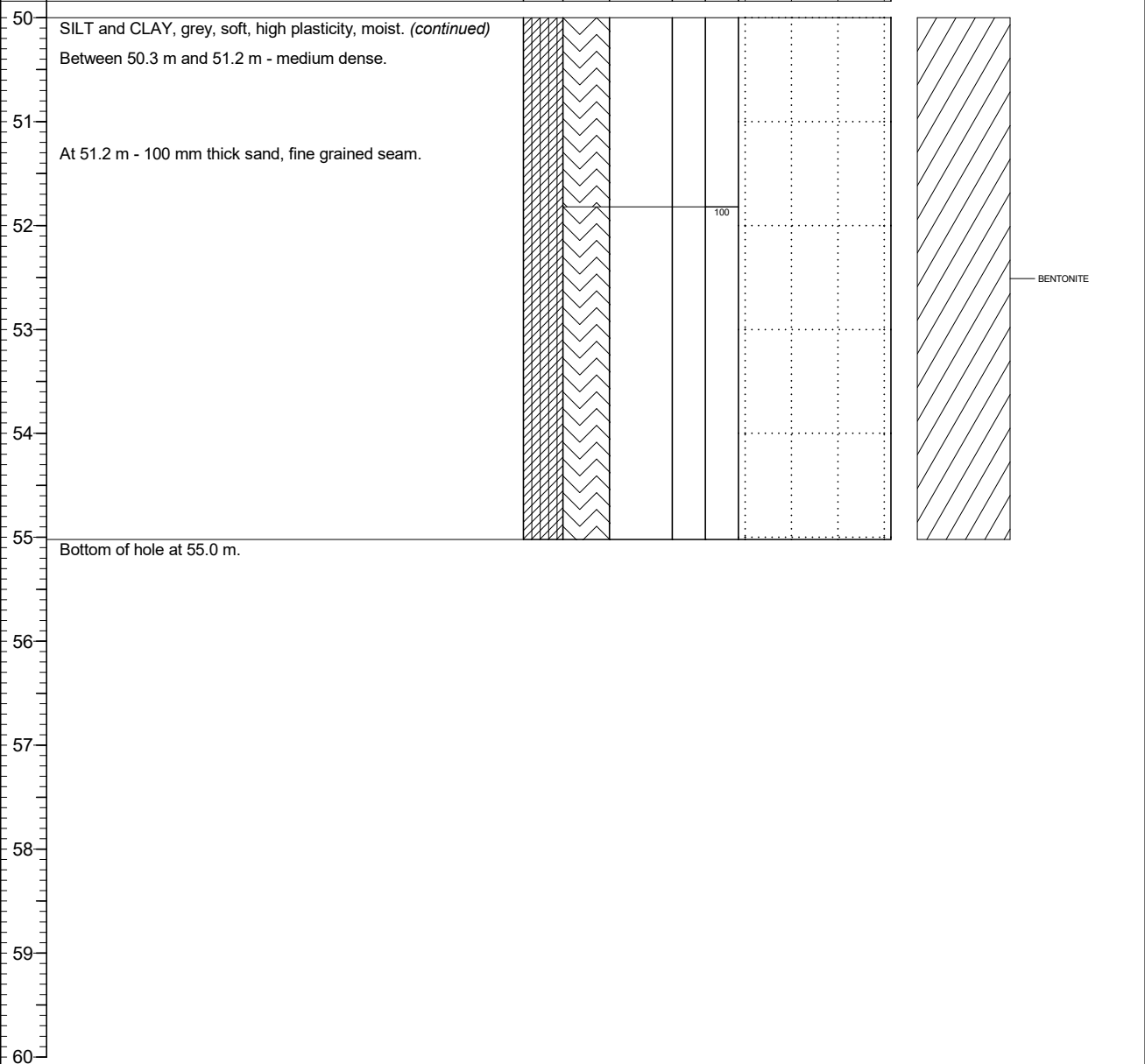
PAGE 6 OF 6

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.112
Top of Casing Elev. (m) 1492.995
Northing: 5545205.210 Easting: 654145.608

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	<input type="checkbox"/> Reading within indicated scale <input checked="" type="checkbox"/> Reading outside indicated scale	Solid PVC Slotted PVC
	Soil Description							Soil Vapour (ppm)	Well Name 1: GH_MW_FR8A



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.



Client
Teck Coal Limited

Borehole No. : GH_BH_FR8B

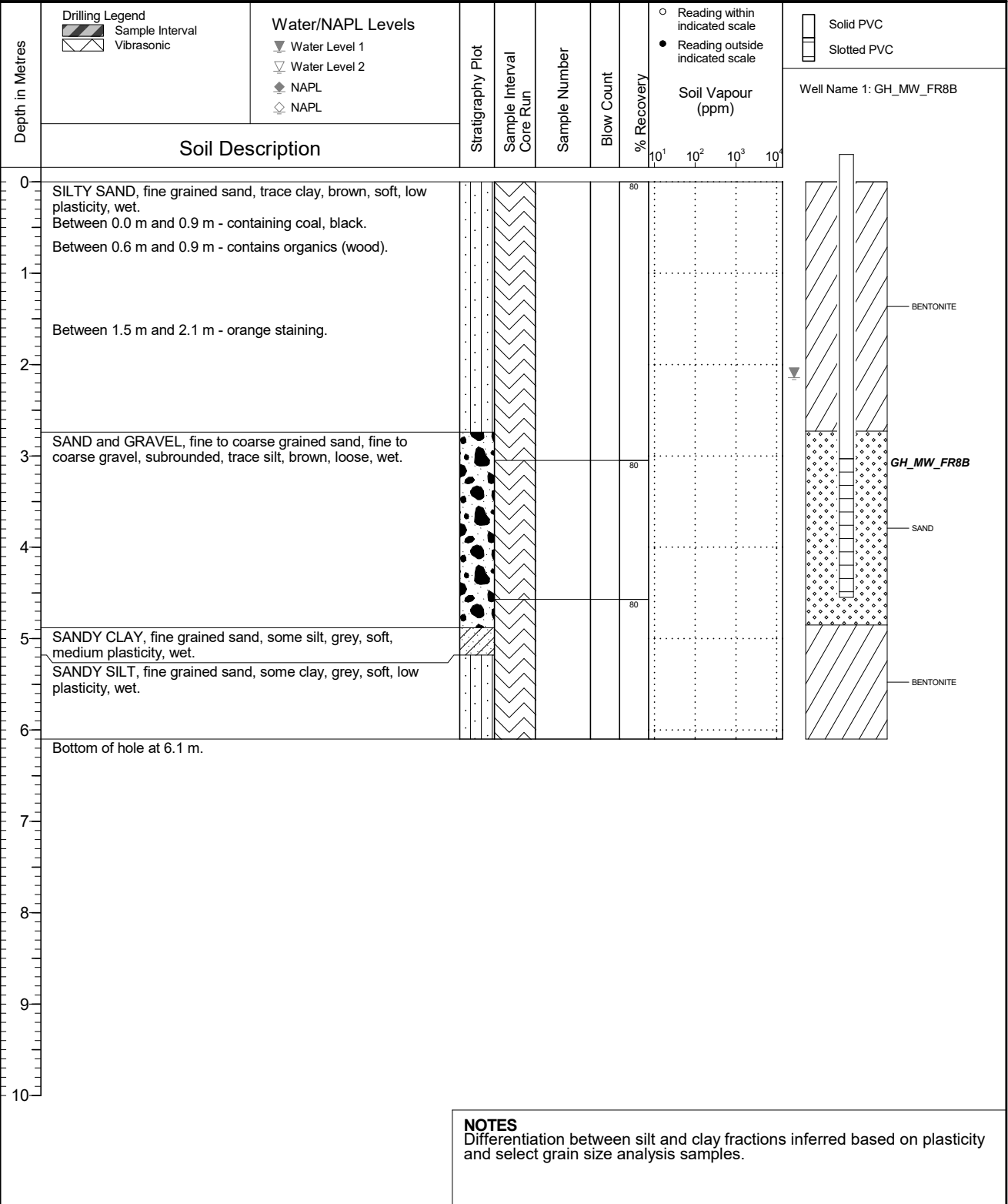
Location
Teck Coal Regional Groundwater

PAGE 1 OF 1

Drilling Contractor Mud Bay Drilling Co. Ltd.
Drilling Method Vibratory Sonic
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

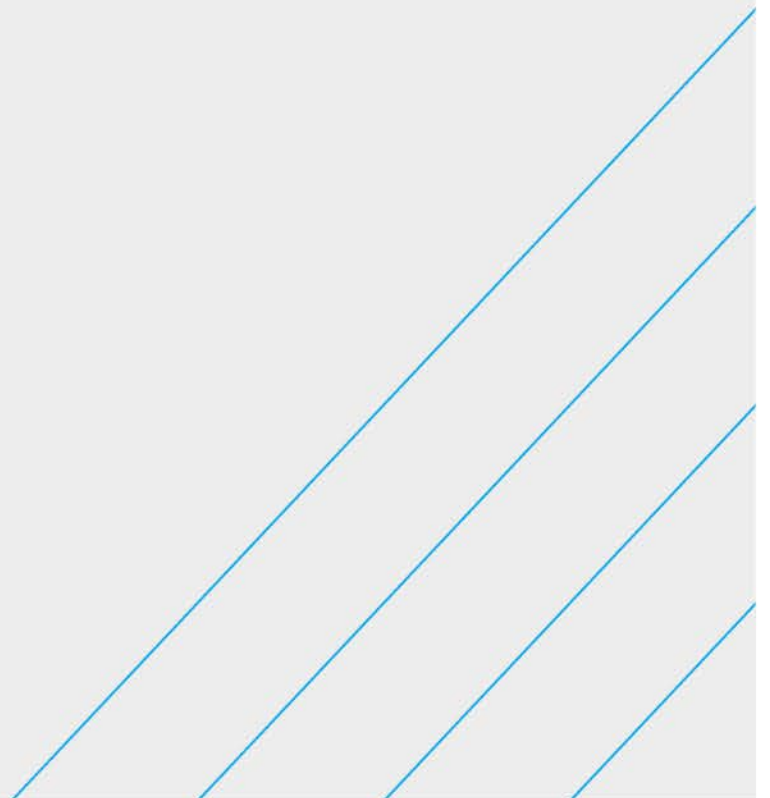
Date Monitored 2021 10 05
Ground Surface Elev. (m) 1492.125
Top of Casing Elev. (m) 1492.993
Northing: 5545206.676 Easting: 654145.781

Project Number: 684431
Borehole Logged By: AH
Date Drilled: NA
Log Typed By: VL



NOTES
Differentiation between silt and clay fractions inferred based on plasticity and select grain size analysis samples.

Line Creek Operations Borehole Logs – Wells for Evaluation



Teck Coal Limited

Borehole No: LC_MW_LC1-1A

Project: LCO Phase 2 Water Treatment

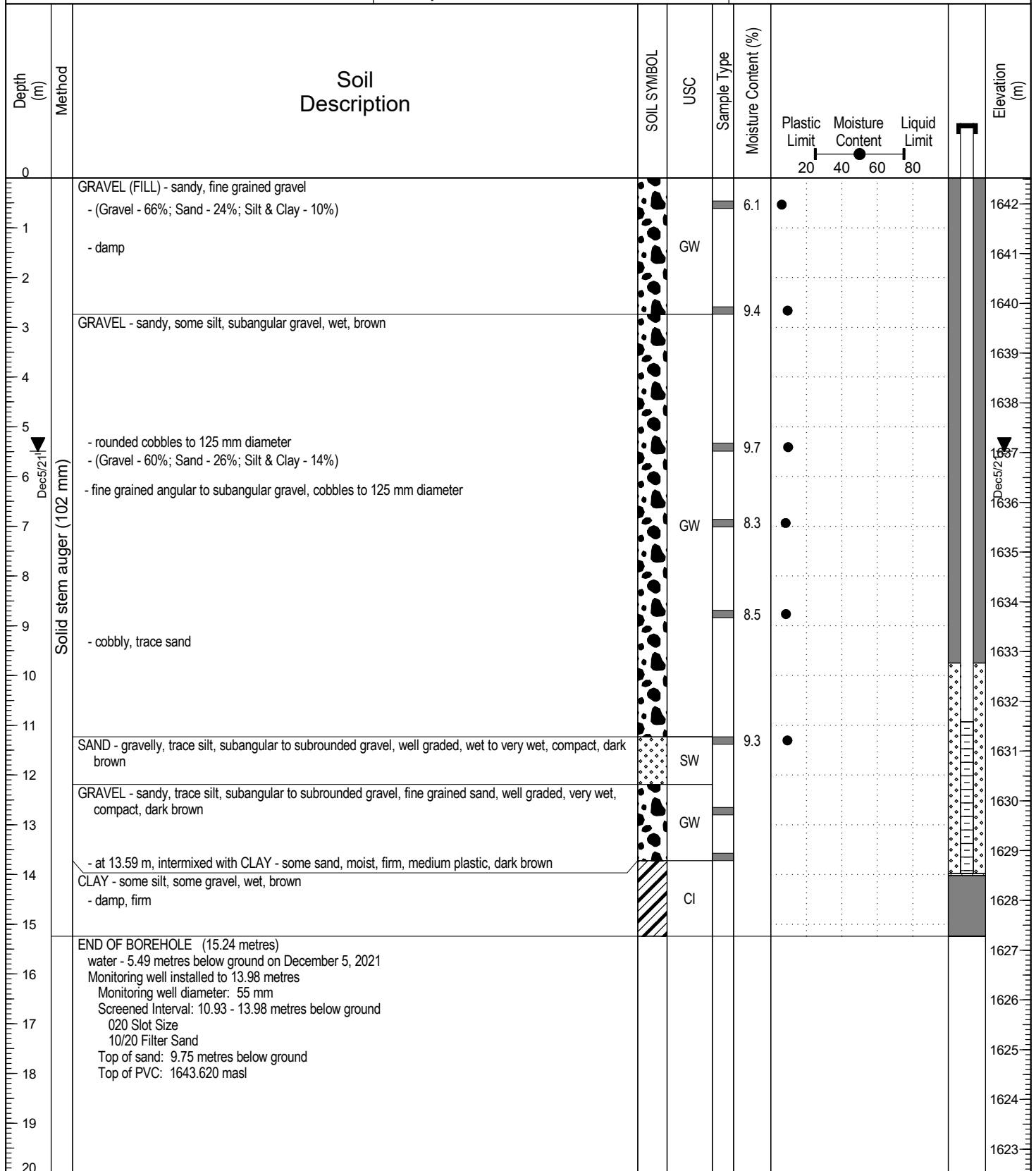
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1642.52 m

Elk Valley, British Columbia

UTM: 661955.34 E; 5538175.93 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 15.24 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Carl Forkheim

Completion Date: 2021 December 4

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_LC1-2A

Project: LCO Phase 2 Water Treatment

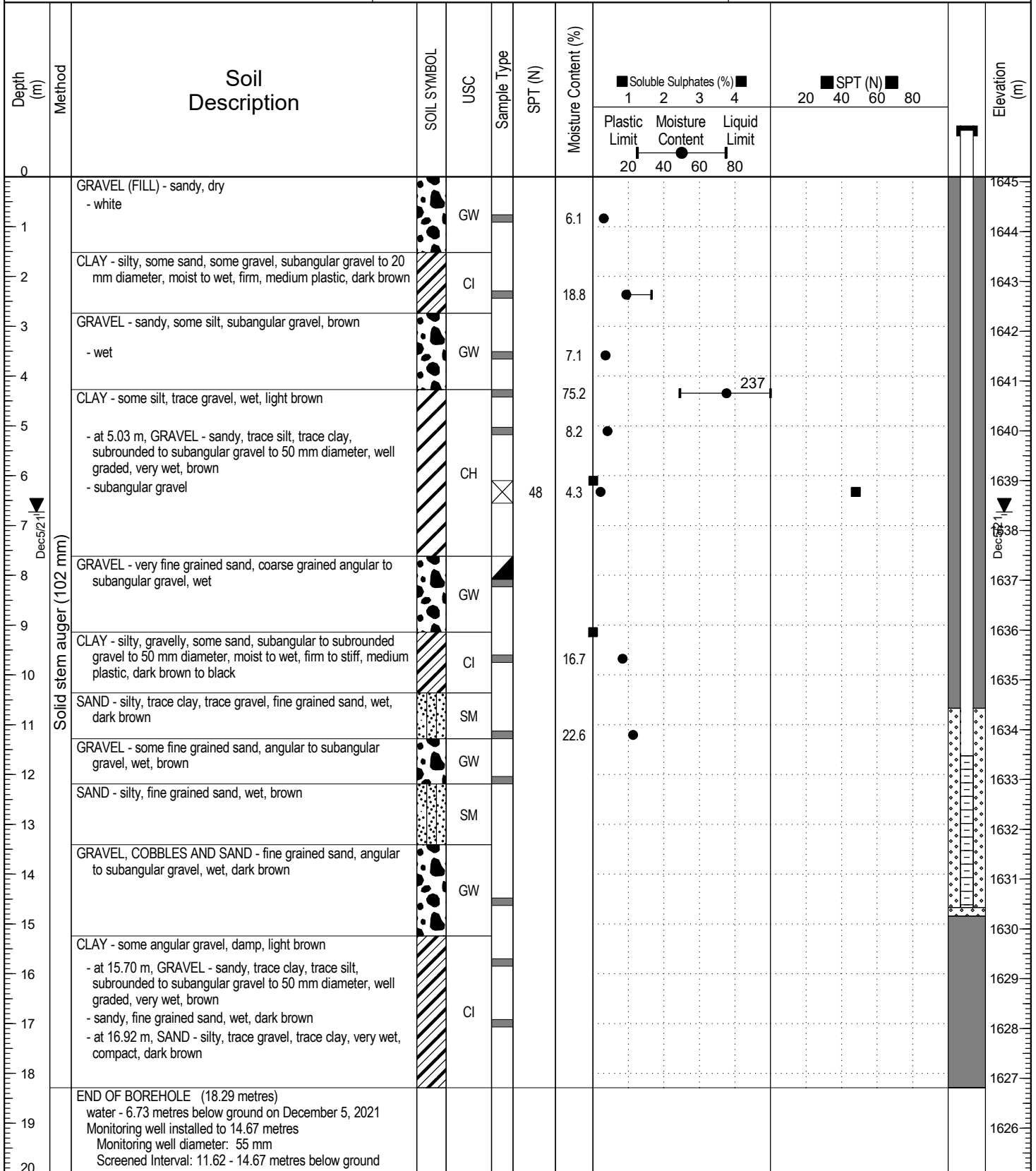
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1645.1 m

Elk Valley, British Columbia

UTM: 662008.42 E; 5538214.14 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 18.29 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Megan Savage

Completion Date: 2021 December 3

Reviewed By: Stephan Klump

Page 1 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-2A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1645.1 m

Elk Valley, British Columbia

UTM: 662008.42 E; 5538214.14 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)			SPT (N)				LC_MW_LC1-2A	Elevation (m)
								1	2	3	4	20	40	60		
20																
21		020 Slot Size 10/20 Filter Sand Top of sand: 10.67 metres below ground Top of PVC: 1646.135 masl														
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																



Contractor: Mud Bay Drilling

Completion Depth: 18.29 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 3

Logged By: Megan Savage

Completion Date: 2021 December 3

Reviewed By: Stephan Klump

Page 2 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-3A

Project: LCO Phase 2 Water Treatment

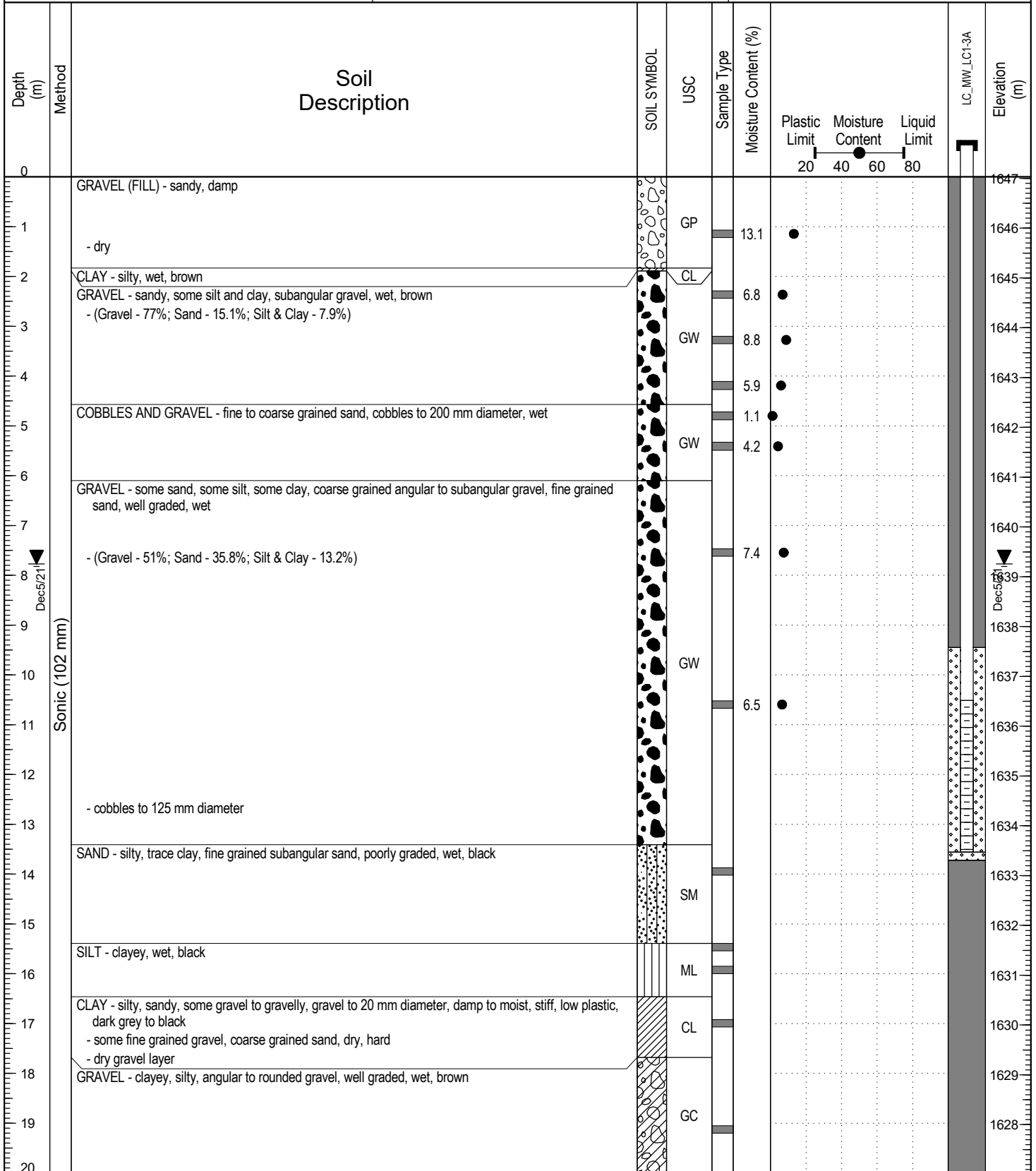
Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1647.03 m

Elk Valley, British Columbia

UTM: 661989.64 E; 5538247.11 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 24.38 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 1

Logged By: Carl Forkheim

Completion Date: 2021 December 1

Reviewed By: Stephan Klump

Page 1 of 2

Teck Coal Limited

Borehole No: LC_MW_LC1-3A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: Upper Line Creek

Ground Elev: 1647.03 m

Elk Valley, British Columbia

UTM: 661989.64 E; 5538247.11 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Moisture Content (%)	Plastic Limit	Moisture Content	Liquid Limit	LC_MW_LC1-3A	Elevation (m)
20											1627
21	Sonic (102 mm)	CLAY - silty, sandy, trace to some gravel, gravel to 20 mm diameter, damp to wet, soft to hard, low plastic, black		GC							1626
22		- dry, very hard		CL							1625
23		- at 21.80 m, damp to moist, medium plastic, silt pockets, potential precipitates									1624
24		- at 22.71 m, gravel to 50 mm diameter		CI							1623
25		END OF BOREHOLE (24.38 metres) water - 7.77 metres below ground on December 5, 2021 Monitoring well installed to 13.56 metres Monitoring well diameter: 55 mm Screened Interval: 10.51 - 13.56 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 9.45 metres below ground Top of PVC: 1647.768 masl									1622
26											1621
27											1620
28											1619
29											1618
30											1617
31											1616
32											1615
33											1614
34											1613
35											1612
36											1611
37											1610
38											1609
39											1608
40											



Contractor: Mud Bay Drilling

Completion Depth: 24.38 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 December 1

Logged By: Carl Forkheim

Completion Date: 2021 December 1

Reviewed By: Stephan Klump

Page 2 of 2

Teck Coal Limited

Borehole No: LC_MW_WLC-1A

Project: LCO Phase 2 Water Treatment

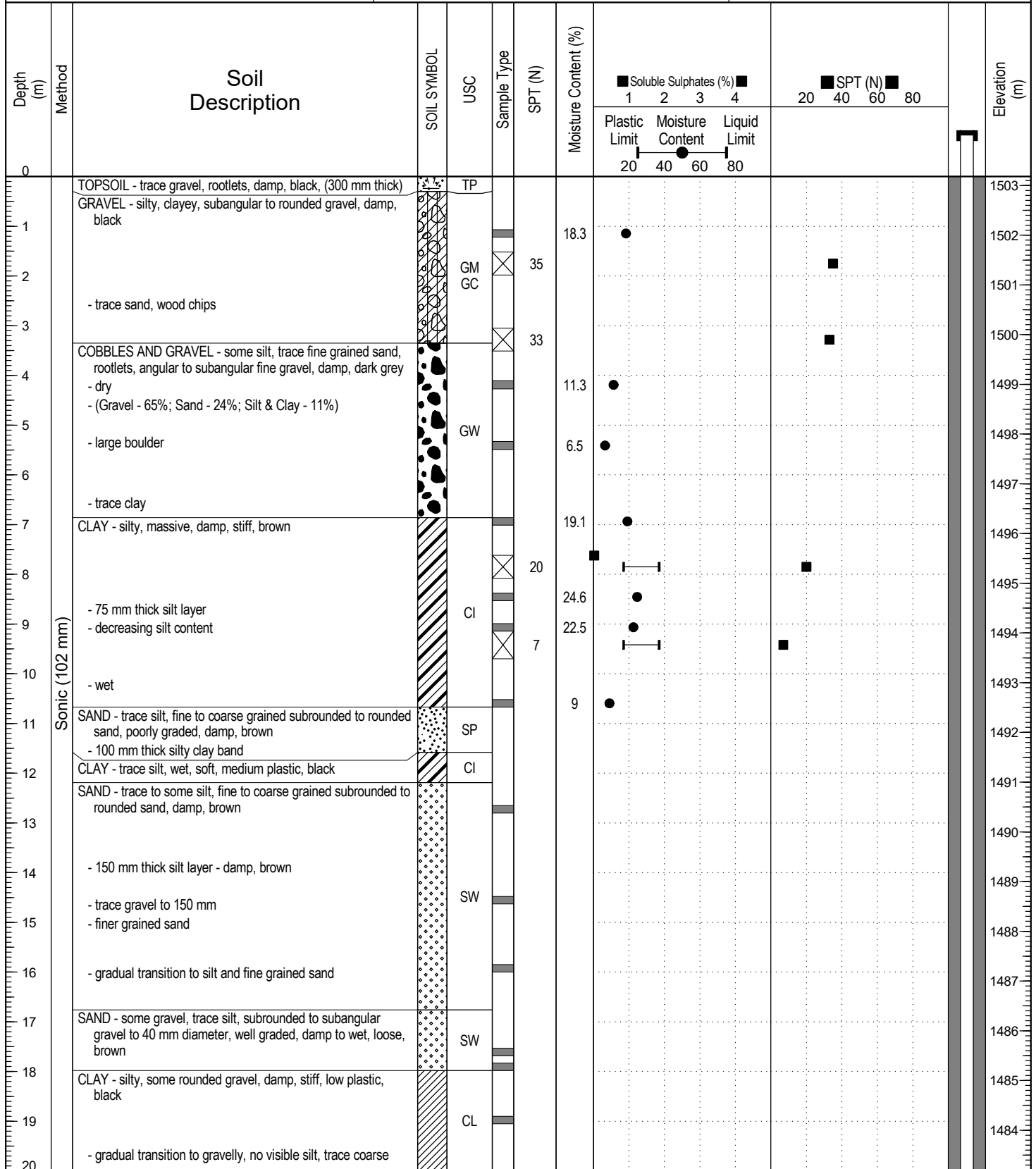
Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1503.18 m

Elk Valley, British Columbia

UTM: 659753.09 E; 5532228.49 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 1 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-1A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1503.18 m

Elk Valley, British Columbia

UTM: 659753.09 E; 5532228.49 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)			SPT (N)				LC_MW_WLC-1A	Elevation (m)
								1	2	3	4	20	40	60		
20		subangular sand, subangular gravel, hard													1483	
21				CL											1482	
22		- cobbles 75 to 100 mm diameter													1481	
23		- trace silt, fine rounded to angular gravel, dry to damp													1480	
24		- silty, some angular gravel, damp, brown													1479	
25		GRAVEL - clayey, silty, trace coarse grained sand, fine grained gravel to cobbles, damp, hard, dark grey													1478	
26		- cobbles, dry													1477	
27		- 200 mm thick silty clay band													1476	
28		- wet for 900 mm													1475	
29		- 200 mm thick silty clay and gravel layer, compact													1474	
30		- pulverized cobble													1473	
31	Sonic (102 mm)			GC											1472	
32		- pulverized cobble													1471	
33		- some coarse grained sand													1470	
34															1469	
35		- cobbles for 600 mm													1468	
36															1467	
37		- some clayey silty gravel													1466	
38															1465	
39		- 460 mm thick silty clay layer													1464	
40																



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 2 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-1A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1503.18 m

Elk Valley, British Columbia

UTM: 659753.09 E; 5532228.49 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Soluble Sulphates (%)				SPT (N)				LC_MW_WLC-1A	Elevation (m)
								1	2	3	4	20	40	60	80		
								Plastic Limit	Moisture Content	Liquid Limit							
								20	40	60	80						
40																1463	
41		- 600 mm thick band of cobbles to 150 mm diameter - 600 mm thick silt layer - some clay, trace gravel, damp, hard														1462	
42																1461	
43		- gradual transition to more clay and silt content														1460	
44				GC												1459	
45		- 900 mm thick layer of increasing silt content, subangular to subrounded gravel, moist to wet		GM												1458	
46				GM												1457	
47		- cobbles to 150 mm diameter														1456	
48		- 600 mm thick clayey layer - moist, high plastic														1455	
48		BEDROCK - pulverized, dry - weathered, hard clay		BEDROCK												1455	
49		END OF BOREHOLE (48.77 metres) water - dry on December 14, 2021 Monitoring well installed to 47.24 metres Monitoring well diameter: 55 mm Screened Interval: 44.19 - 47.24 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 43.28 metres below ground Top of PVC: 1504.107 masl														1454	
50																1453	
51																1452	
52																1451	
53																1450	
54																1449	
55																1448	
56																1447	
57																1446	
58																1445	
59																1444	
60																1444	



Contractor: Mud Bay Drilling

Completion Depth: 48.77 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 27

Logged By: Carl Forkheim

Completion Date: 2021 November 27

Reviewed By: Stephan Klump

Page 3 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-2A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1488.33 m

Elk Valley, British Columbia

UTM: 659868.79 E; 5532370.14 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	Plastic Limit	Moisture Content	Liquid Limit	SPT (N)	Elevation (m)
0		TOPSOIL - rootlets, damp, (60 mm thick)		TP								1488
1		SILT - some subangular gravel to 75 mm diameter, trace fine grained sand, trace clay, damp, soft, low plastic, brown - (Gravel - 8%; Sand - 32%; Silt - 45%; Clay - 15%)		ML		21	13.4					1487
2		- increasing clayey gravel content					14.8					1486
3		GRAVEL - clayey, silty, sandy, trace cobbles, angular to rounded gravel, damp - cobbles to 125 mm diameter					18.6					1485
4		- at 4.11 m, CLAY - silty, gravelly, some sand, subangular gravel to 40 mm diameter, moist, low to medium plastic, dark brown		GC GM			12.6					1484
5	Sonic (102 mm)	- (Gravel - 41%; Sand - 35.9%; Silt & Clay - 23.1%) - 300 mm thick gravelly clay layer - trace coarse grained sand, low plastic					9.9					1483
6	Dec 14/21	- dry, increasing hardness					6.9					1482
7		MUDSTONE (BEDROCK) - weathered, trace fine grained sandy layers		BEDROCK			6.4					1481
8		- dry, hard, black					9.7					1480
9		END OF BOREHOLE (9.14 metres)										1479
10		water - 4.80 metres below on December 14, 2021										1478
11		Monitoring well installed to 5.94 metres Monitoring well diameter: 55 mm Screened Interval: 4.42 - 5.94 metres below ground 020 Slot Size 10/20 Filter Sand										1477
12		Top of sand: 3.51 metres below ground Top of PVC: 1489.474 masl										1476
13												1475
14												1474
15												1473
16												1472
17												1471
18												1470
19												1469
20												1469



Contractor: Mud Bay Drilling

Completion Depth: 9.14 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 30

Logged By: Carl Forkheim

Completion Date: 2021 November 30

Reviewed By: Stephan Klump

Page 1 of 1

Teck Coal Limited

Borehole No: LC_MW_WLC-3A

Project: LCO Phase 2 Water Treatment

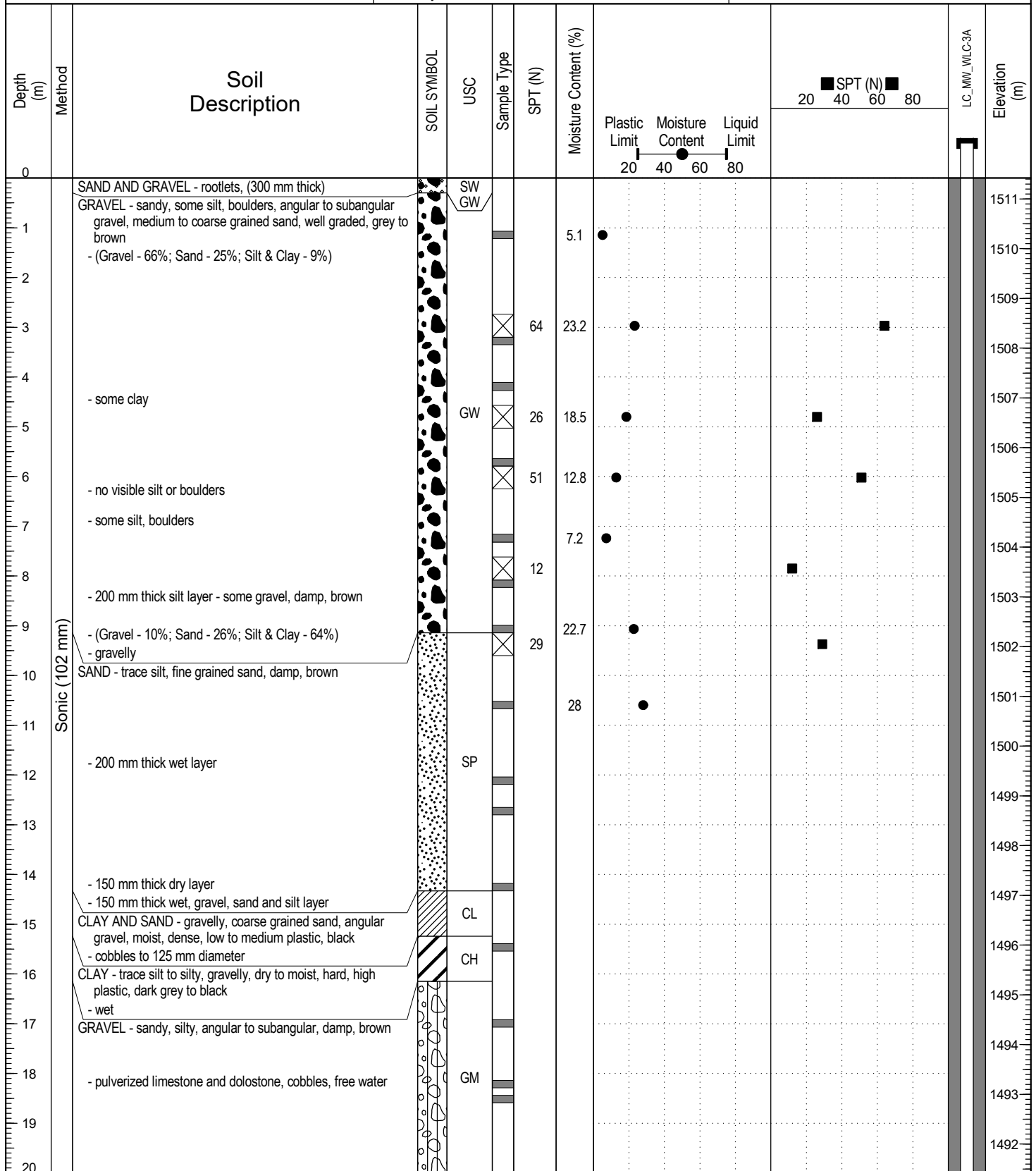
Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1511.42 m

Elk Valley, British Columbia

UTM: 659582.96 E; 5532281.38 N; Z 11



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotasonic Drill Rig

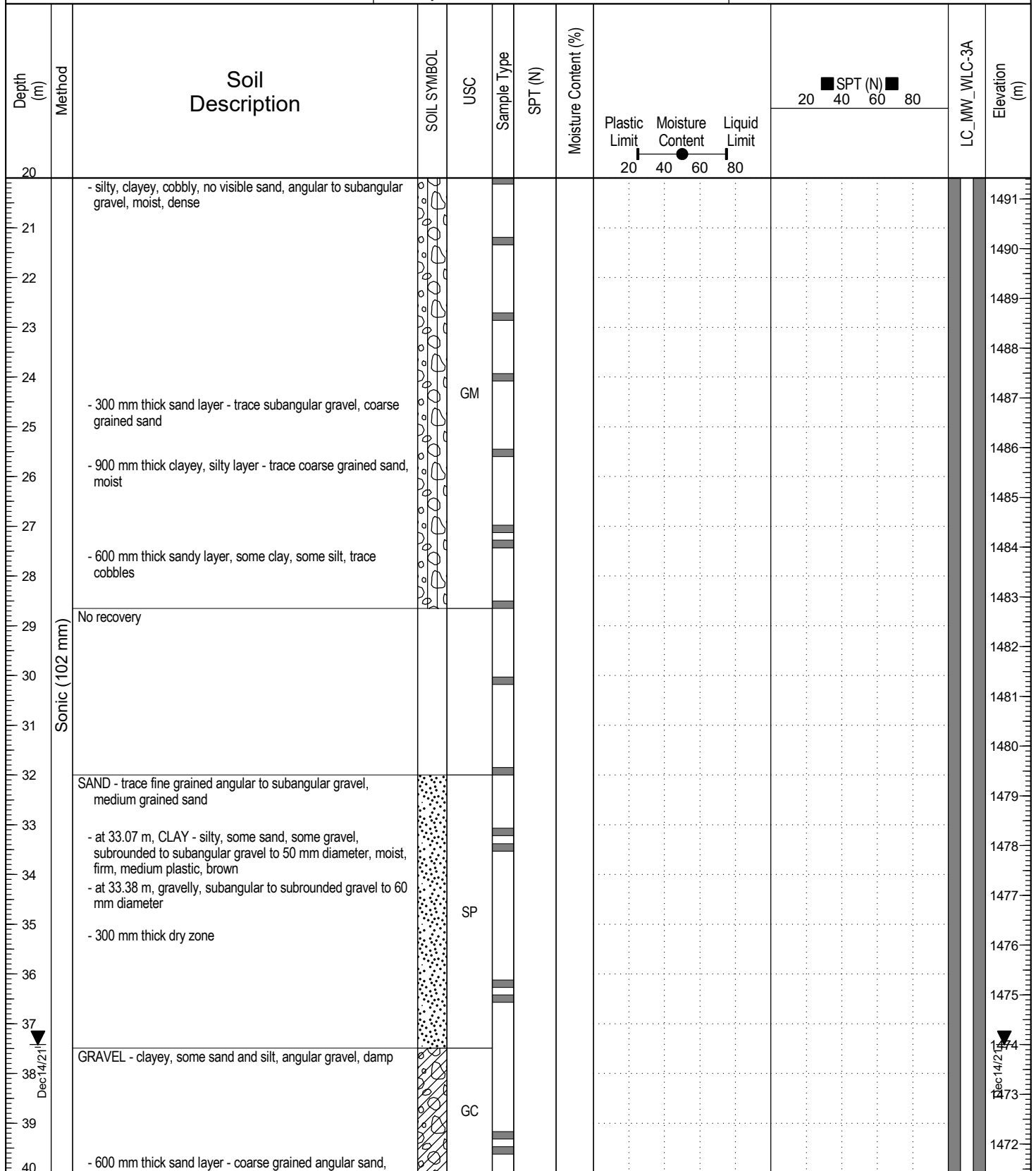
Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 1 of 3



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 2 of 3

Teck Coal Limited

Borehole No: LC_MW_WLC-3A

Project: LCO Phase 2 Water Treatment

Project No: ENW.GENV03056-01

Location: West Line Creek

Ground Elev: 1511.42 m

Elk Valley, British Columbia

UTM: 659582.96 E; 5532281.38 N; Z 11

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	SPT (N)	Moisture Content (%)	SPT (N)			LC_MW_WLC-3A	Elevation (m)
								20	40	60		
40		moist		GC								1471
41		CLAY - some sand, some gravel, some rounded cobbles, damp to moist, very stiff, low plastic, black		CL								1470
42	Sonic (102 mm)	GRAVEL - sandy, silty, clayey, angular gravel, damp, brown, iron inclusions - hard		GM								1469
43												1468
44												1467
45												1466
46		CLAY - trace gravel, hard, dark grey		CL								1465
47		- weathered bedrock inclusions		CL								1464
48		END OF BOREHOLE (47.85 metres) water - 37.43 metres below ground on December 14, 2021 Monitoring well installed to 45.72 metres Monitoring well diameter: 55 mm Screened Interval: 42.67 - 45.72 metres below ground 020 Slot Size 10/20 Filter Sand Top of sand: 42.06 metres below ground Top of PVC: 1511.415 masl										1463
49												1462
50												1461
51												1460
52												1459
53												1458
54												1457
55												1456
56												1455
57												1454
58												1453
59												1452
60												1452



Contractor: Mud Bay Drilling

Completion Depth: 47.85 m

Equipment Type: TerraSonic 150CC Rotosonic Drill Rig

Start Date: 2021 November 23

Logged By: Carl Forkheim

Completion Date: 2021 November 23

Reviewed By: Stephan Klump

Page 3 of 3

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_LCA

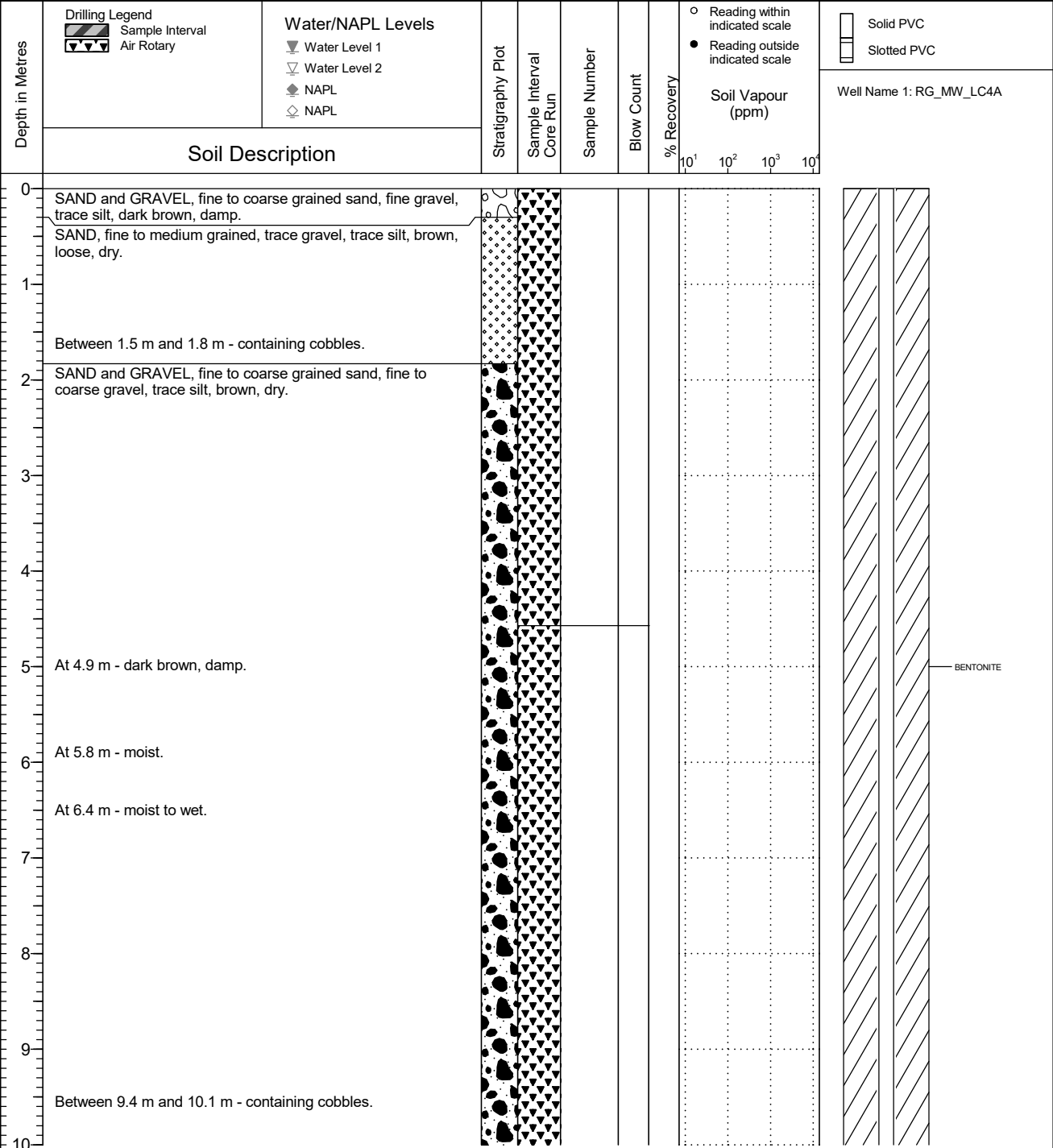
Location
**Regional Groundwater Monitoring -
Line Creek**

PAGE 1 OF 4

Drilling Contractor: JR Drilling
 Drilling Method: Dual Rotary
 Borehole Dia. (m): 0.18
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: n/a
 Ground Surface Elev. (m): TBD
 Top of Casing Elev. (m): TBD
 Northing: n/a Easting: n/a

Project Number: 683032
 Borehole Logged By: SE
 Date Drilled: 2021 08 10
 Log Typed By: VL



NOTES

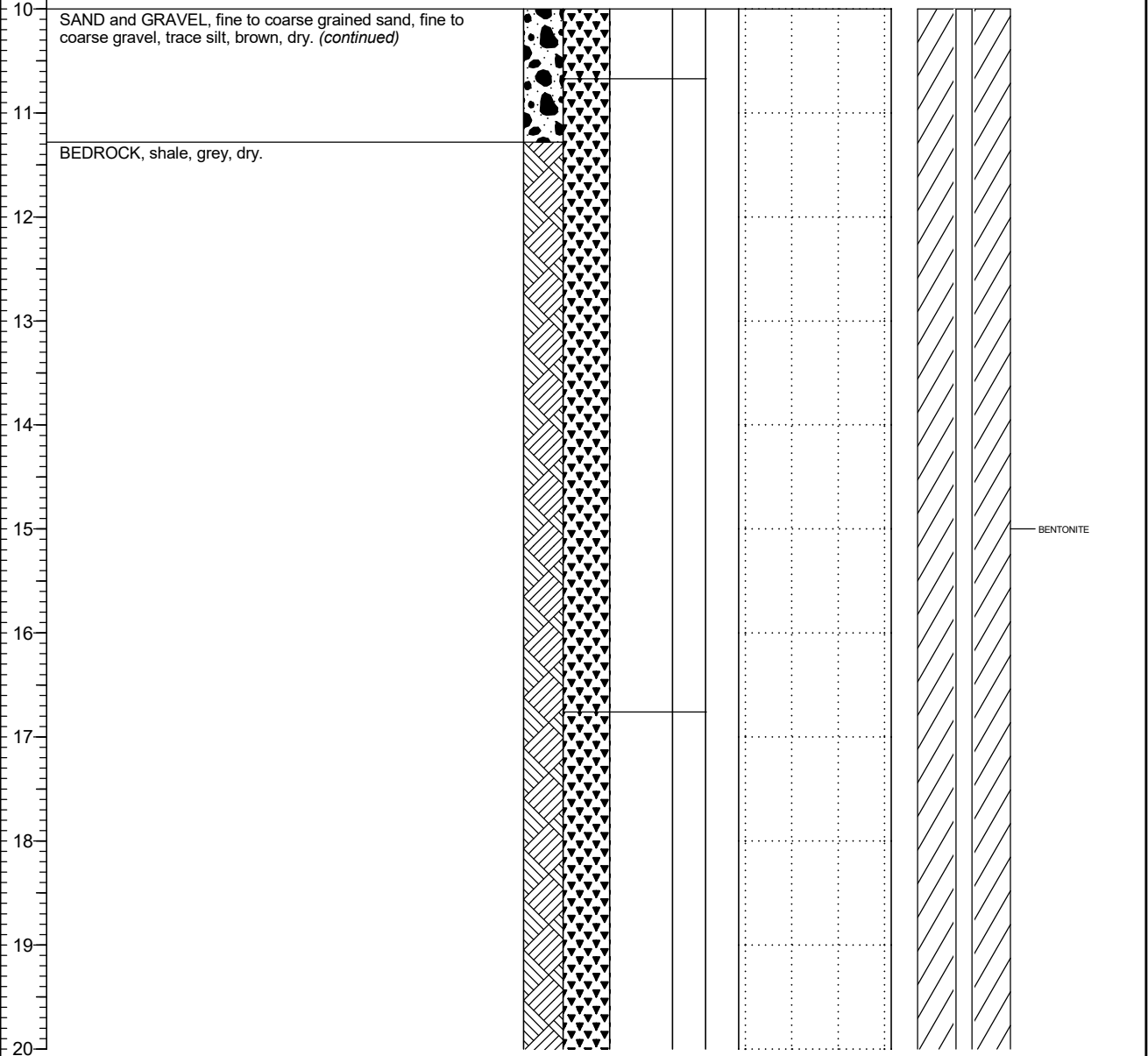
Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_LCA
	Location Regional Groundwater Monitoring - Line Creek	PAGE 2 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 10 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: RG_MW_LC4A
	Soil Description								



NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL



Client
Teck Coal Limited

Borehole No. : RG_BH_LCA

Location
**Regional Groundwater Monitoring -
Line Creek**

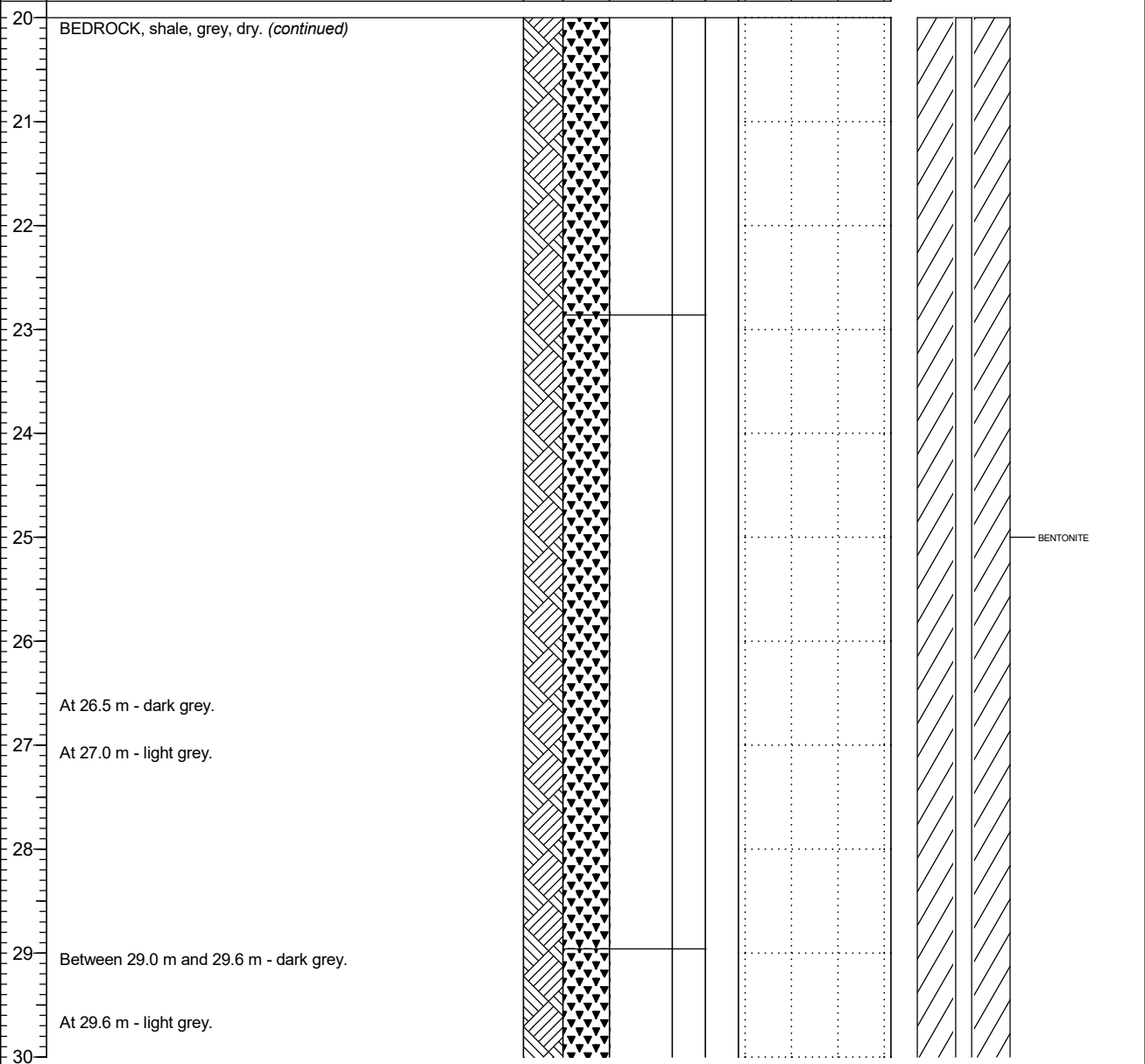
PAGE 3 OF 4

Drilling Contractor: JR Drilling
 Drilling Method: Dual Rotary
 Borehole Dia. (m): 0.18
 Pipe/Slotted Pipe Dia. (m): 0.05/0.05

Date Monitored: n/a
 Ground Surface Elev. (m): TBD
 Top of Casing Elev. (m): TBD
 Northing: n/a Easting: n/a

Project Number: 683032
 Borehole Logged By: SE
 Date Drilled: 2021 08 10
 Log Typed By: VL

Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_LC4A
	Soil Description								



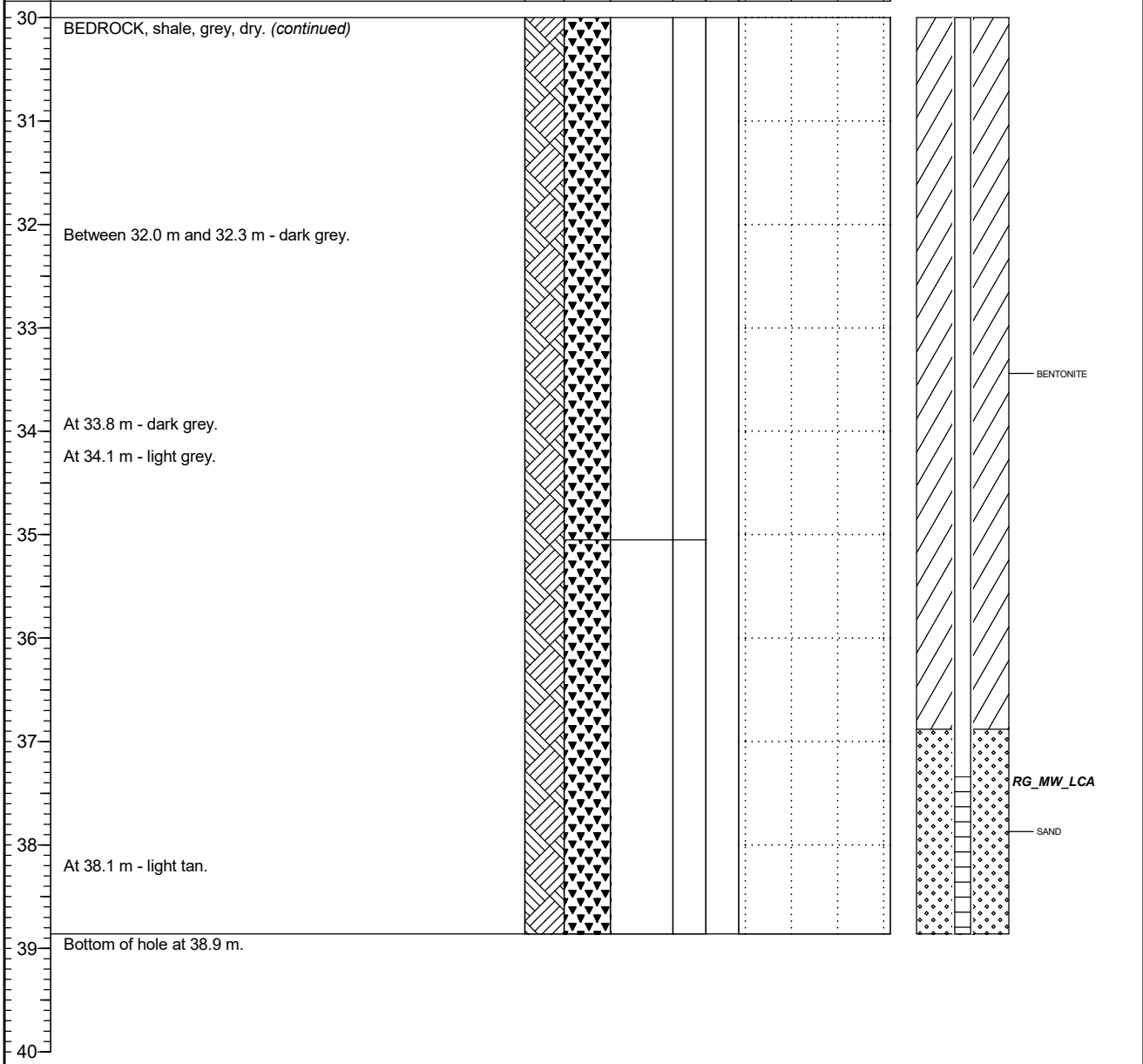
NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_LCA
	Location Regional Groundwater Monitoring - Line Creek	PAGE 4 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 10 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_LC4A
	Soil Description								



NOTES
 Casing: 0 – 37.3 m; Screen Interval: 37.3 – 38.9 m; Total Depth: 38.9 m
 Bentonite: 0 – 7.1 m; Sand Pack: 36.9 – 38.9 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

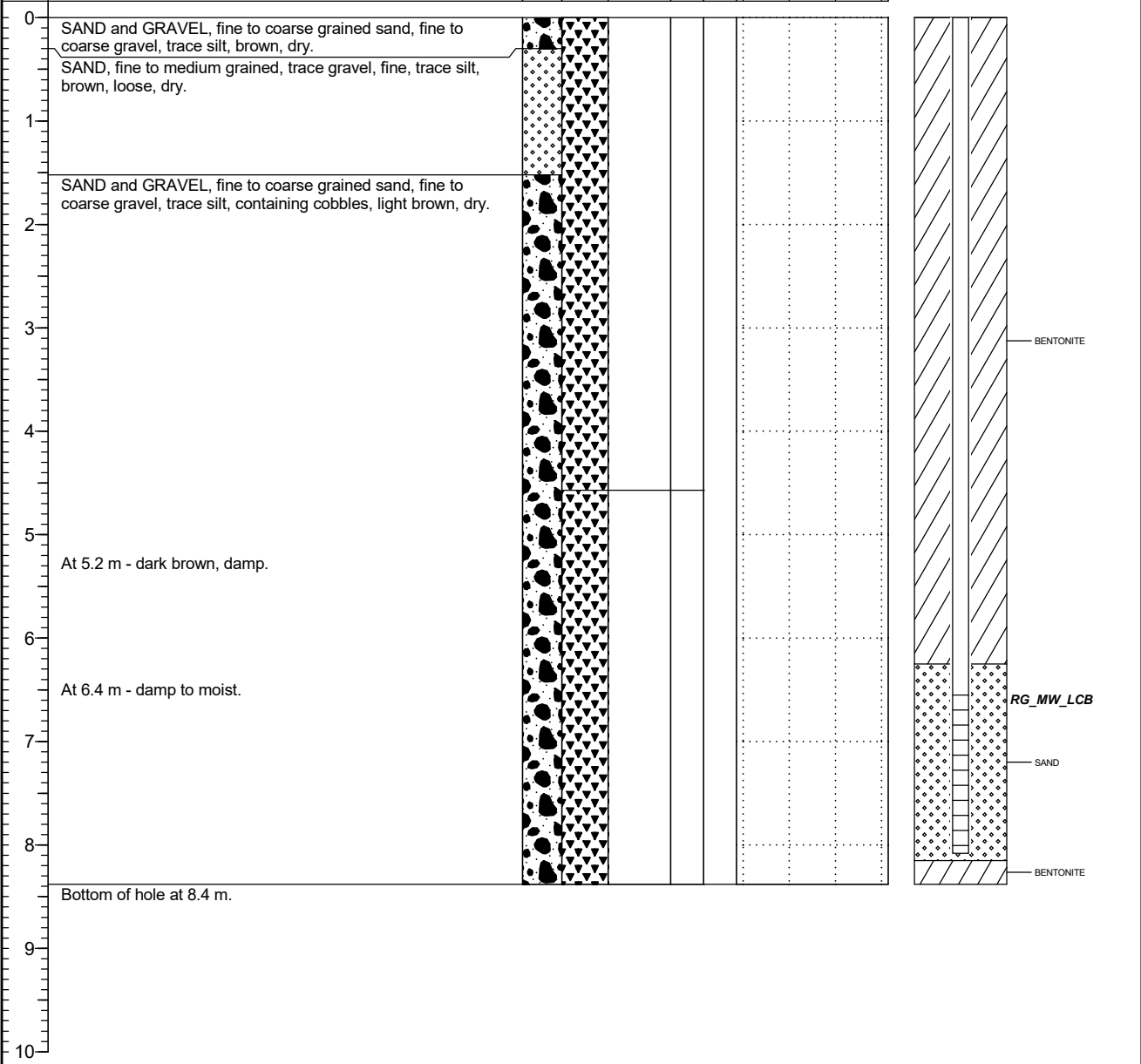
QA/QC: KH 2021 09 15 Print Date: 2021-09-21

FINAL

	Client Teck Coal Limited	Borehole No. : RG_BH_LCB
	Location Regional Groundwater Monitoring - Line Creek	PAGE 1 OF 1

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): TBD Top of Casing Elev. (m): TBD Northing: n/a Easting: n/a	Project Number: 683032 Borehole Logged By: SE Date Drilled: 2021 08 13 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC Well Name 1: RG_MW_LC4B
	Soil Description								

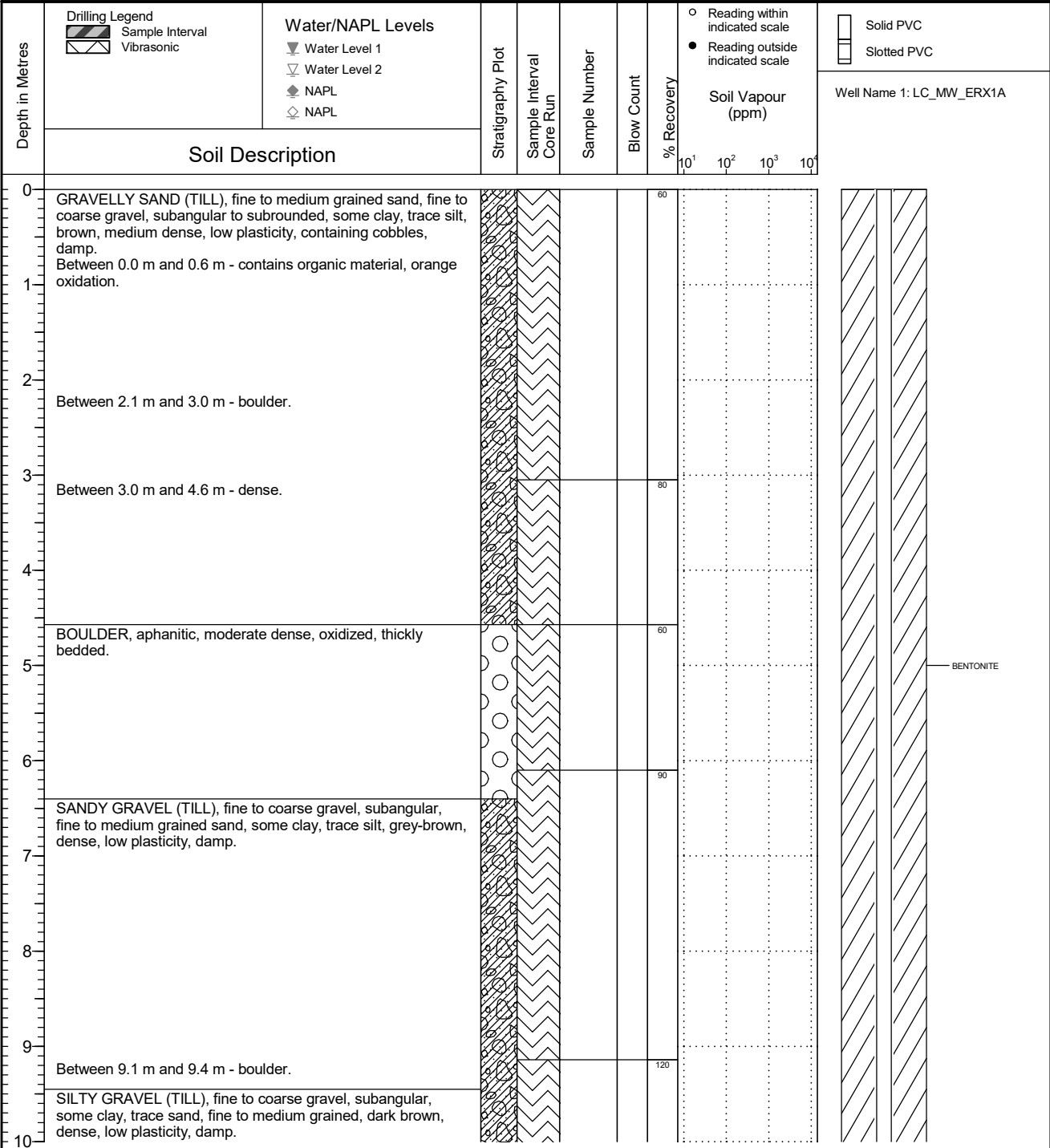


NOTES
 Casing: 0 – 8.1 m; Screen Interval: 6.6 – 8.1 m; Total Depth: 8.1 m
 Bentonite: 0 – 6.2 m; Sand Pack: 6.2 – 8.1 m; Bentonite: 8.1 - 8.4 m
 Casing: 2-inch Schedule 40 PVC; Screens: 2-inch Schedule 40 PVC,
 0.100 slot size; Sand Pack: 10/20 Frac Sand

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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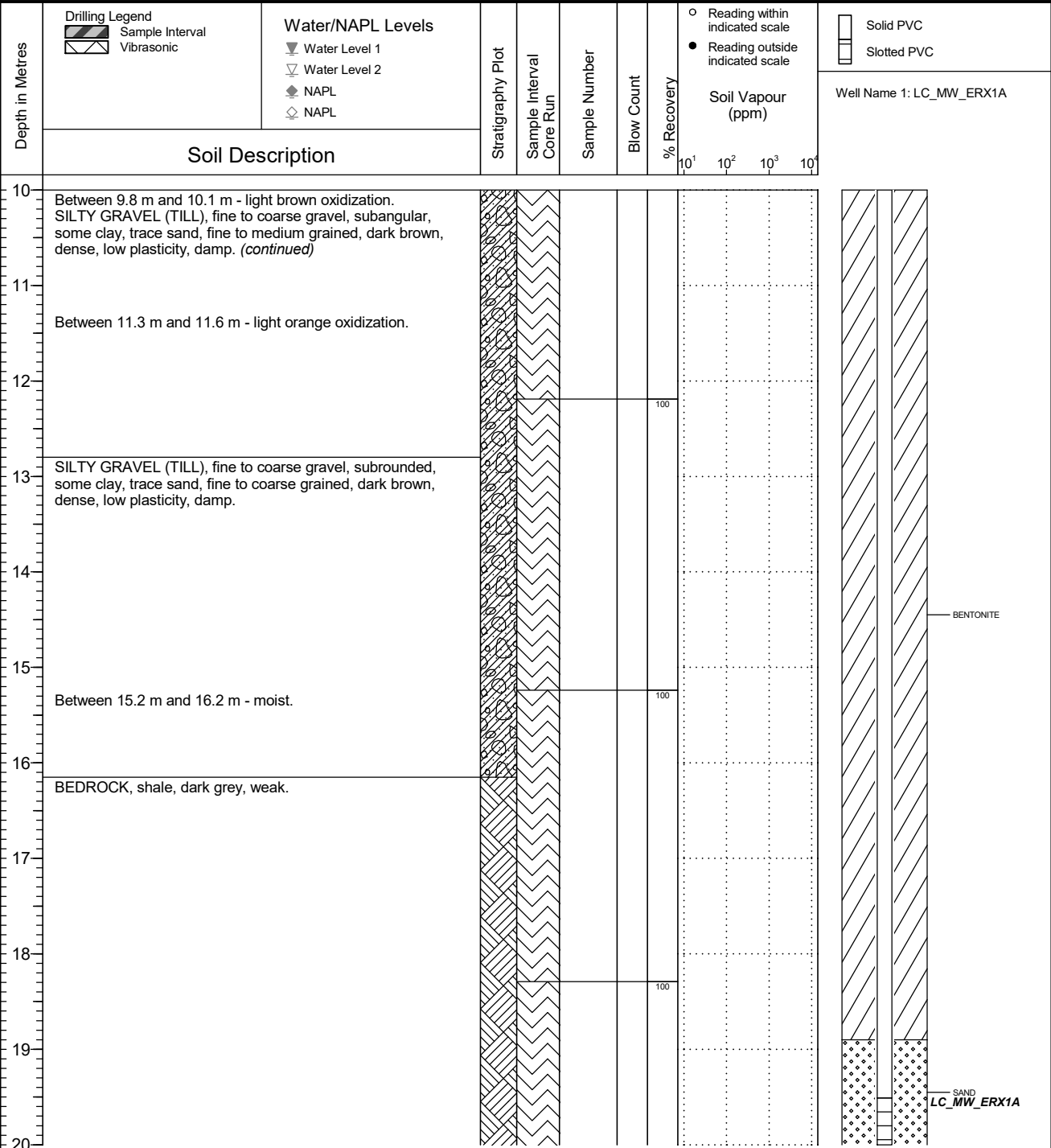
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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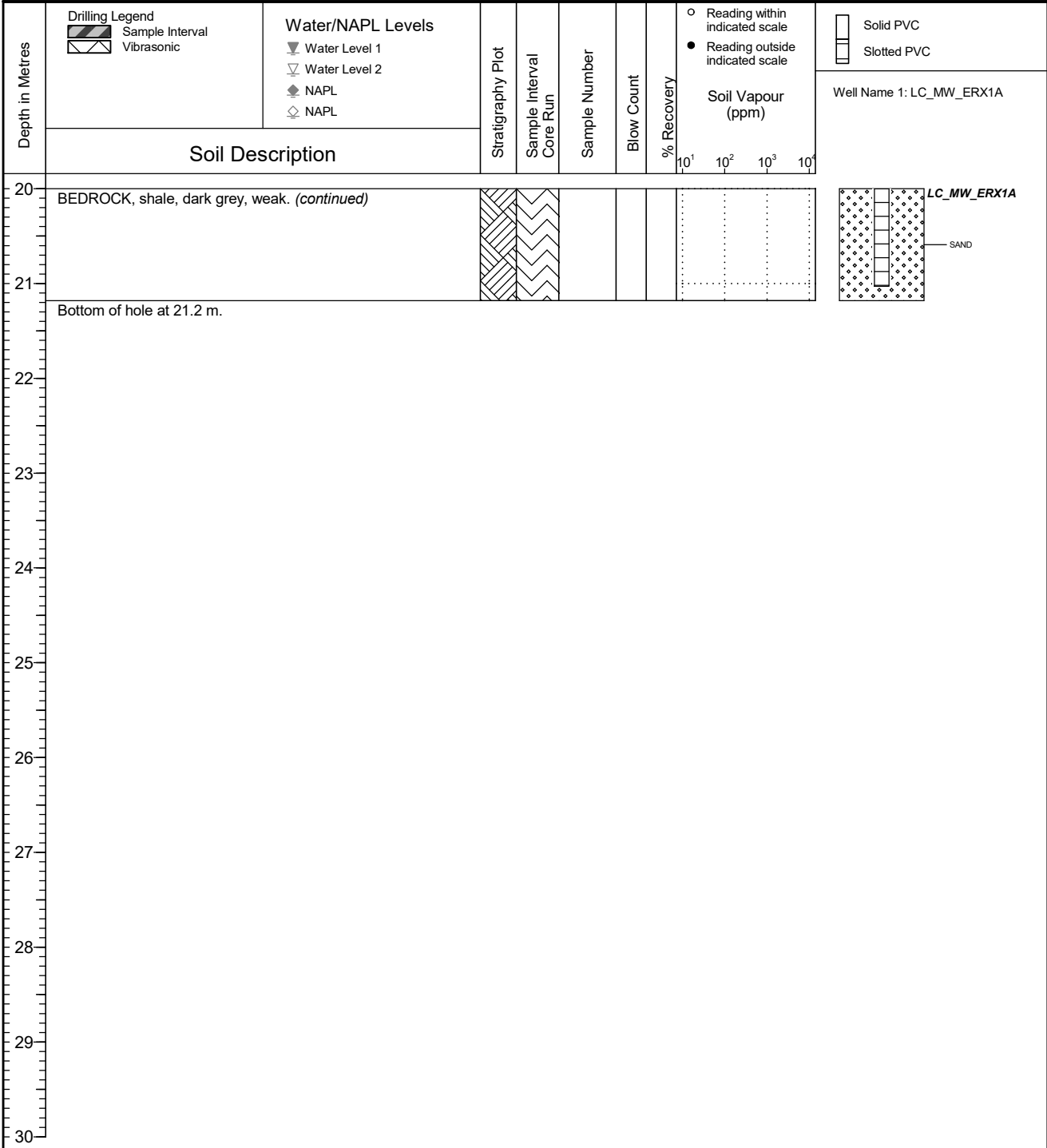
NOTES

QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.869 Top of Casing Elev. (m): n/a Northing: 5526826.843 Easting: 655035.574	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 18 Log Typed By: VL
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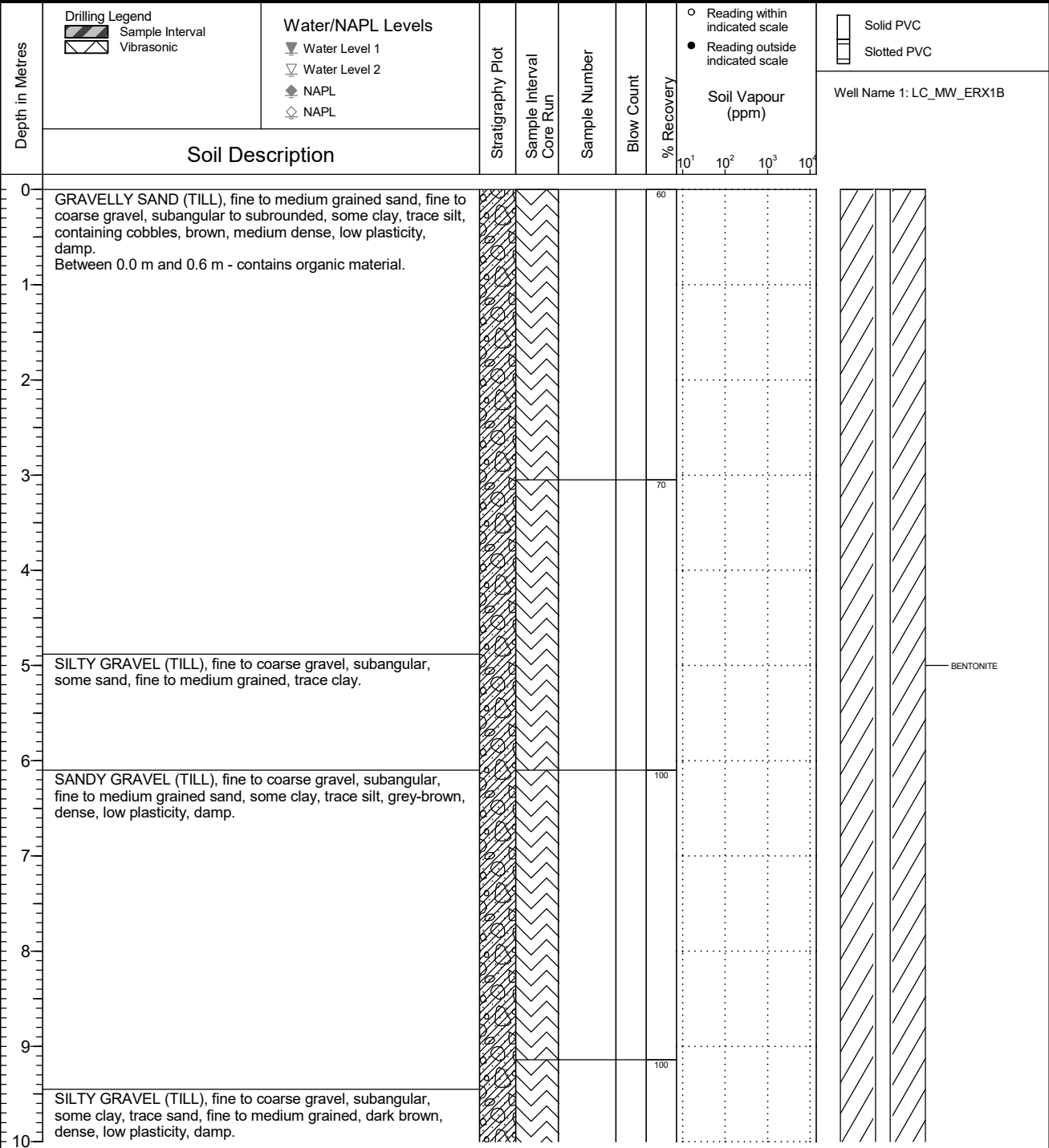


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.856 Top of Casing Elev. (m): n/a Northing: 5526832.015 Easting: 655034.788	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 19 Log Typed By: VL
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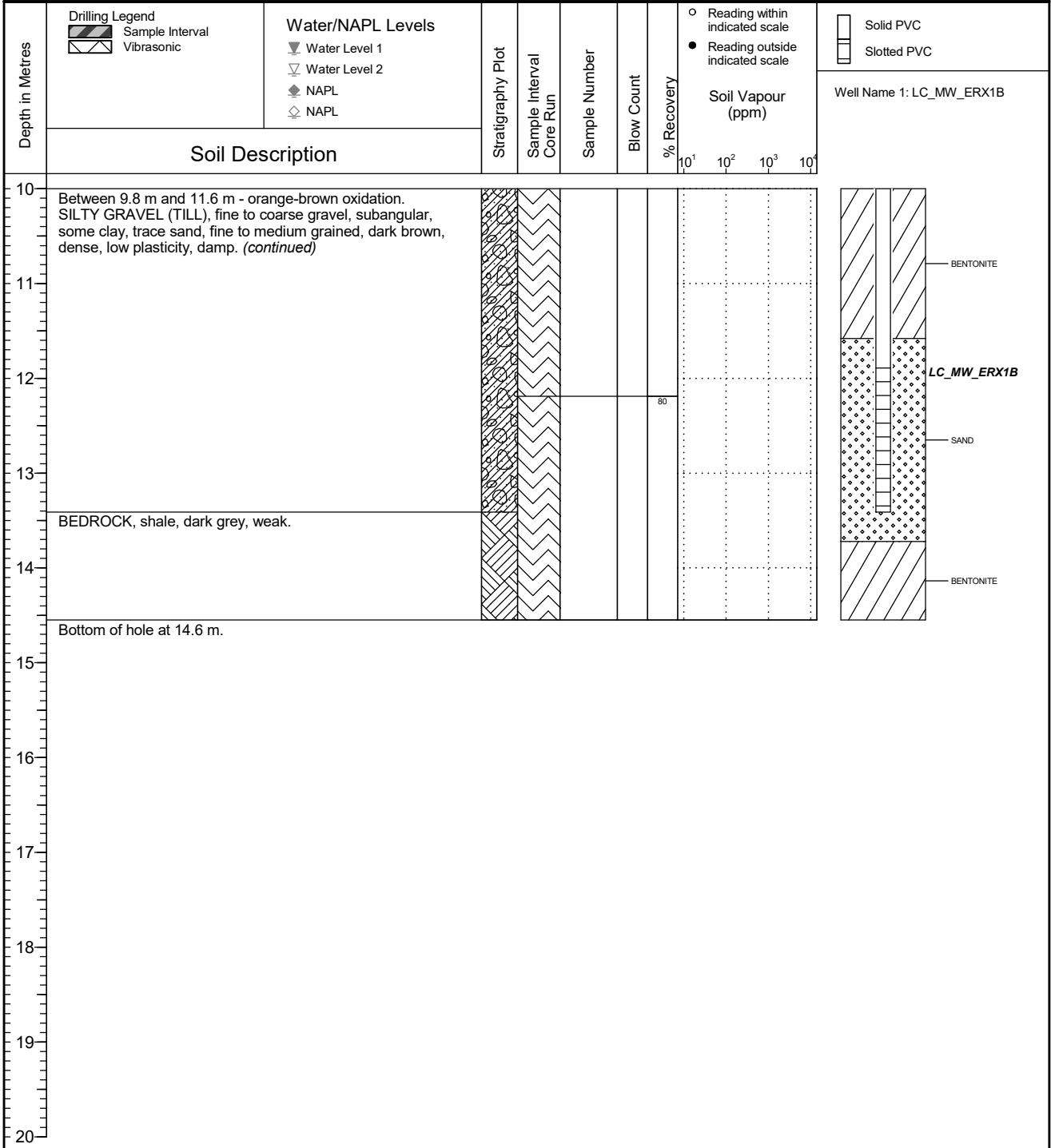


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_ERX1B
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

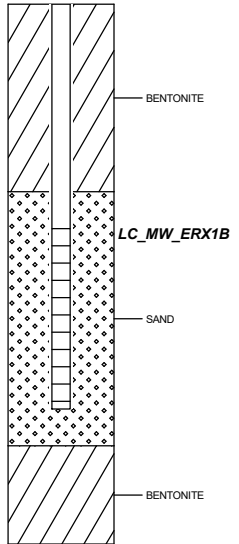
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1300.856 Top of Casing Elev. (m): n/a Northing: 5526832.015 Easting: 655034.788	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 19 Log Typed By: VL
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Between 9.8 m and 11.6 m - orange-brown oxidation. SILTY GRAVEL (TILL), fine to coarse gravel, subangular, some clay, trace sand, fine to medium grained, dark brown, dense, low plasticity, damp. *(continued)*

BEDROCK, shale, dark grey, weak.

Bottom of hole at 14.6 m.

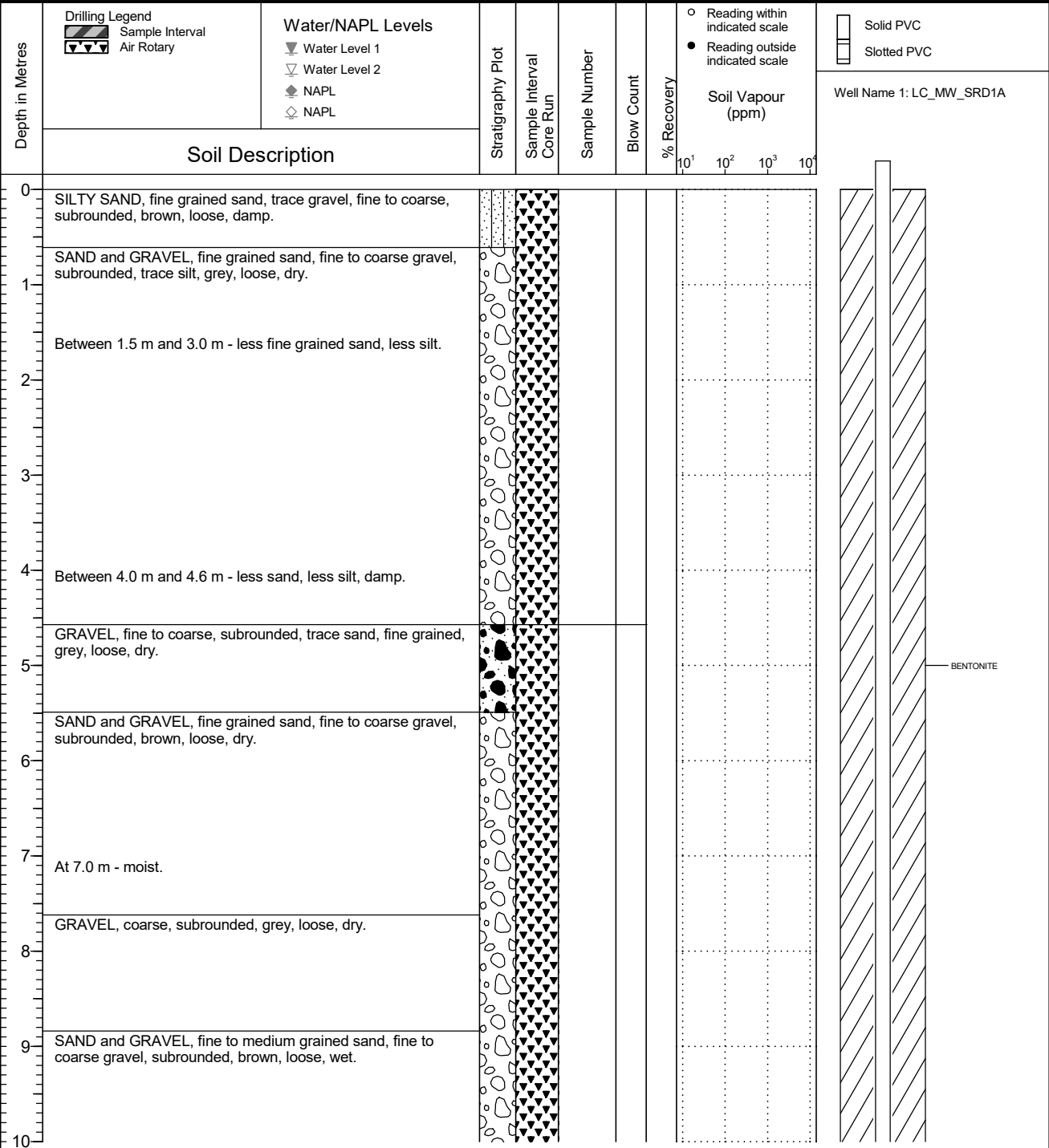


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 1 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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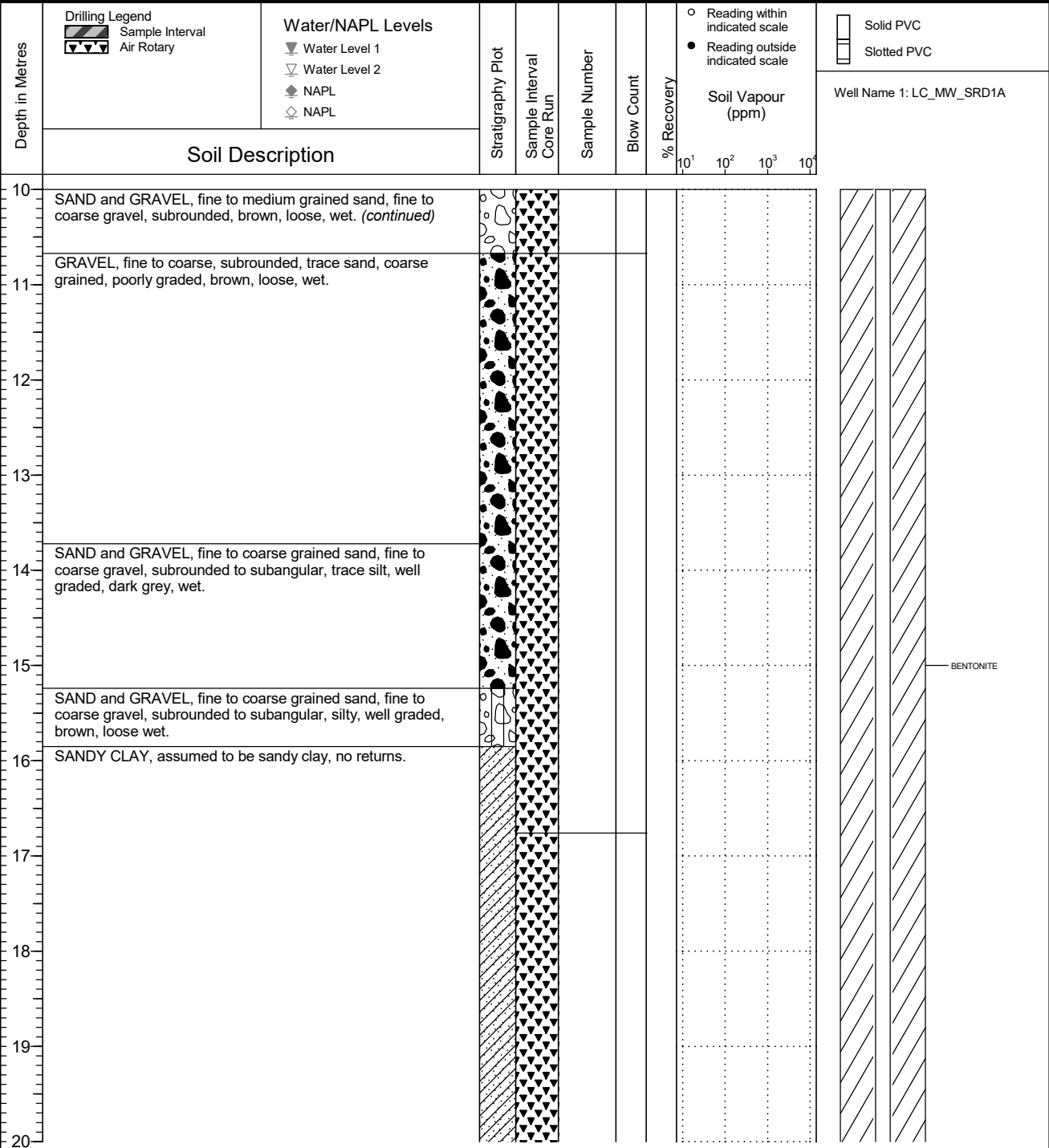
NOTES

QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 2 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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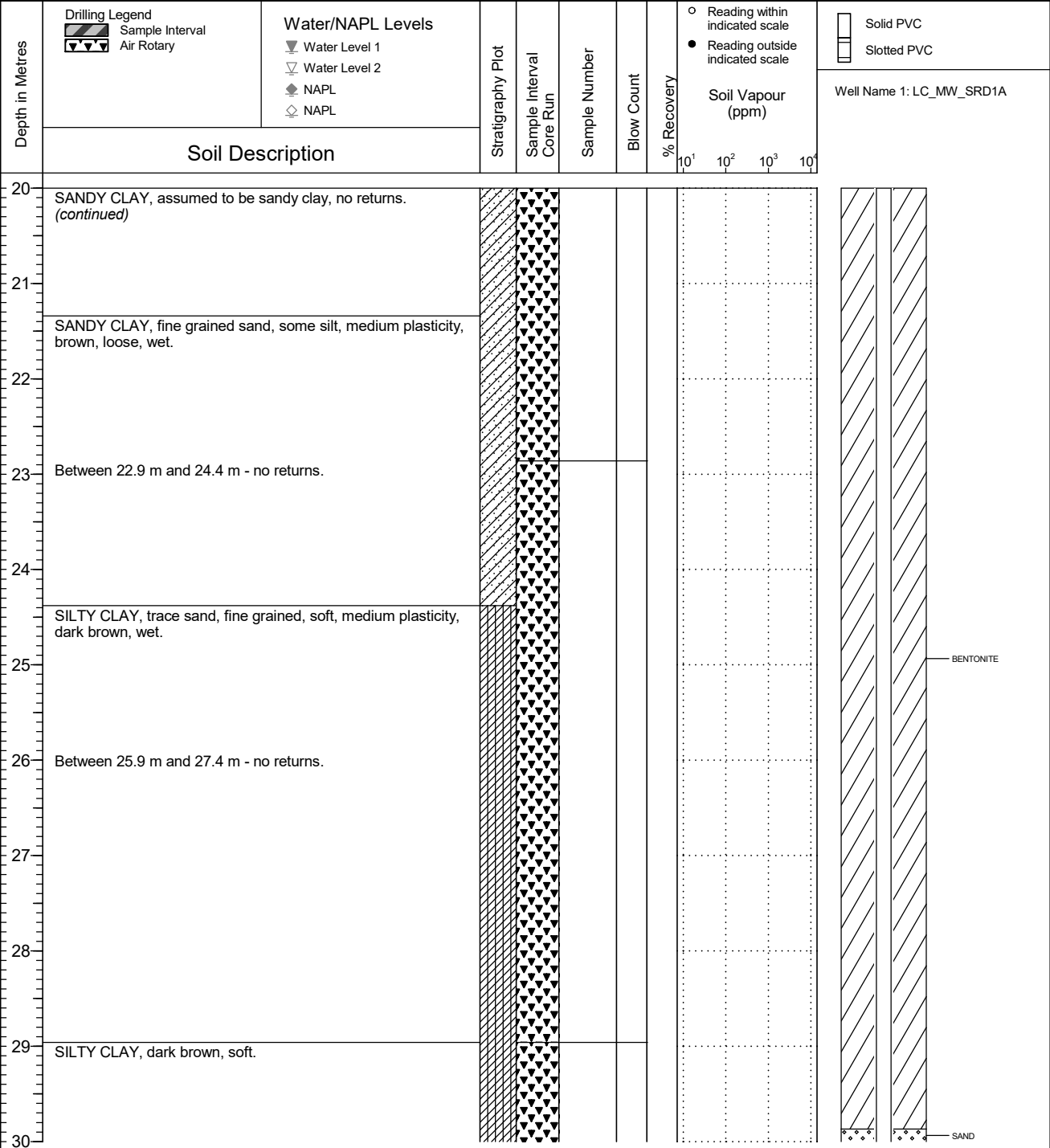
NOTES

QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 3 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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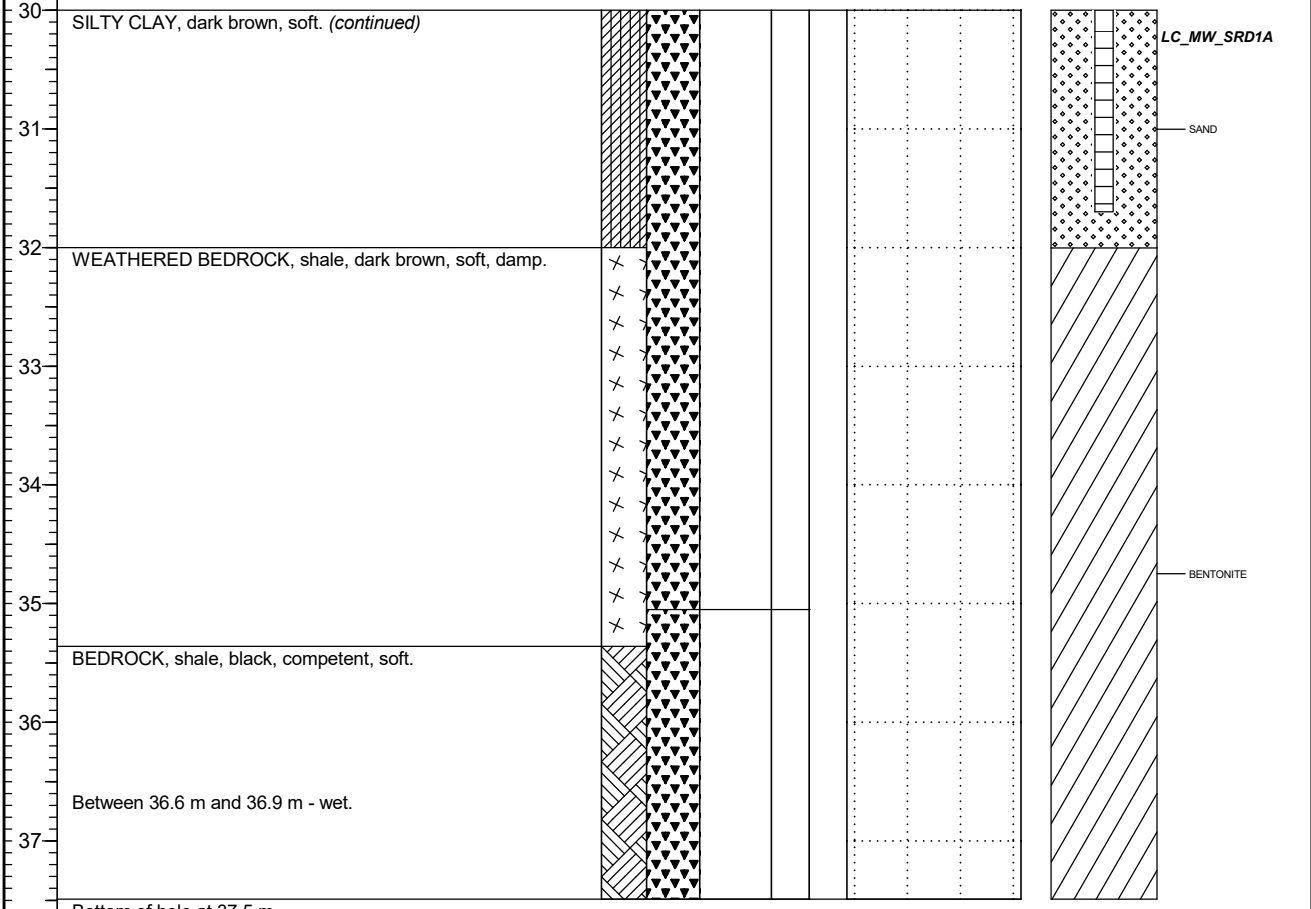
NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1A
	Location Regional Groundwater Monitoring	PAGE 4 OF 4

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.459 Top of Casing Elev. (m): 1203.245 Northing: 5526817.666 Easting: 653603.698	Project Number: 631283 Borehole Logged By: AH Date Drilled: 2021 08 24 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	○ Solid PVC □ Slotted PVC Well Name 1: LC_MW_SRD1A
	Soil Description								



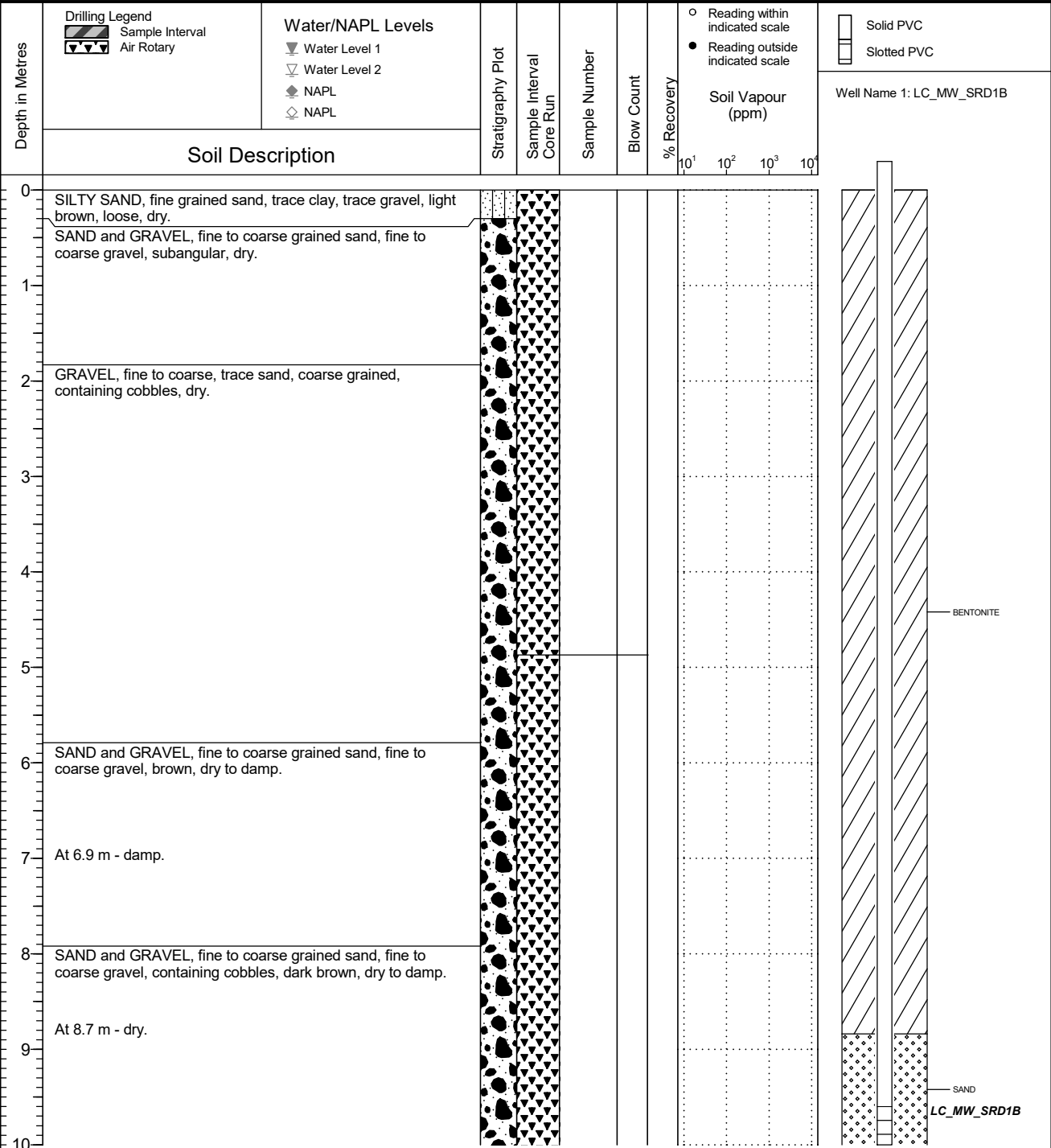
NOTES

QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1B
	Location Regional Groundwater Monitoring	PAGE 1 OF 2

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.469 Top of Casing Elev. (m): 1203.159 Northing: 5526819.661 Easting: 653601.314	Project Number: 631283 Borehole Logged By: SE Date Drilled: 2021 08 16 Log Typed By: VL
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NOTES

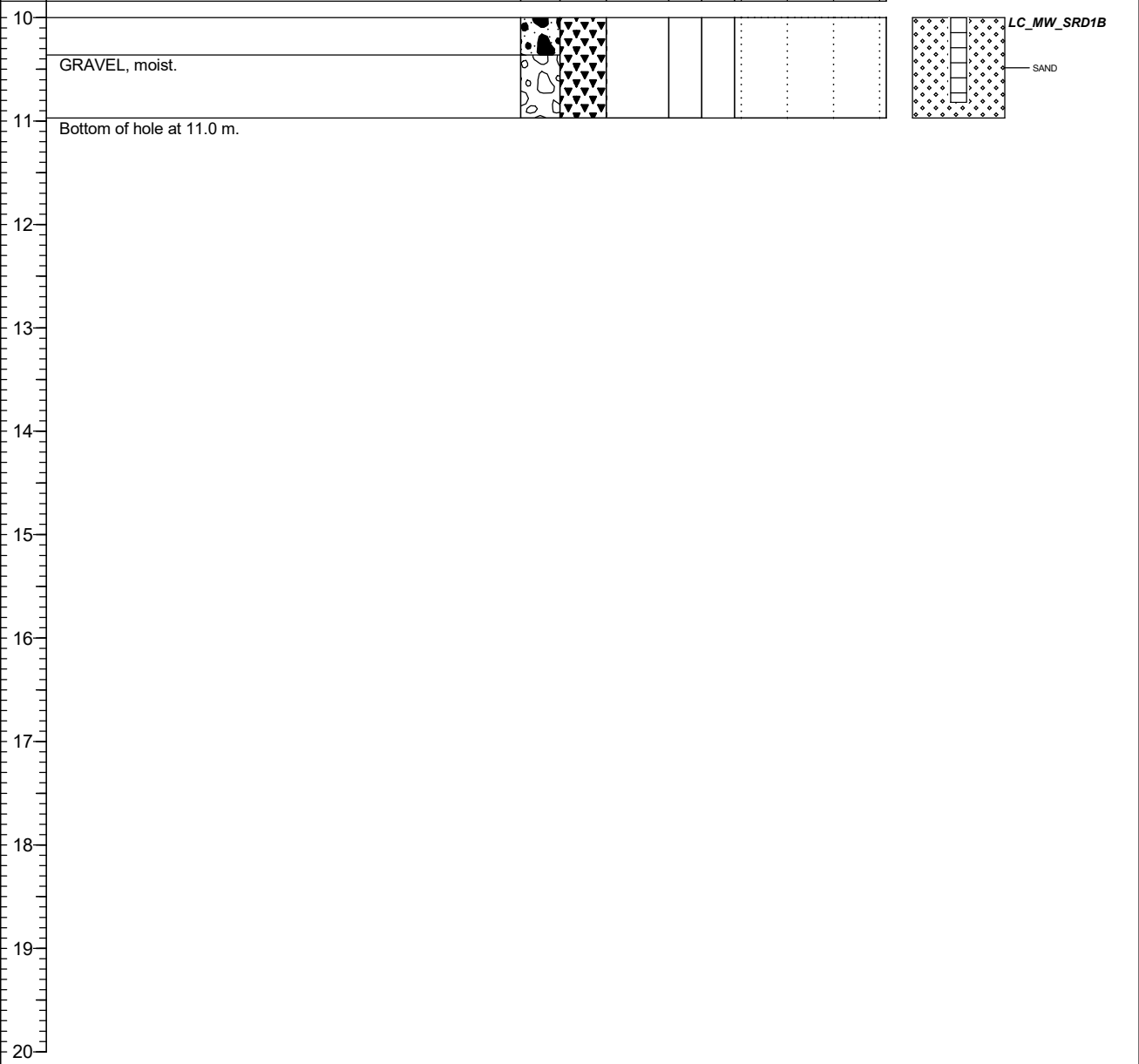
QA/QC: SD 2021 09 29 Print Date: 2021-10-21 Print Date: 2022-03-18

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD1B
	Location Regional Groundwater Monitoring	PAGE 2 OF 2

Drilling Contractor: JR Drilling Drilling Method: Dual Rotary Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1202.469 Top of Casing Elev. (m): 1203.159 Northing: 5526819.661 Easting: 653601.314	Project Number: 631283 Borehole Logged By: SE Date Drilled: 2021 08 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Air Rotary	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	○ Solid PVC □ Slotted PVC Well Name 1: LC_MW_SRD1B
	Soil Description								

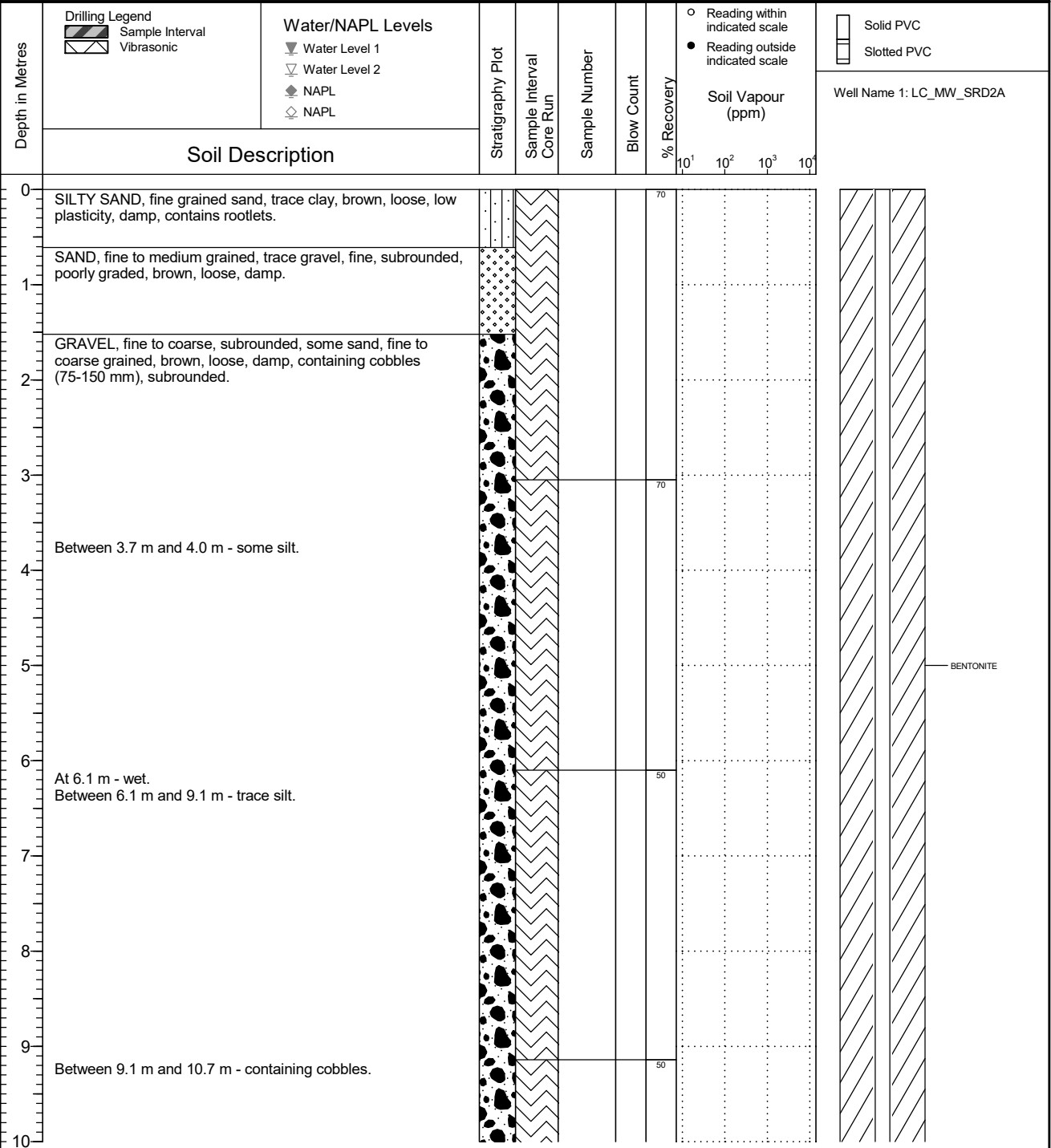


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2A
	Location Regional Groundwater Monitoring	PAGE 1 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.216 Top of Casing Elev. (m): n/a Northing: 5525984.264 Easting: 653884.634	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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NOTES

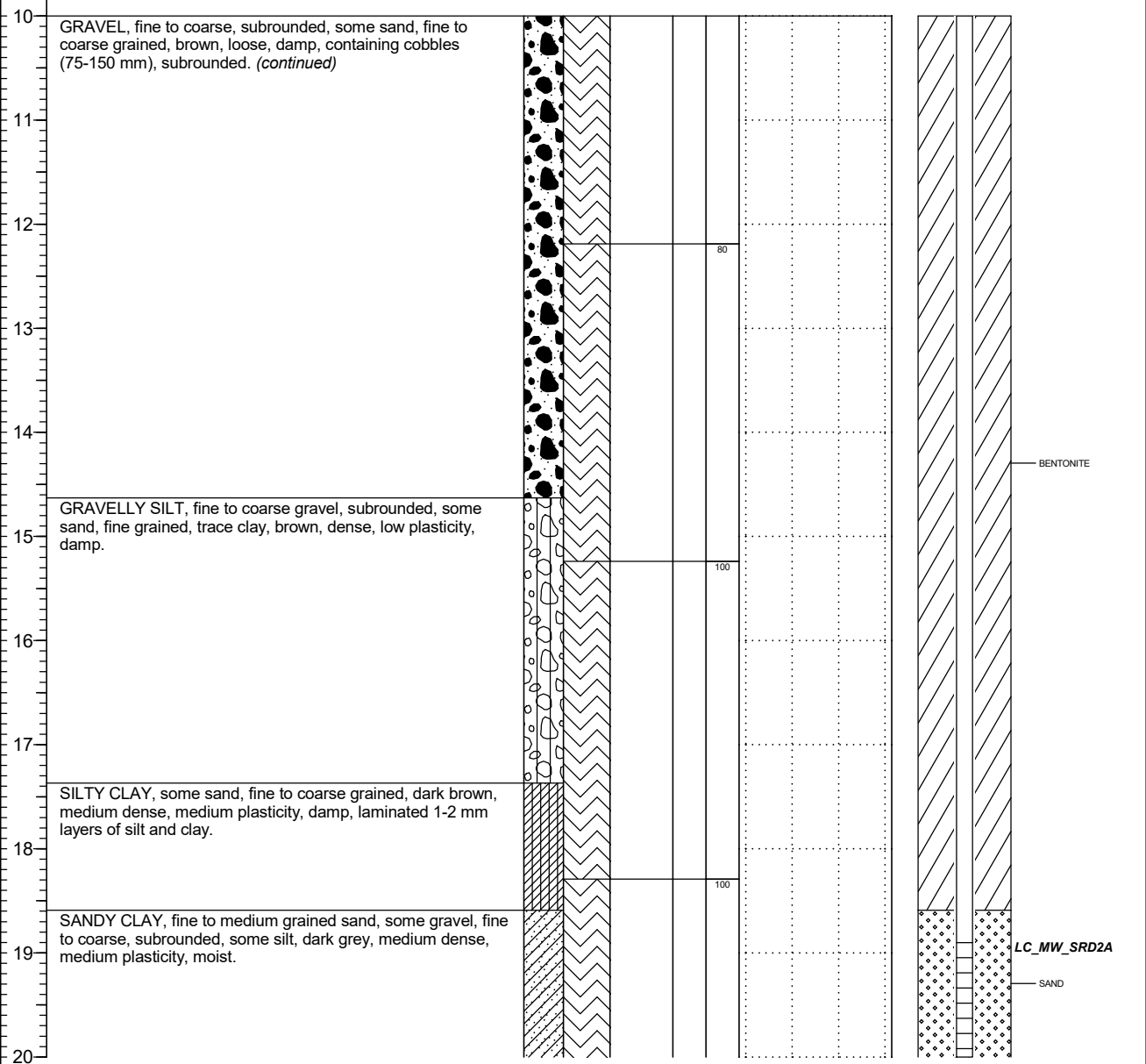
QA/QC: AH 2022 01 19 Print Date: 2022-01-19

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2A
	Location Regional Groundwater Monitoring	PAGE 2 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.216 Top of Casing Elev. (m): n/a Northing: 5525984.264 Easting: 653884.634	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: LC_MW_SRD2A
	Soil Description								

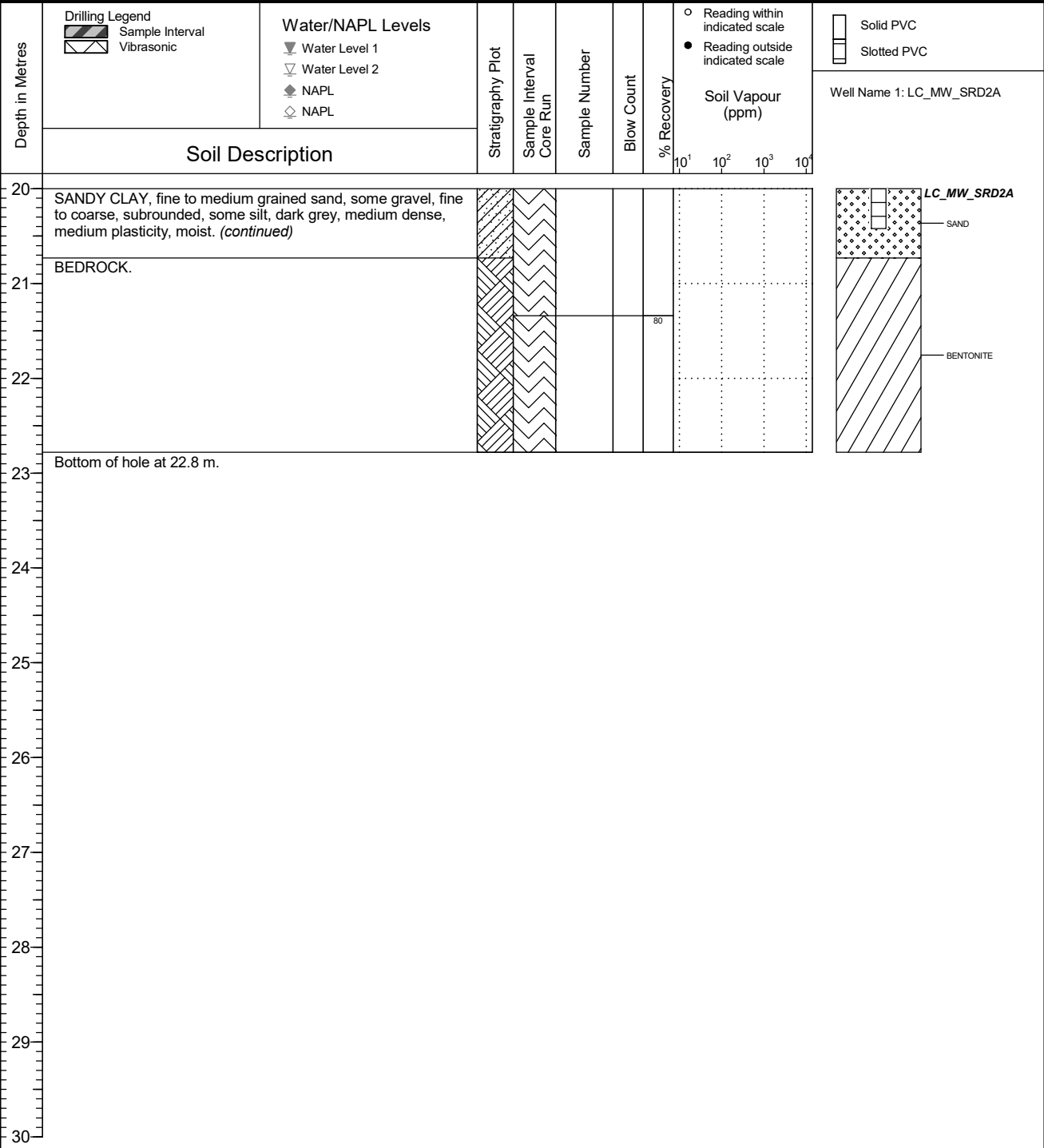


NOTES

FINAL

	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2A
	Location Regional Groundwater Monitoring	PAGE 3 OF 3

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.216 Top of Casing Elev. (m): n/a Northing: 5525984.264 Easting: 653884.634	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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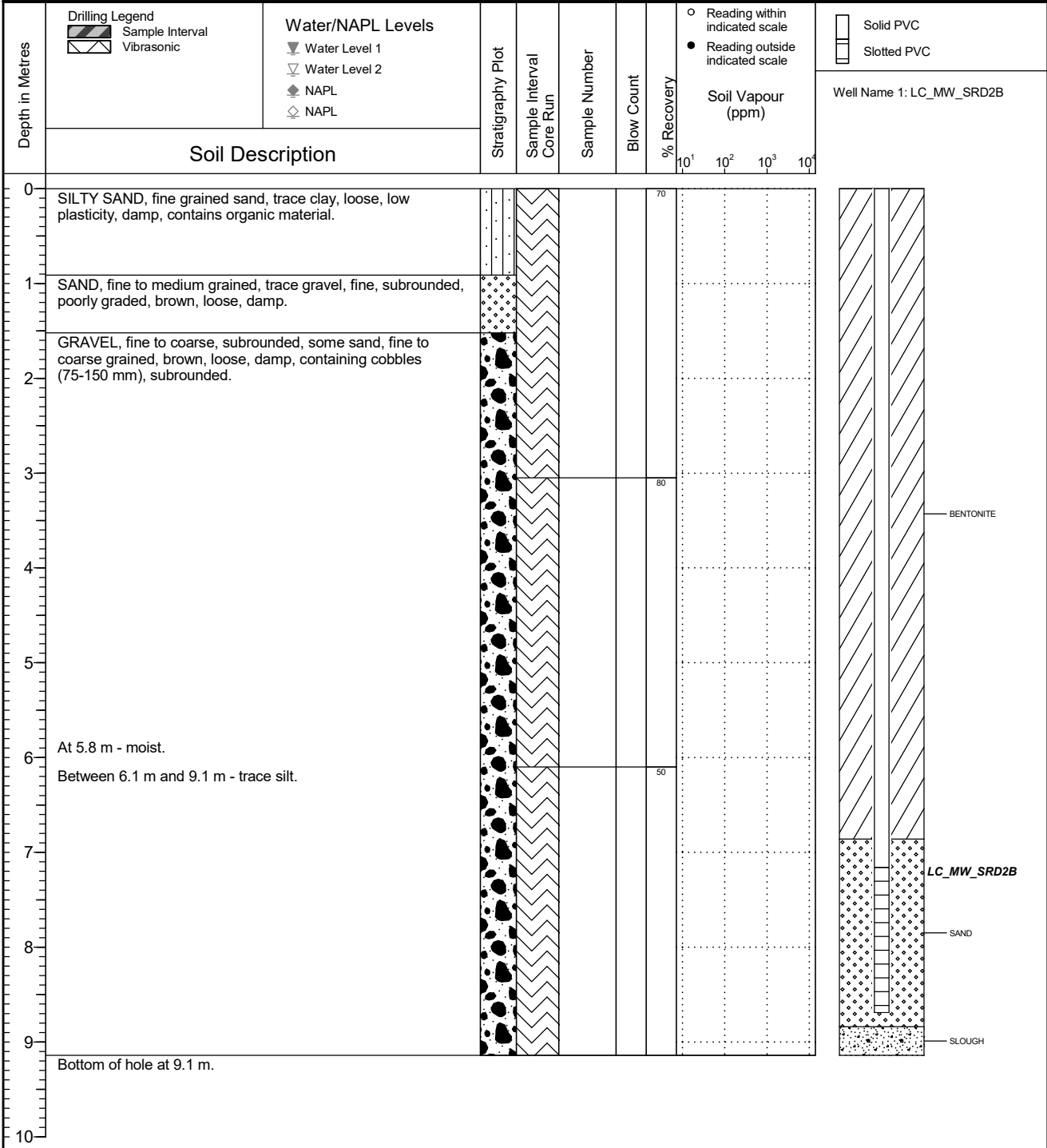


NOTES

FINAL

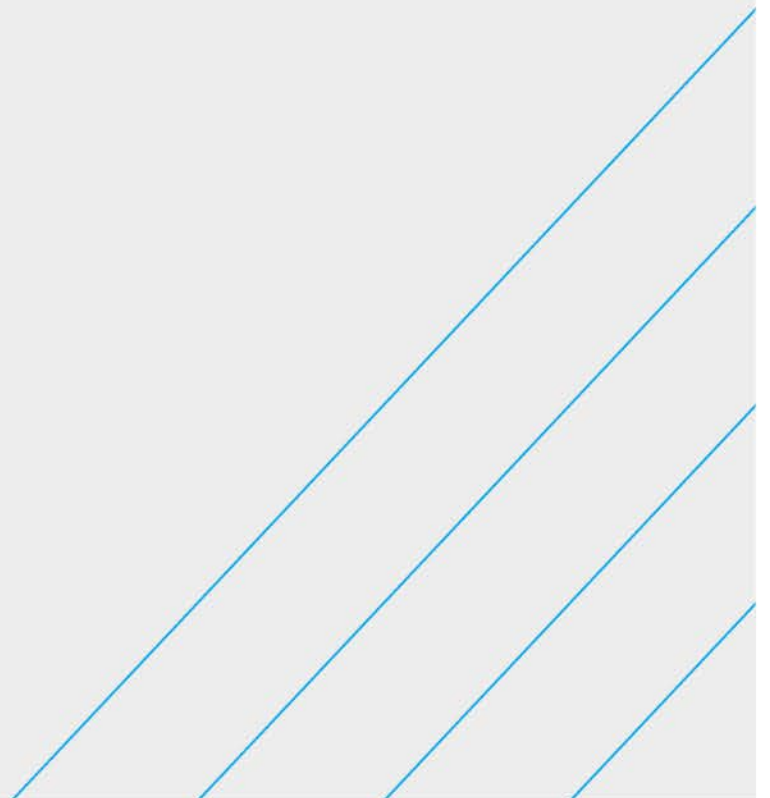
	Client Teck Coal Limited	Borehole No. : LC_BH_SRD2B
	Location Regional Groundwater Monitoring	PAGE 1 OF 1

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: n/a Ground Surface Elev. (m): 1197.215 Top of Casing Elev. (m): n/a Northing: 5525982.579 Easting: 653884.742	Project Number: 686625 Borehole Logged By: AH Date Drilled: 2021 11 20 Log Typed By: VL
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NOTES

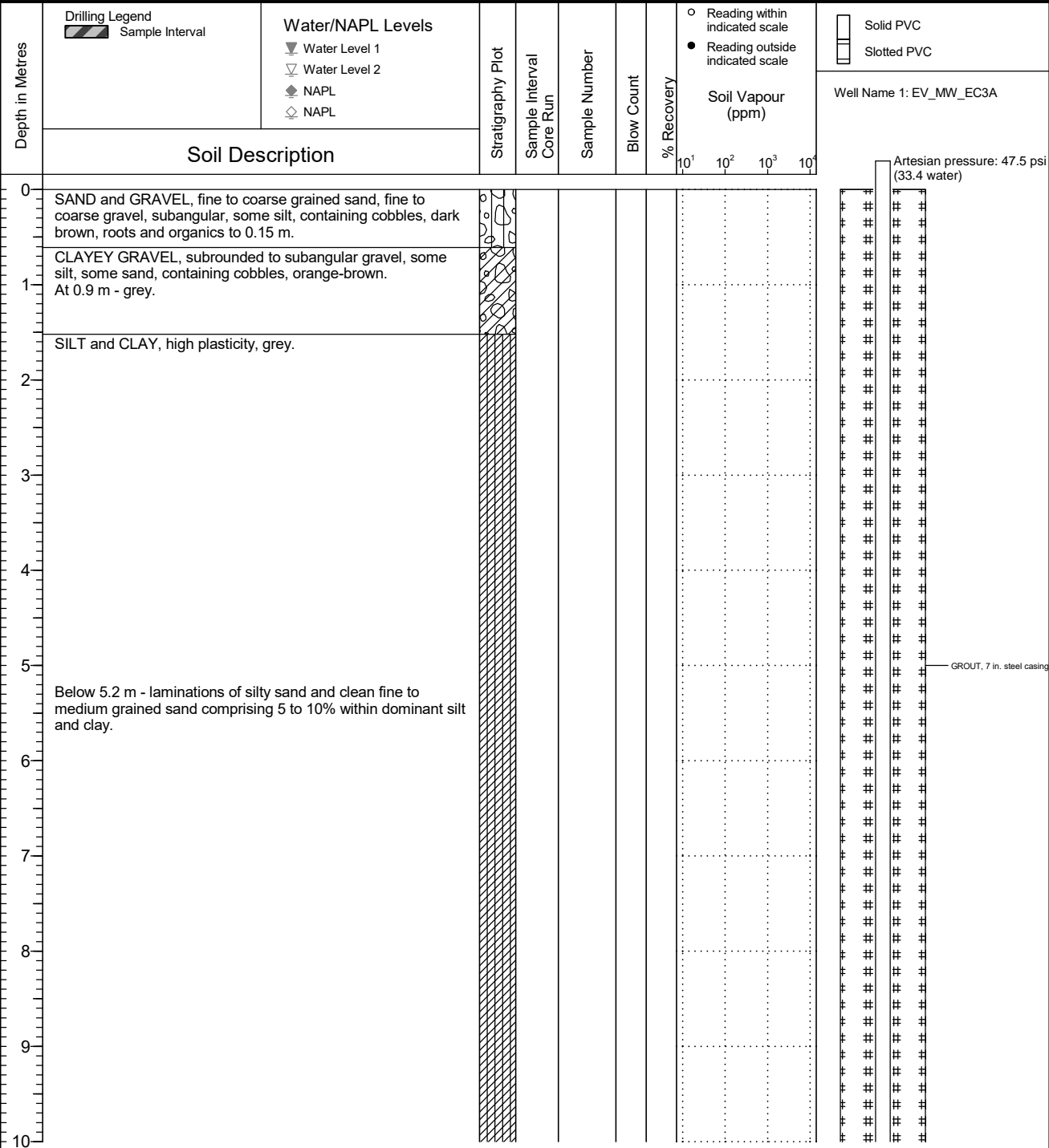
Elkview Operations Borehole Logs – Wells for Evaluation



FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 1 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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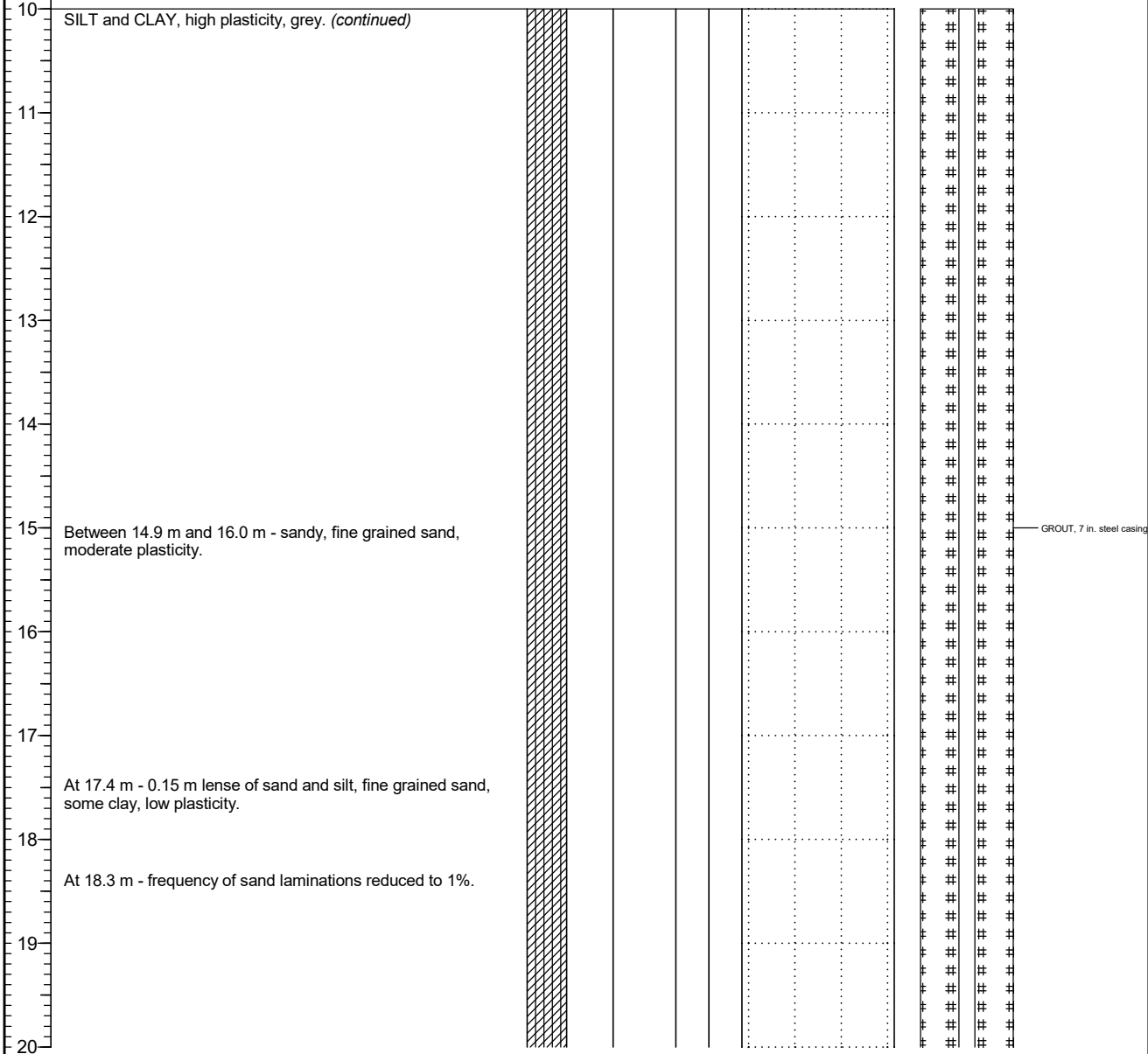
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 2 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval	Water/NAPL Levels ▽ Water Level 1 ▽ Water Level 2 ◆ NAPL ◇ NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: EV_MW_EC3A
	Soil Description								

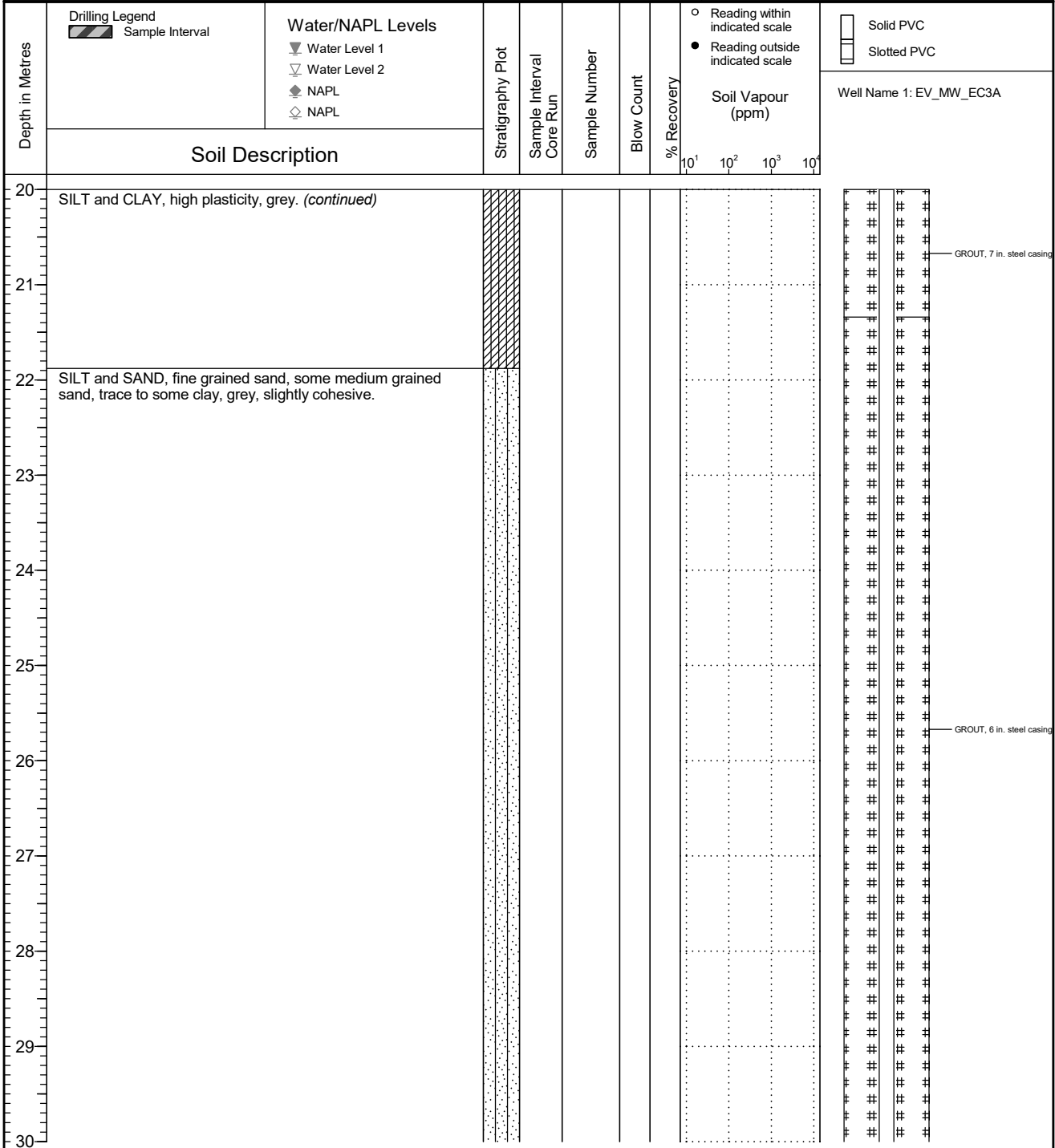


NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 3 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

QA/QC: TG 2021 10 26 Print Date: 2021-10-26

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 4 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)	Well Name 1: EV_MW_EC3A
30 31 32 33 34 35 36 37 38 39 40	<p>SILT and SAND, fine grained sand, some medium grained sand, trace to some clay, grey, slightly cohesive. <i>(continued)</i></p> <p>SAND, fine to medium grained, some silt to silty, no plasticity, laminations of silt and clay up to one inch thick comprised 5 to 10% within dominant sands.</p> <p>At 32.0 m - 0.20 m lense of clayey sand, fine to medium grained sand, some silt, trace coarse grained sand, trace fine gravel, low plasticity. Below 32.2 m - no gravel.</p> <p>Below 33.3 m - increasing silt.</p> <p>SILT and CLAY, trace gravel, fine, subangular to angular, trace sand, medium to coarse grained, containing cobbles, dark brown to grey, dense, low to moderate plasticity.</p> <p>At 35.1 m - 0.20 m lense of fine to medium grained sand, trace coarse grained sand, some silt, grey, no plasticity.</p> <p>Below 36.2 m - no sand, no gravel.</p> <p>SAND, fine to coarse grained, some silt to silty, light brown.</p> <p>SILT and CLAY, some gravel, fine to coarse, subangular, trace sand, coarse, compact, light brown, moderate plasticity.</p> <p>SILT and CLAY, some sand, fine to coarse grained, trace gravel, fine, subangular, dark brown, very dense, low plasticity, till-like. At 38.4 m - 0.25 m lense of fine to coarse grained sand, trace fine gravel, trace to some silt, dark brown, dense.</p> <p>Below 39.6 m - some gravel, trace sand, fine to coarse grained, containing cobbles.</p>		[Empty]	[Empty]	[Empty]	[Empty]	[Empty]	[Empty]

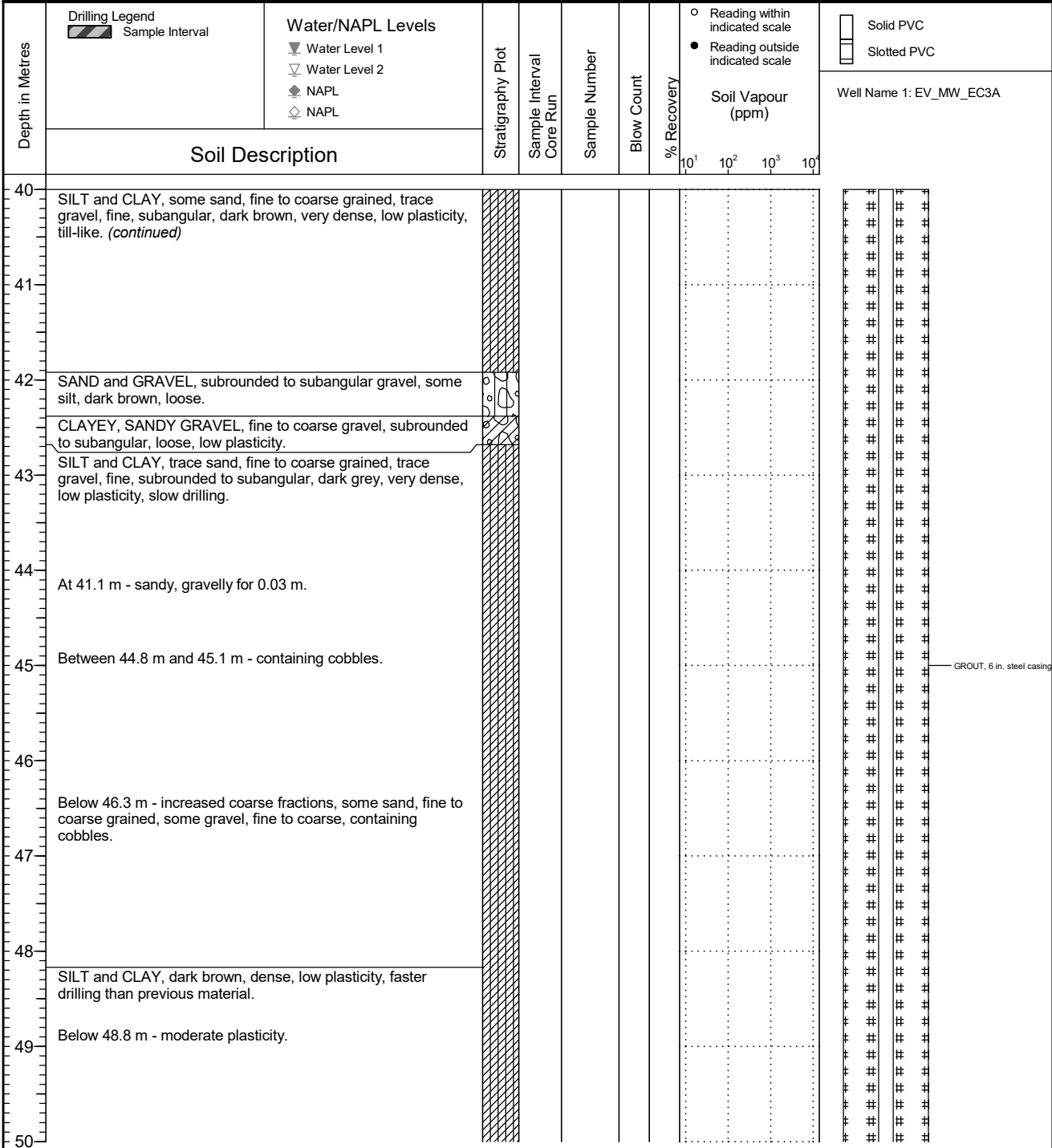
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

QA/QC: TG 2021.10.26 Print Date: 2021-10-26

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 5 OF 6

Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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GROUT, 6 in. steel casing

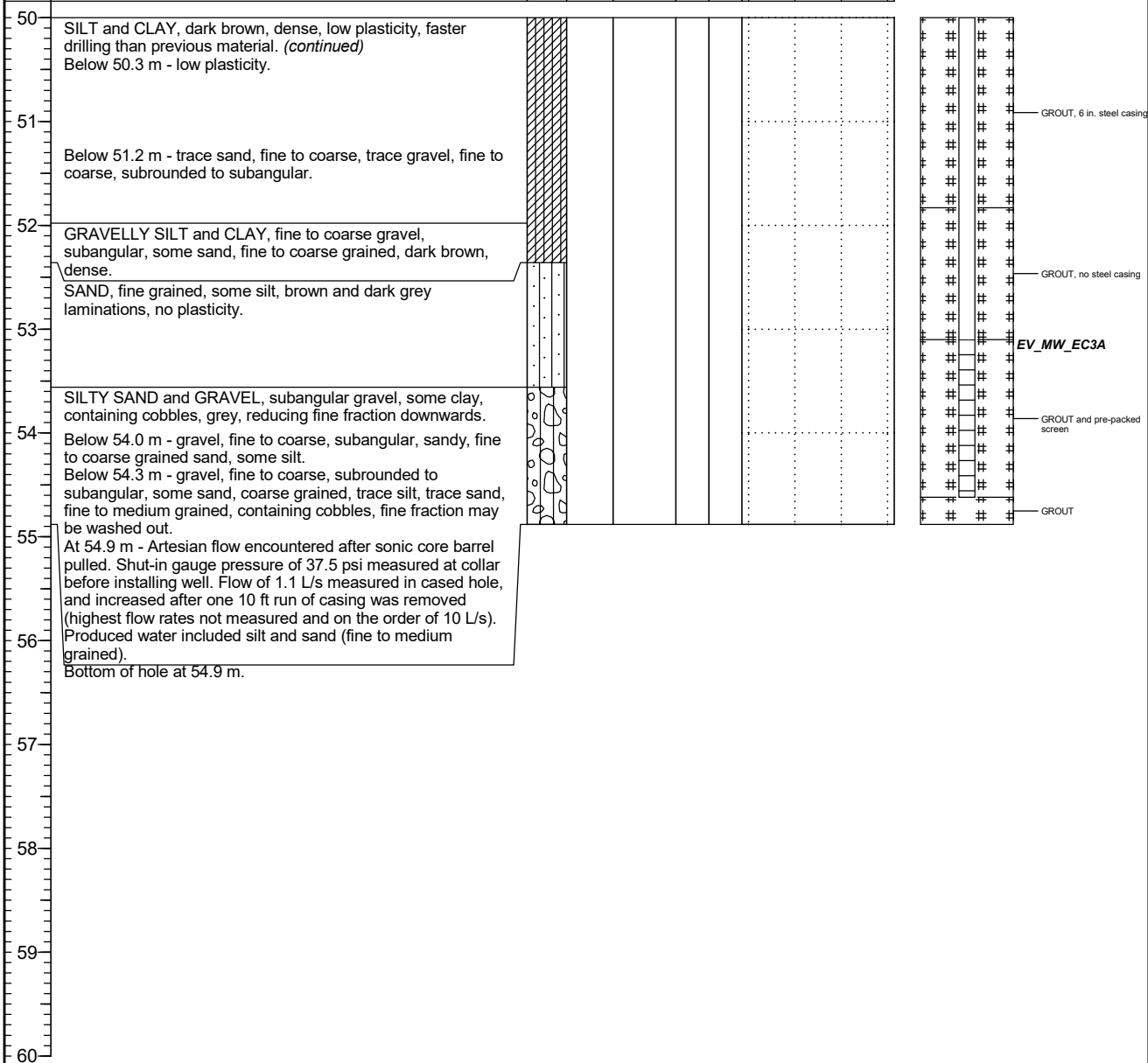
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH_EC3A
	Location Regional Groundwater Monitoring	PAGE 6 OF 6

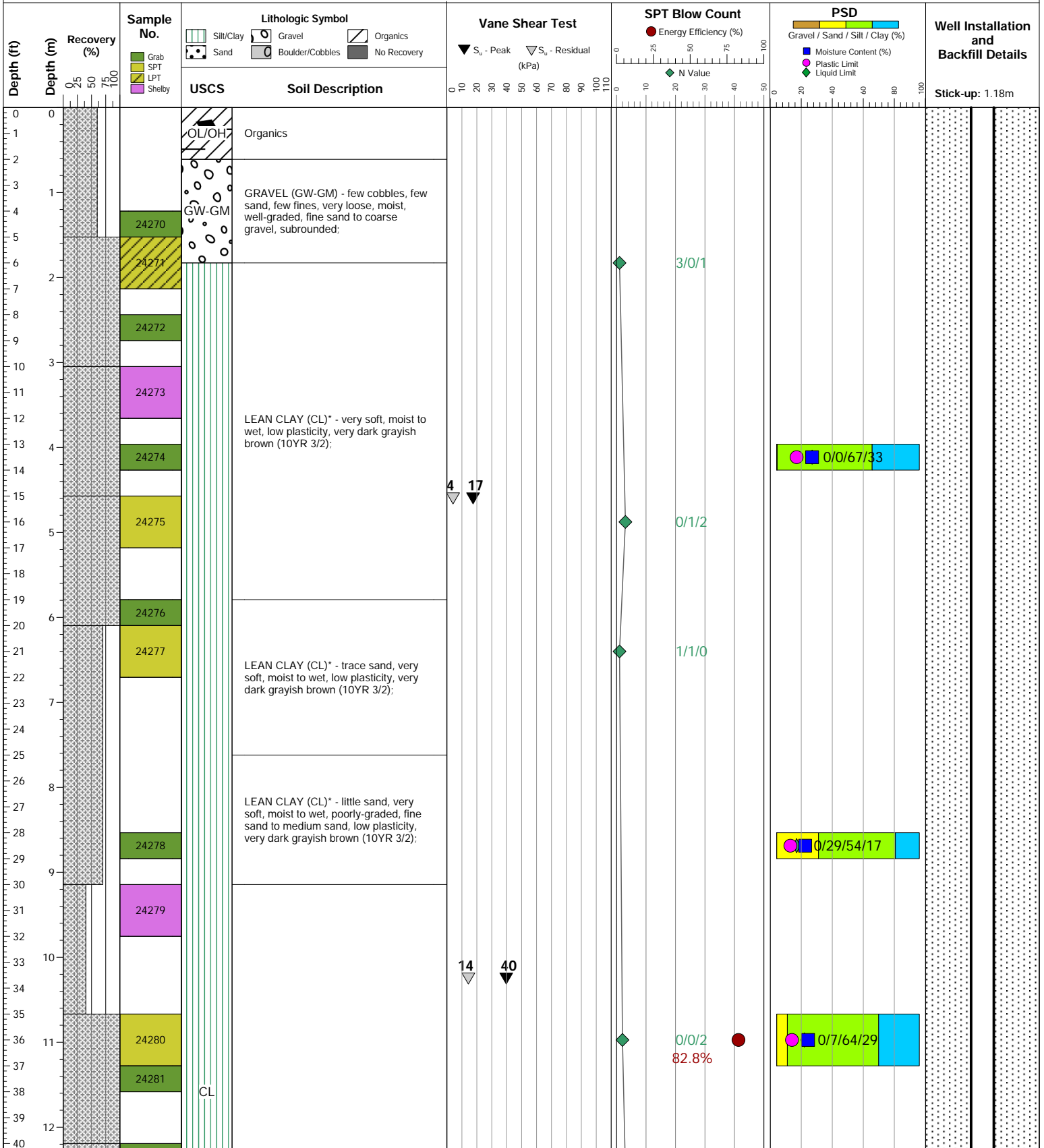
Drilling Contractor: Mud Bay Drilling Co. Ltd. Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.18 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2021 09 30 Ground Surface Elev. (m): 1331 Top of Casing Elev. (m): 1332 Northing: 5506540 Easting: 660840	Project Number: 683032 Borehole Logged By: TG Date Drilled: 2021 09 16 Log Typed By: VL
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Depth in Metres	Drilling Legend Sample Interval	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	◻ Solid PVC ◻ Slotted PVC Well Name 1: EV_MW_EC3A
	Soil Description								



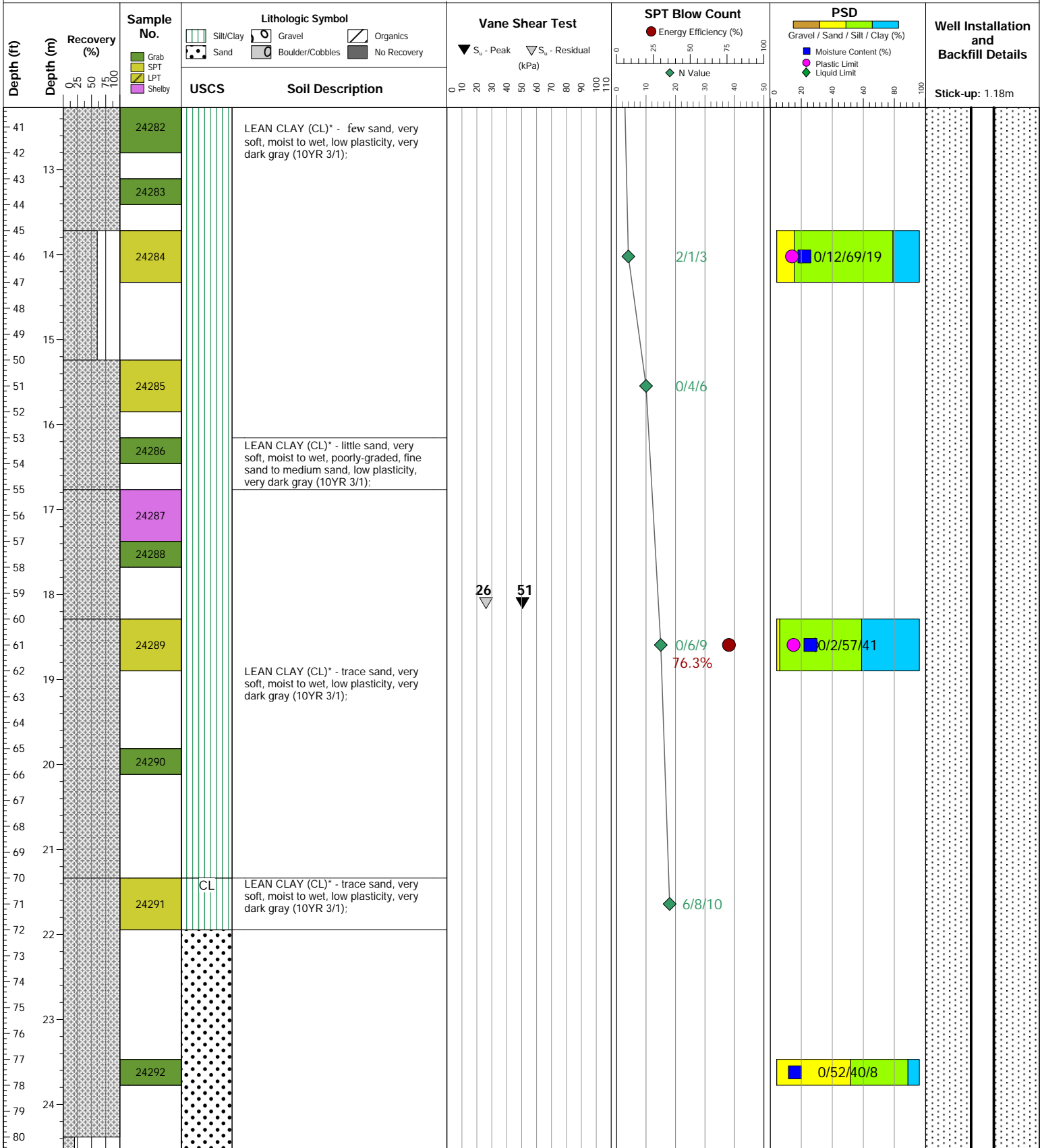
NOTES
 Borehole diameter 0.18 m to 21.3 m, 0.15 m to EOH.
 Collar location preliminary (not surveyed).

QA/QC: TG 2021.10.26 Print Date: 2021-10-26



*Description inferred after reviewing laboratory results

Well Installation Details

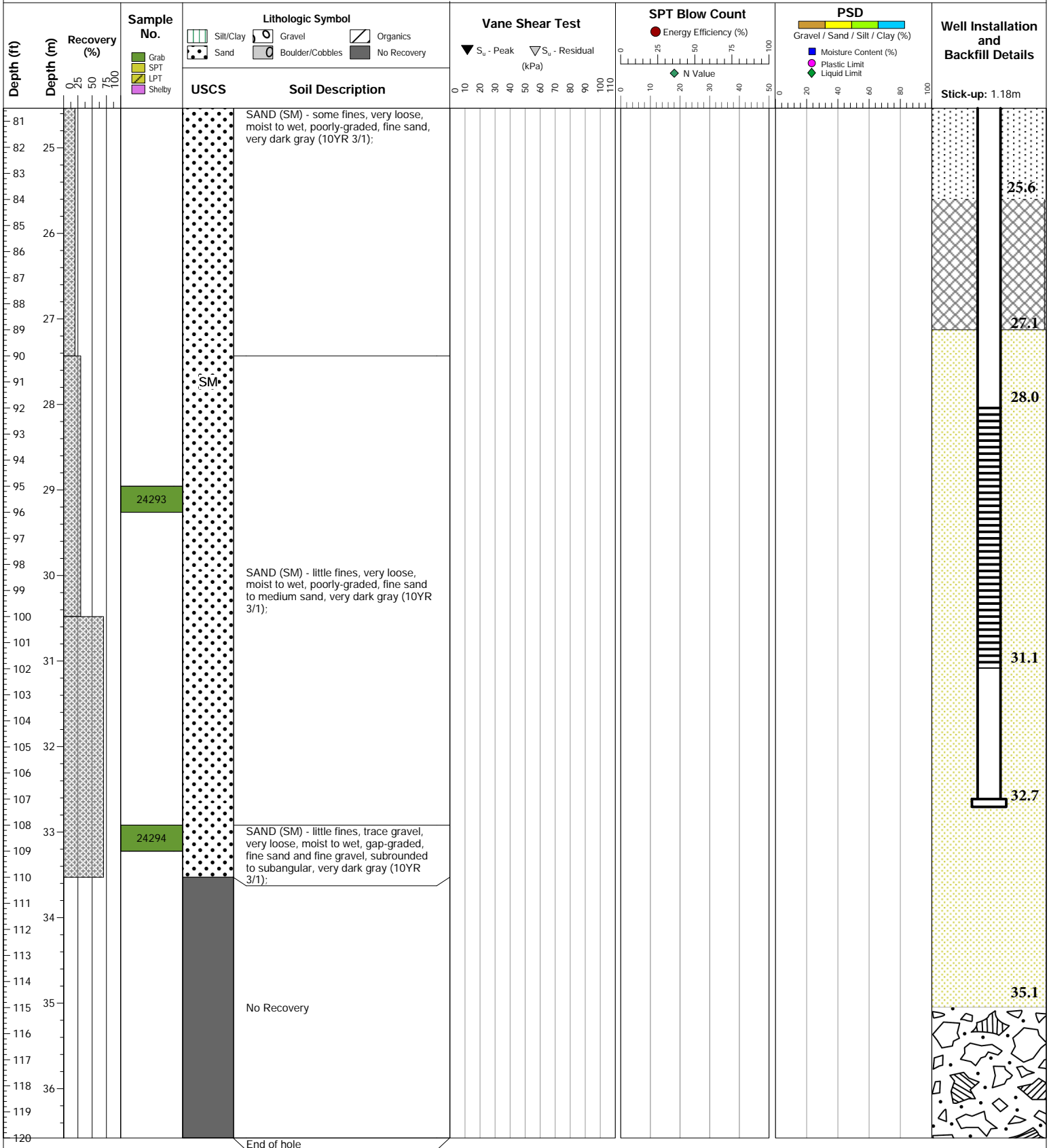



*Description inferred after reviewing laboratory results

Well Installation Details

- Sand
- Bentonite
- End Cap
- Grout
- PVC
- Screen
- Slough

EV_MW_EC3B



*Description inferred after reviewing laboratory results

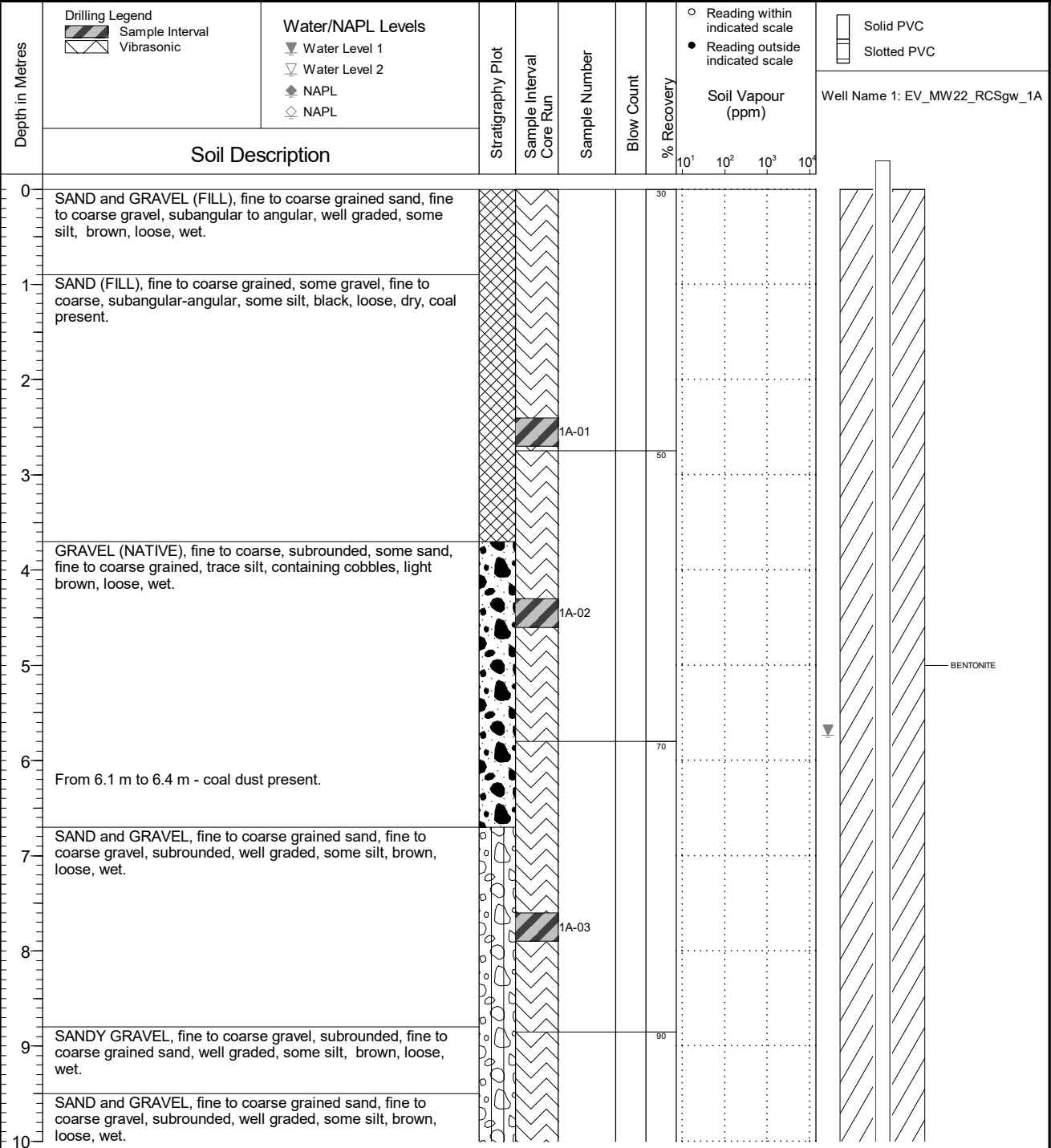
Well Installation Details

- Sand
- Bentonite
- End Cap
- Slough
- Grout
- PVC
- Screen

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1A
	Location EVO Gate and Bodie Creek	PAGE 1 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF
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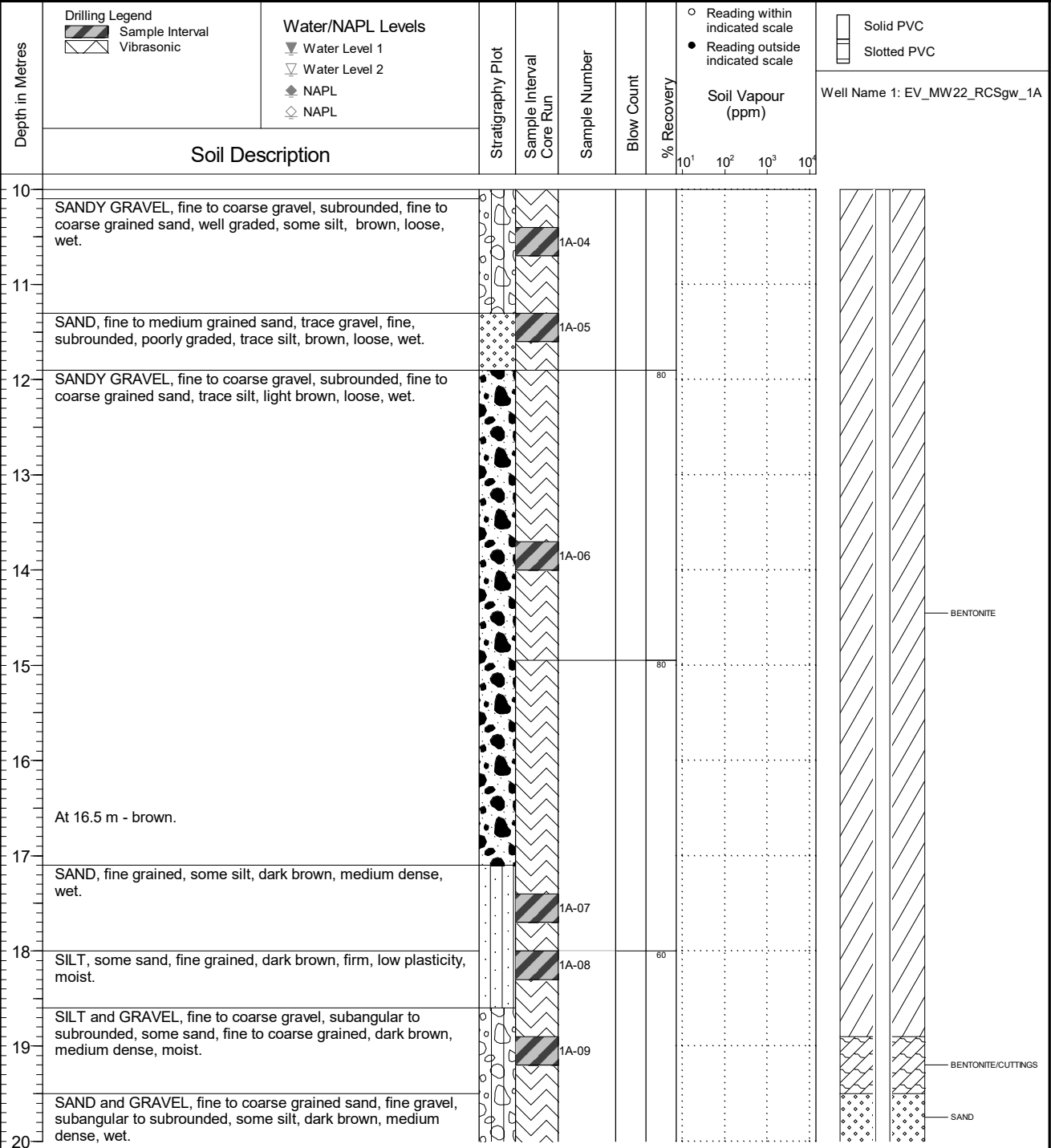


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1A
	Location EVO Gate and Bodie Creek	PAGE 2 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF
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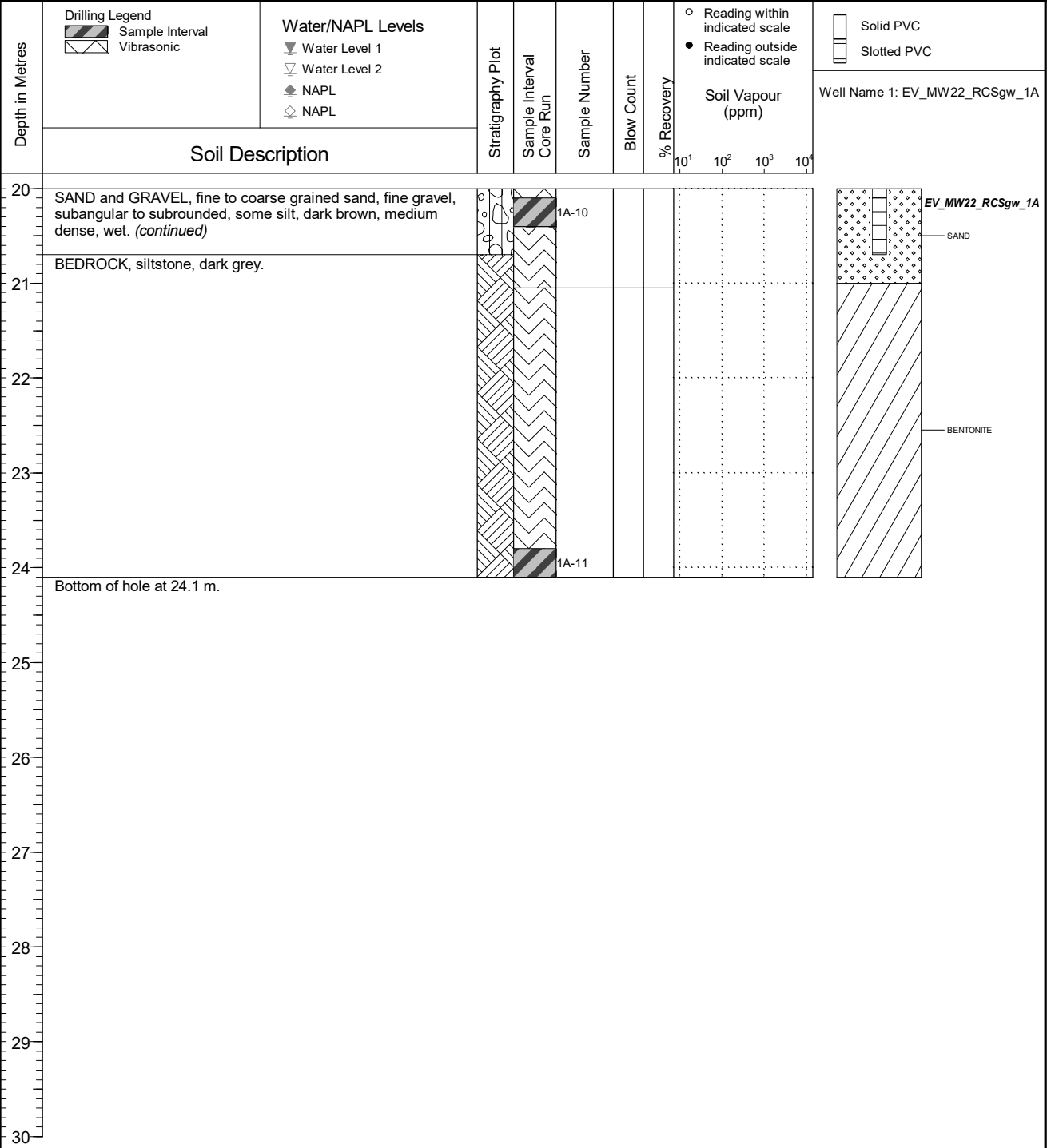


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1A
	Location EVO Gate and Bodie Creek	PAGE 3 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 28 Ground Surface Elev. (m): 1161.443 Top of Casing Elev. (m): 1162.309 1161.443 Northing: 5509281.440 Easting: 655899.329	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 16 Log Typed By: MF
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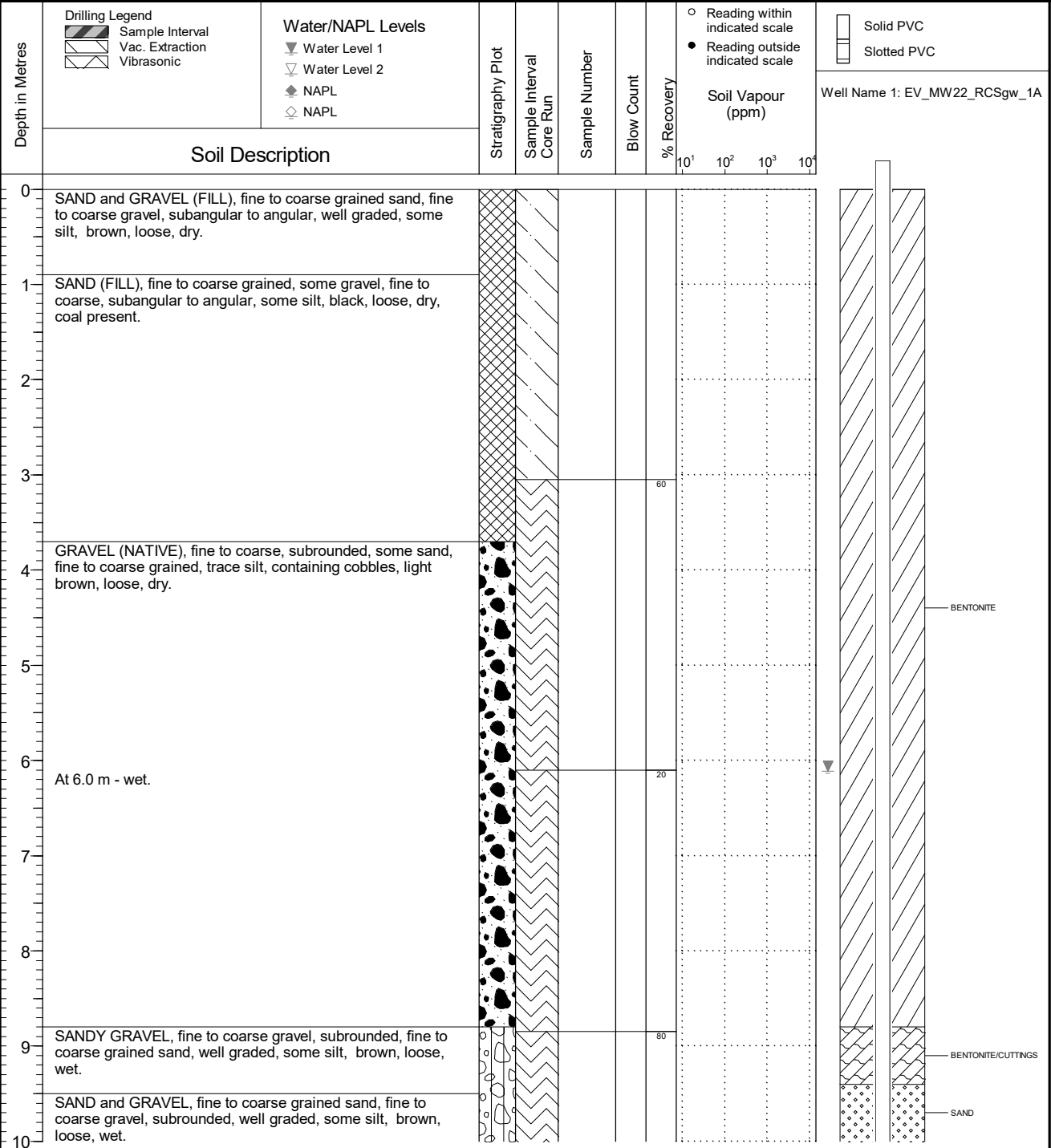


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1B
	Location EVO Gate and Bodie Creek	PAGE 1 OF 2

Drilling Contractor: Forged Drilling Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 18 Ground Surface Elev. (m): 1161.535 Top of Casing Elev. (m): 1162.394 1162.394 Northing: 5509281.058 Easting: 655901.577	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

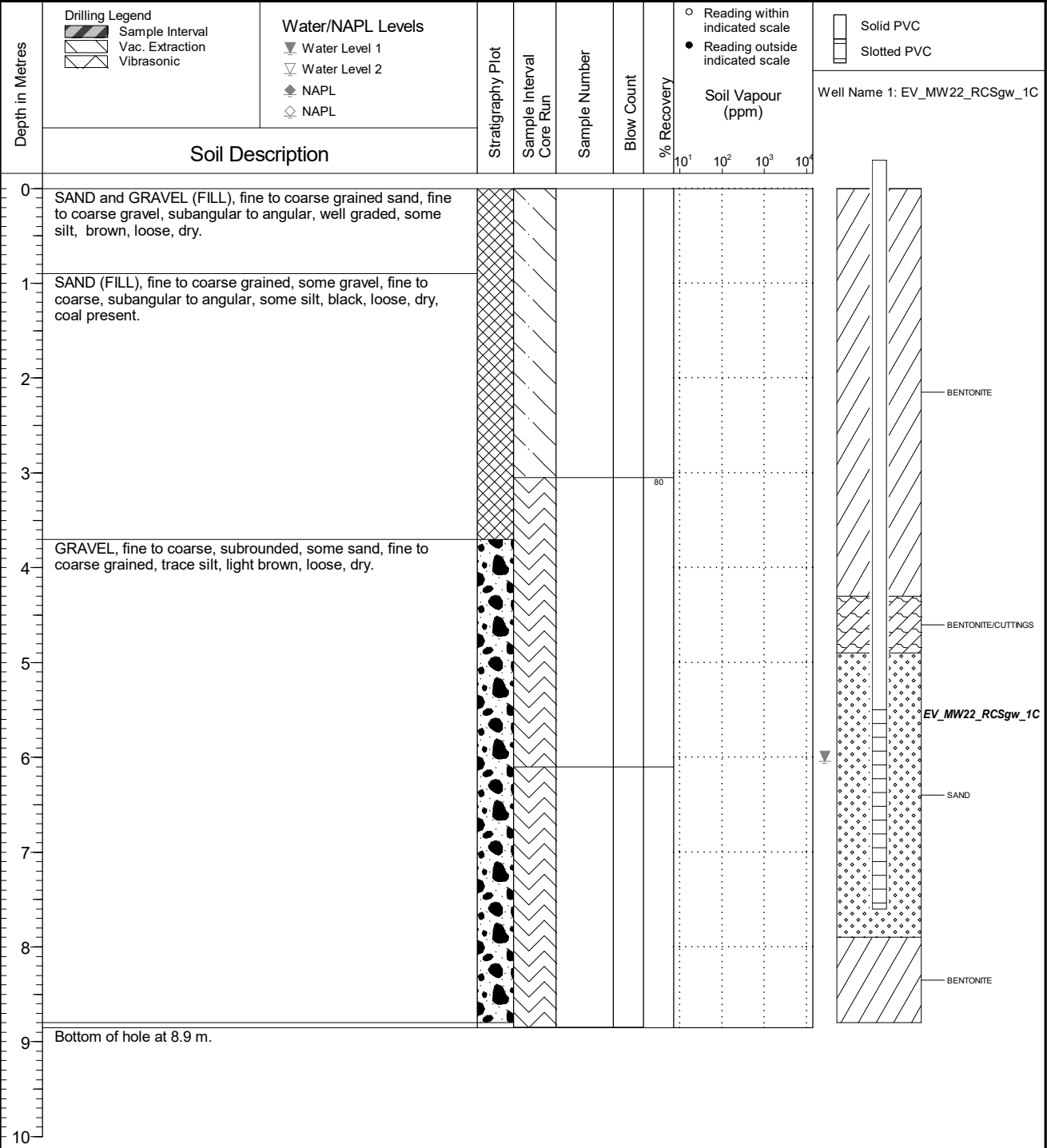
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		Client Teck Coal Limited		Borehole No. : EV_BH22_RCSgw_1B				
		Location EVO Gate and Bodie Creek		PAGE 2 OF 2				
Drilling Contractor: Forged Drilling Drilling Method: Hydrovac/Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 07 18 Ground Surface Elev. (m): 1161.535 Top of Casing Elev. (m): 1162.394 1162.394 Northing: 5509281.058 Easting: 655901.577		Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF				
Depth in Metres	Drilling Legend Sample Interval Vac. Extraction Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description		Well Name 1: EV_MW22_RCSgw_1B					
10	SANDY GRAVEL, fine to coarse gravel, subrounded, fine to coarse grained sand, well graded, some silt, brown, loose, wet.							
11	SAND, fine to medium grained, trace gravel, fine, subrounded, poorly graded, trace silt, brown, loose, wet.							
12	Bottom of hole at 11.9 m.							
13								
14								
15								
16								
17								
18								
19								
20								
NOTES Bold sample denotes sample analyzed.								

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_RCSgw_1C
	Location EVO Gate and Bodie Creek	PAGE 1 OF 1

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1161.516 Top of Casing Elev. (m): 1162.423 1161.516 Northing: 5509279.769 Easting: 655902.239	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 17 Log Typed By: MF
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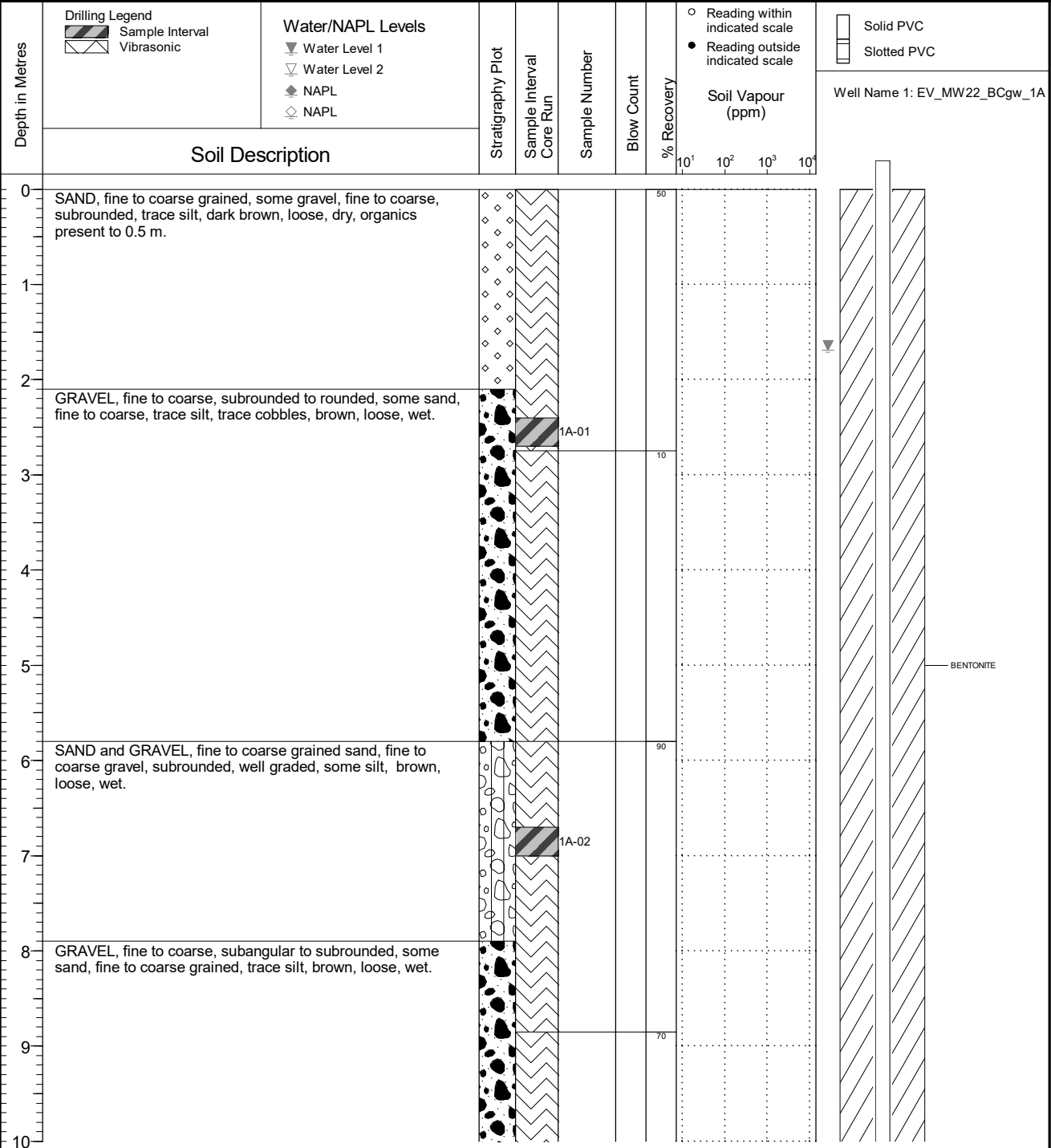


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 1 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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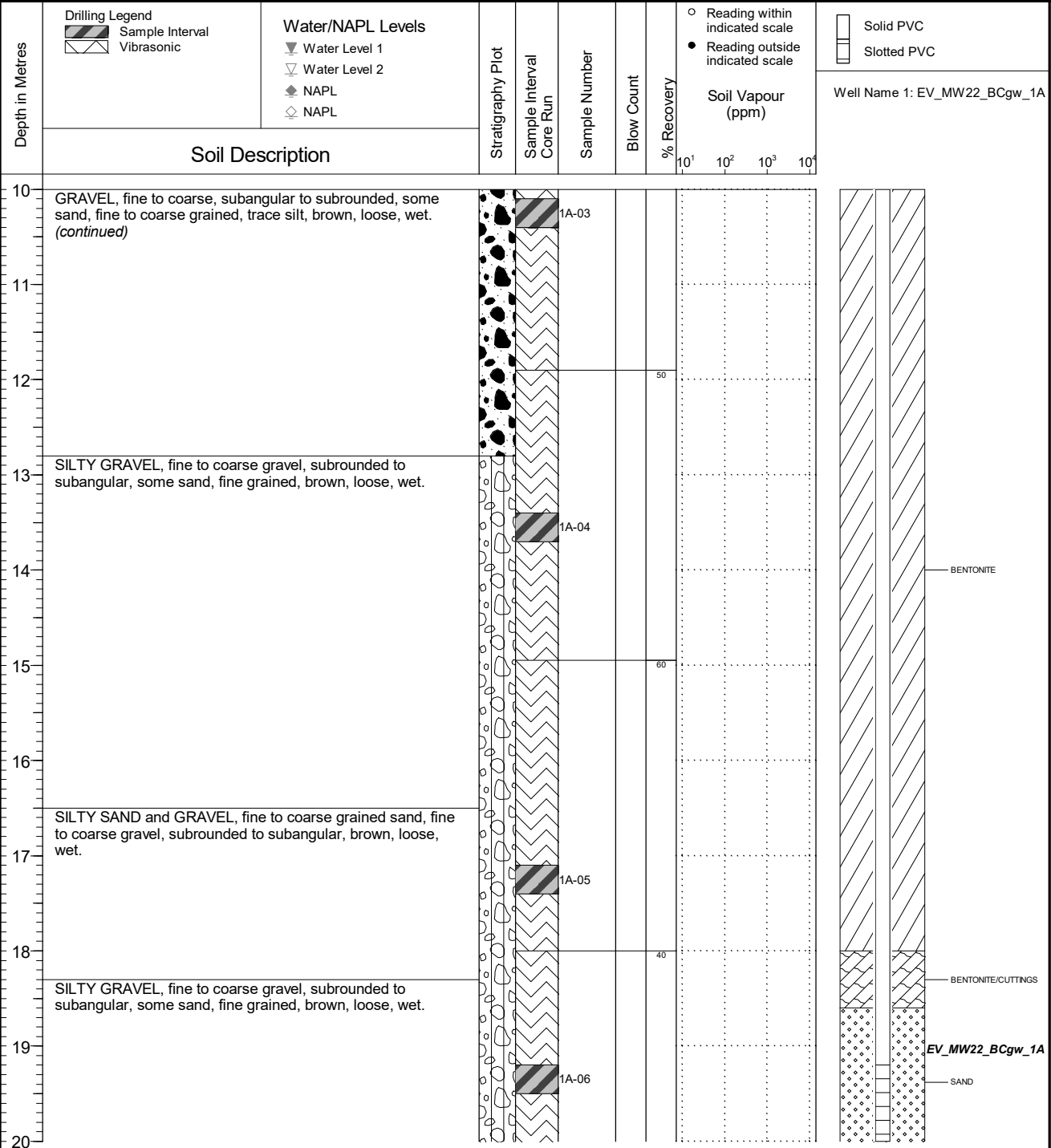


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 2 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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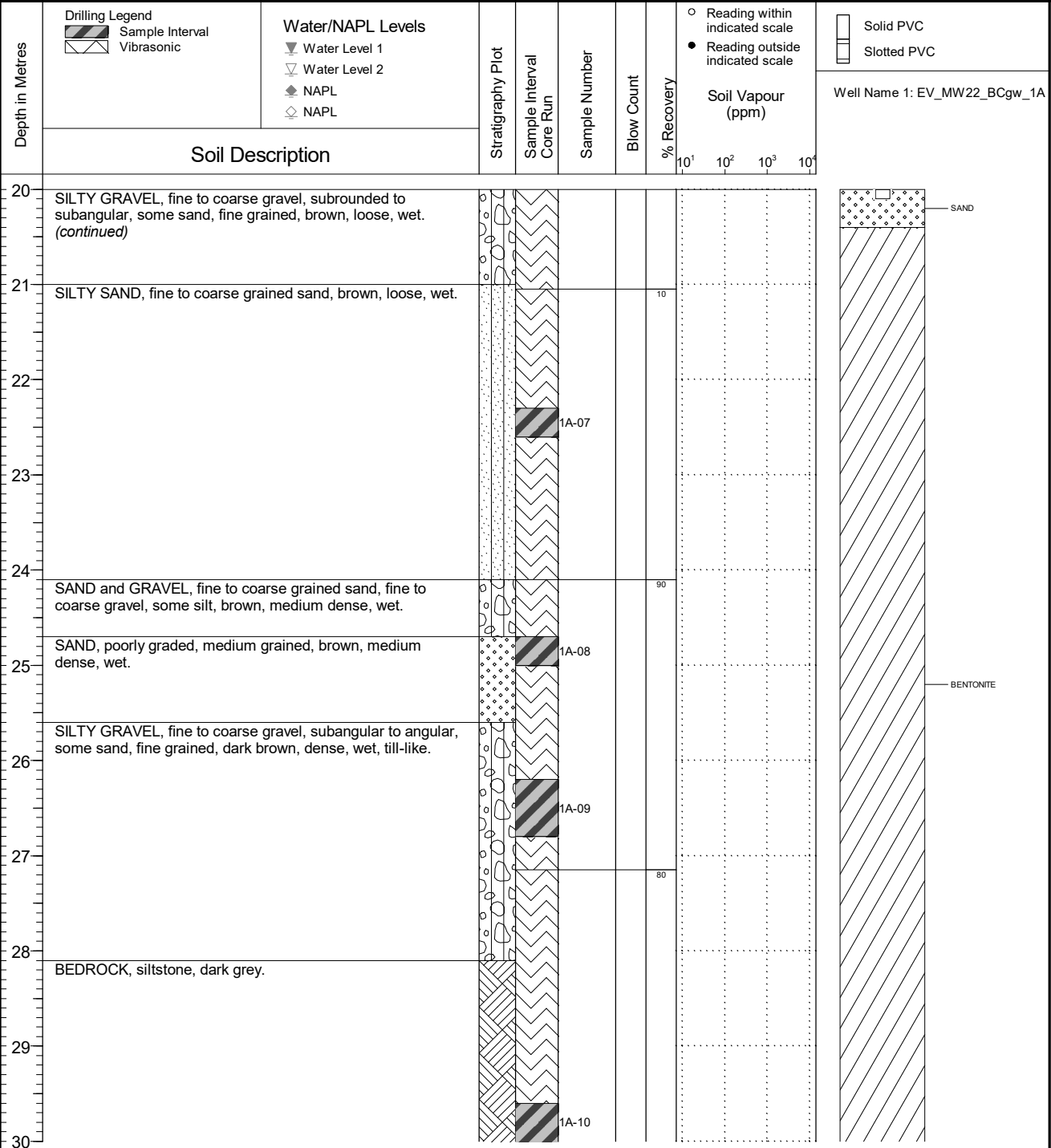


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1A
	Location EVO Gate and Bodie Creek	PAGE 3 OF 4

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

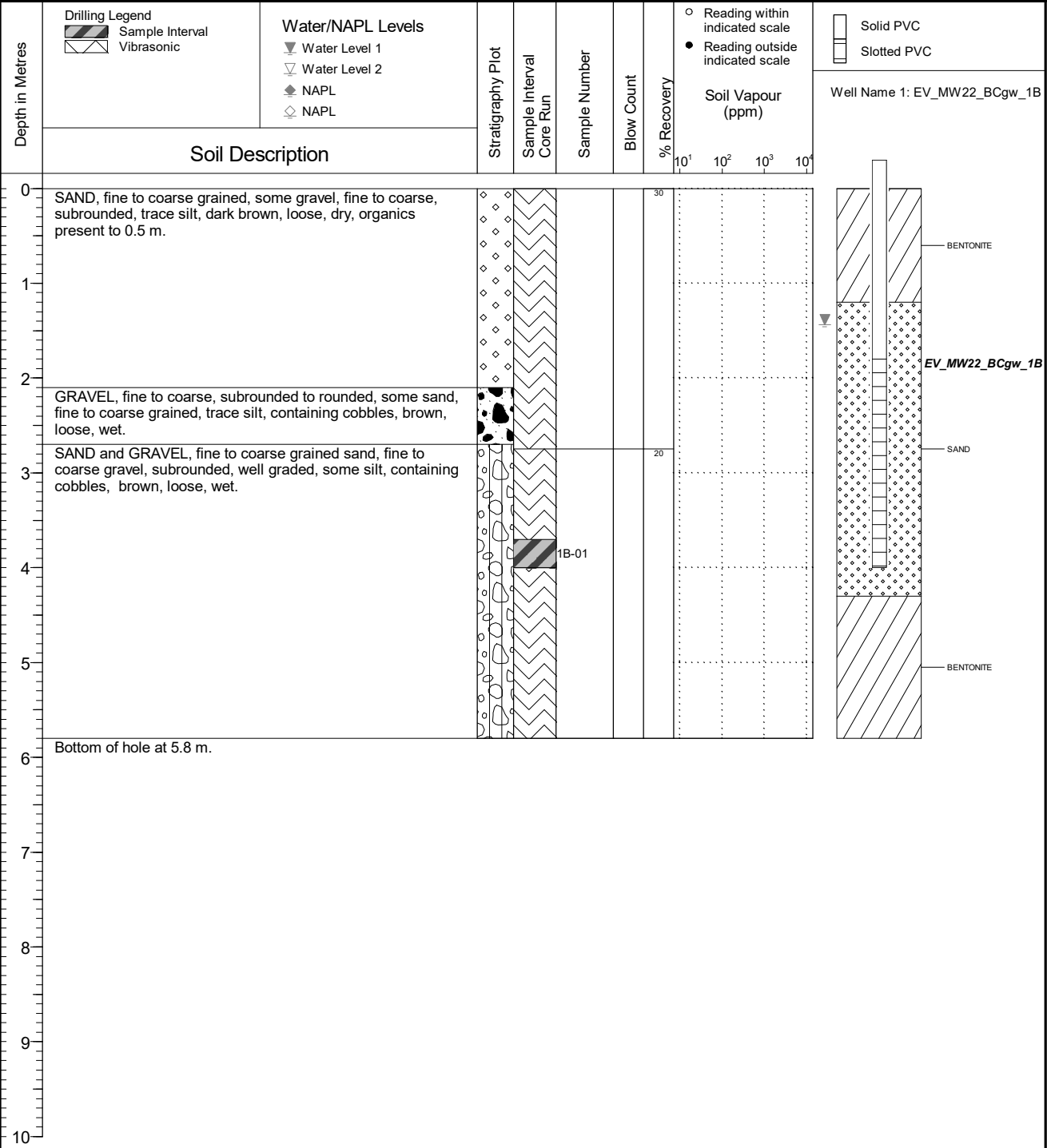
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		Client Teck Coal Limited		Borehole No. : EV_BH22_BCgw_1A					
		Location EVO Gate and Bodie Creek		PAGE 4 OF 4					
Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05		Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.260 Top of Casing Elev. (m): 1154.178 1153.26 Northing: 5509655.034 Easting: 655385.172		Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 13 Log Typed By: MF					
Depth in Metres	Drilling Legend Sample Interval Vibrasonic	Water/NAPL Levels Water Level 1 Water Level 2 NAPL NAPL	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	○ Reading within indicated scale ● Reading outside indicated scale Soil Vapour (ppm) 10 ¹ 10 ² 10 ³ 10 ⁴	Solid PVC Slotted PVC
	Soil Description								Well Name 1: EV_MW22_BCgw_1A
30	Bottom of hole at 30.2 m.			1A-10				— BENTONITE	
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
NOTES Bold sample denotes sample analyzed.									

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_BCgw_1B
	Location EVO Gate and Bodie Creek	PAGE 1 OF 1

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 14 Ground Surface Elev. (m): 1153.342 Top of Casing Elev. (m): 1154.150 1154.15 Northing: 5509656.356 Easting: 655385.552	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 14 Log Typed By: MF
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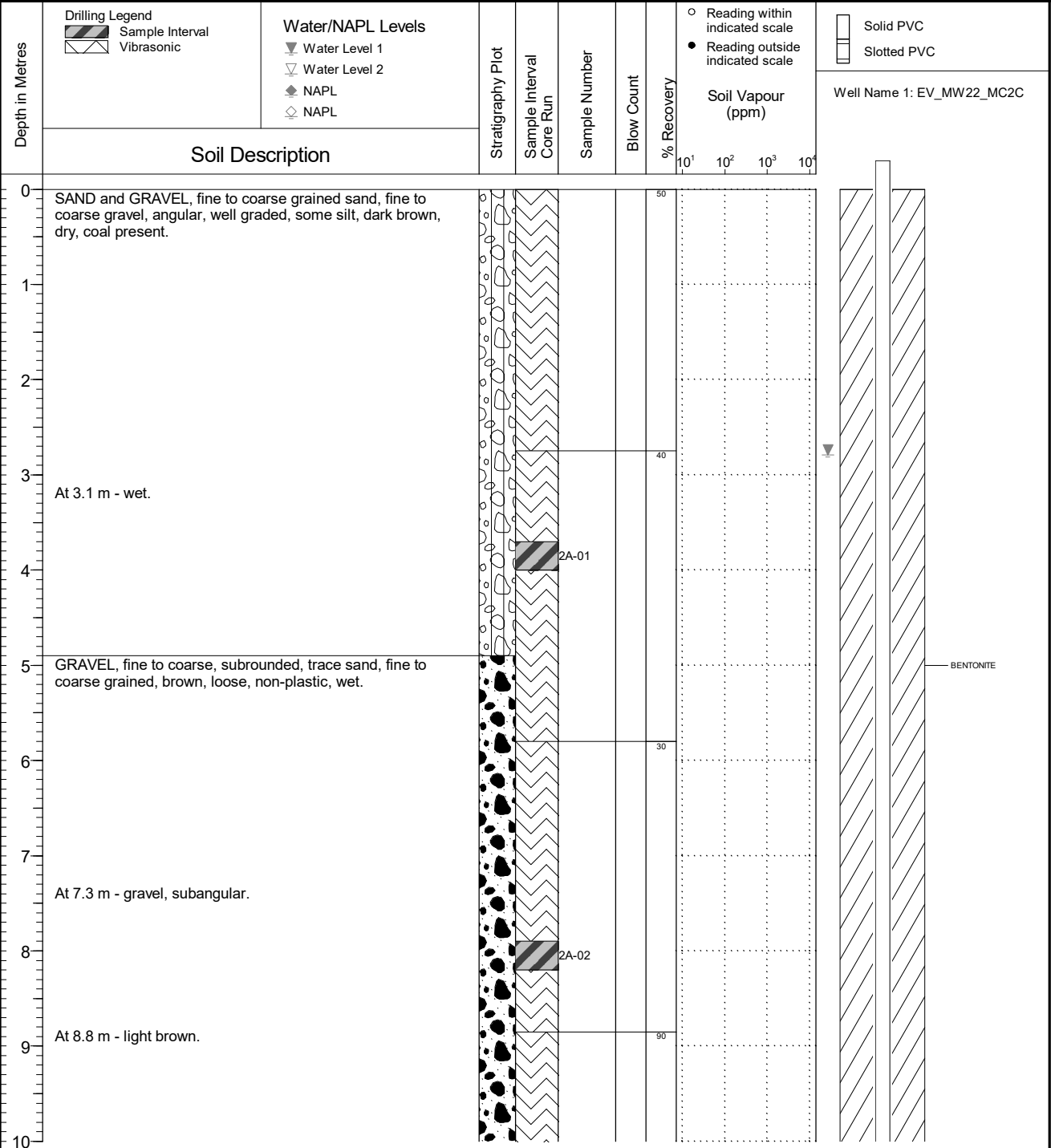


NOTES
 Bold sample denotes sample analyzed.

FINAL

SNC • LAVALIN	Client Teck Coal Limited	Borehole No. : EV_BH22_MC2C
	Location EVO Michel Creek	PAGE 1 OF 3

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 15 Ground Surface Elev. (m): 1147.018 Top of Casing Elev. (m): 1147.947 1147.018 Northing: 5510511.068 Easting: 654751.174	Project Number: 631283 Borehole Logged By: MTB Date Drilled: 2022 07 15 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Location
EVO Michel Creek

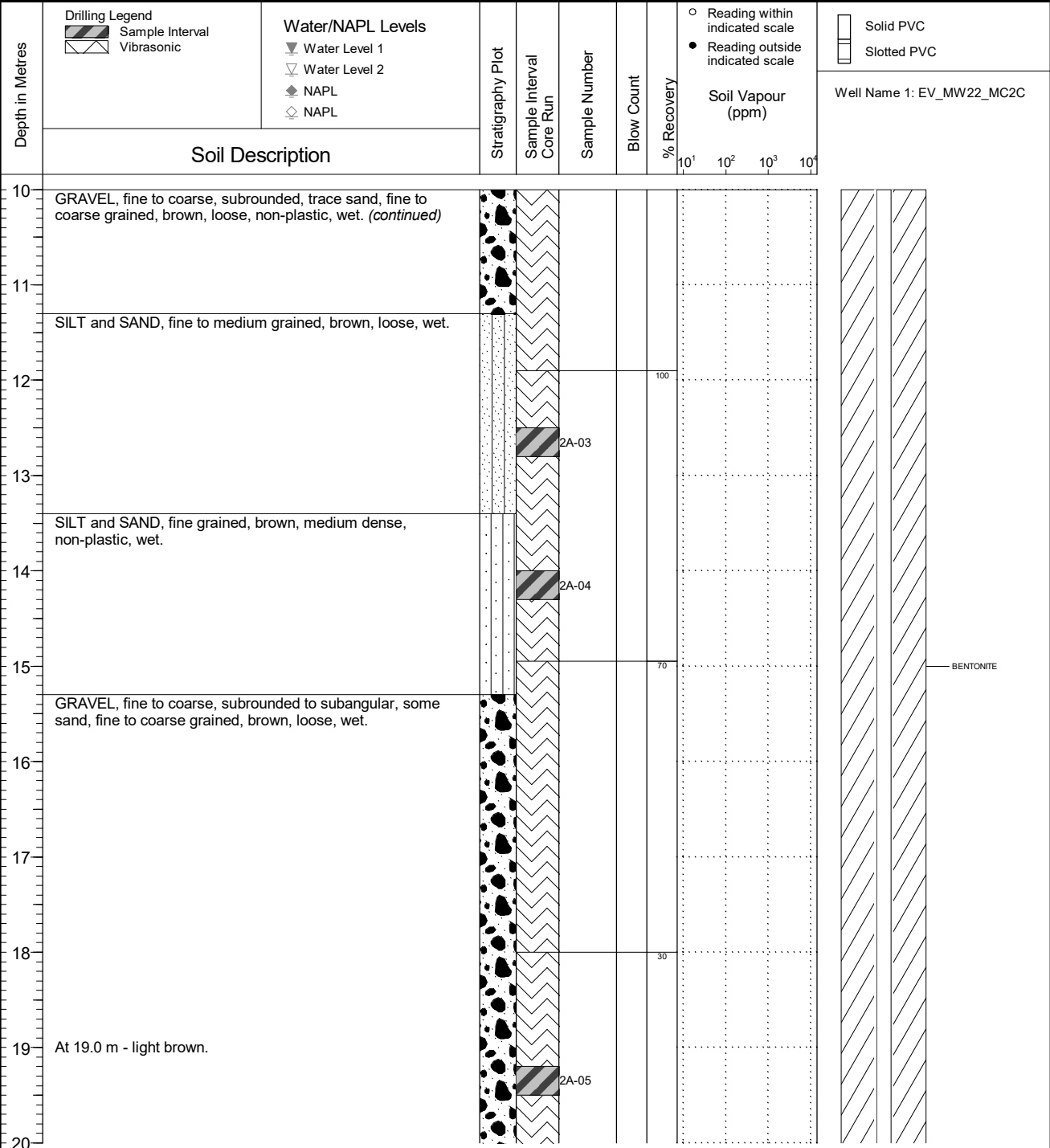
Borehole No. : EV_BH22_MC2C

PAGE 2 OF 3

Drilling Contractor Forged Drilling
 Drilling Method Vibratory Sonic
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2022 07 15
 Ground Surface Elev. (m) 1147.018
 Top of Casing Elev. (m) 1147.947 1147.018
 Northing: 5510511.068 Easting: 654751.174

Project Number: 631283
 Borehole Logged By: MTB
 Date Drilled: 2022 07 15
 Log Typed By: MF



NOTES
 Bold sample denotes sample analyzed.

FINAL



Client
Teck Coal Limited

Location
EVO Michel Creek

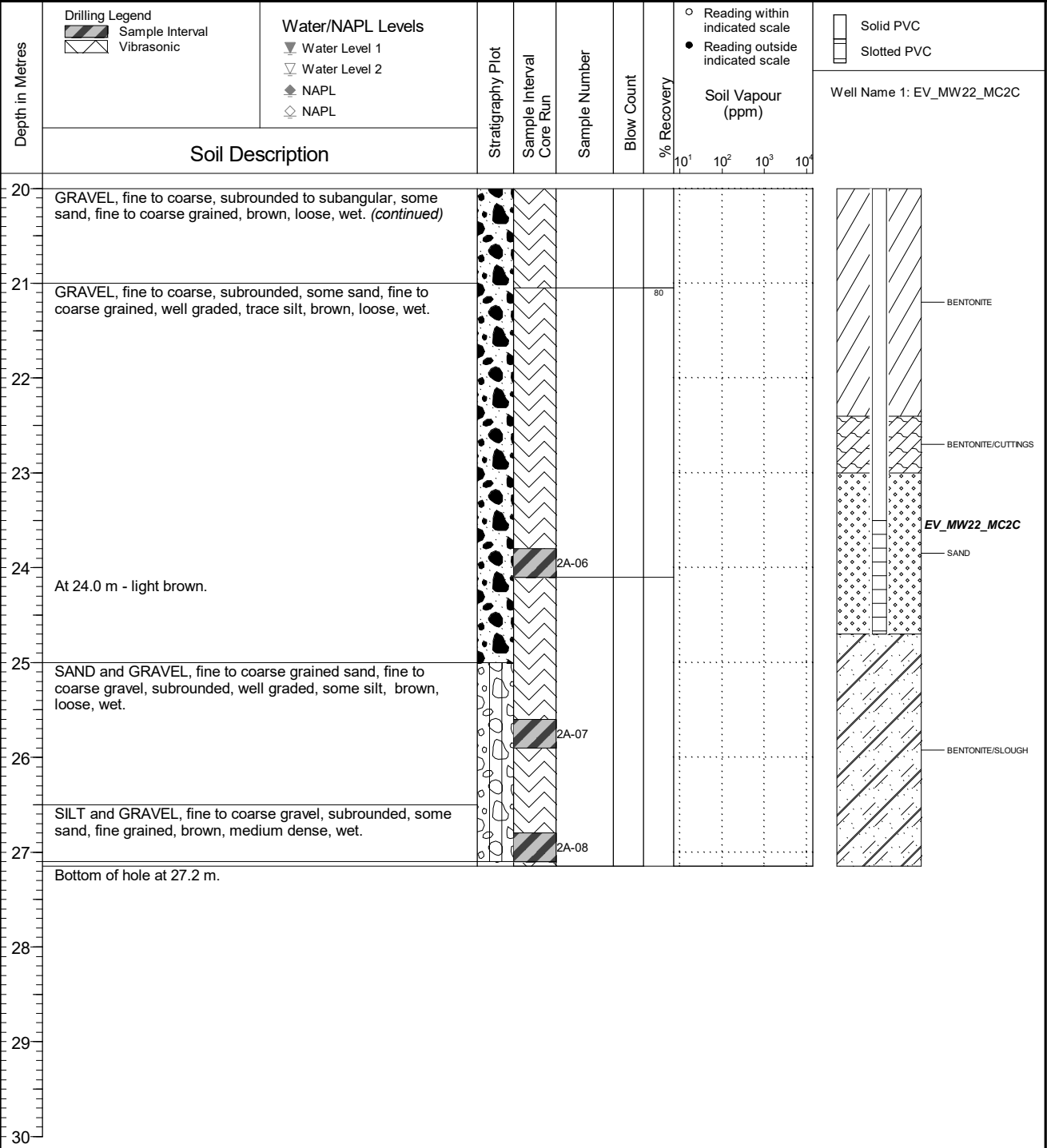
Borehole No. : EV_BH22_MC2C

PAGE 3 OF 3

Drilling Contractor Forged Drilling
 Drilling Method Vibratory Sonic
 Borehole Dia. (m) 0.15
 Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2022 07 15
 Ground Surface Elev. (m) 1147.018
 Top of Casing Elev. (m) 1147.947 1147.018
 Northing: 5510511.068 Easting: 654751.174

Project Number: 631283
 Borehole Logged By: MTB
 Date Drilled: 2022 07 15
 Log Typed By: MF

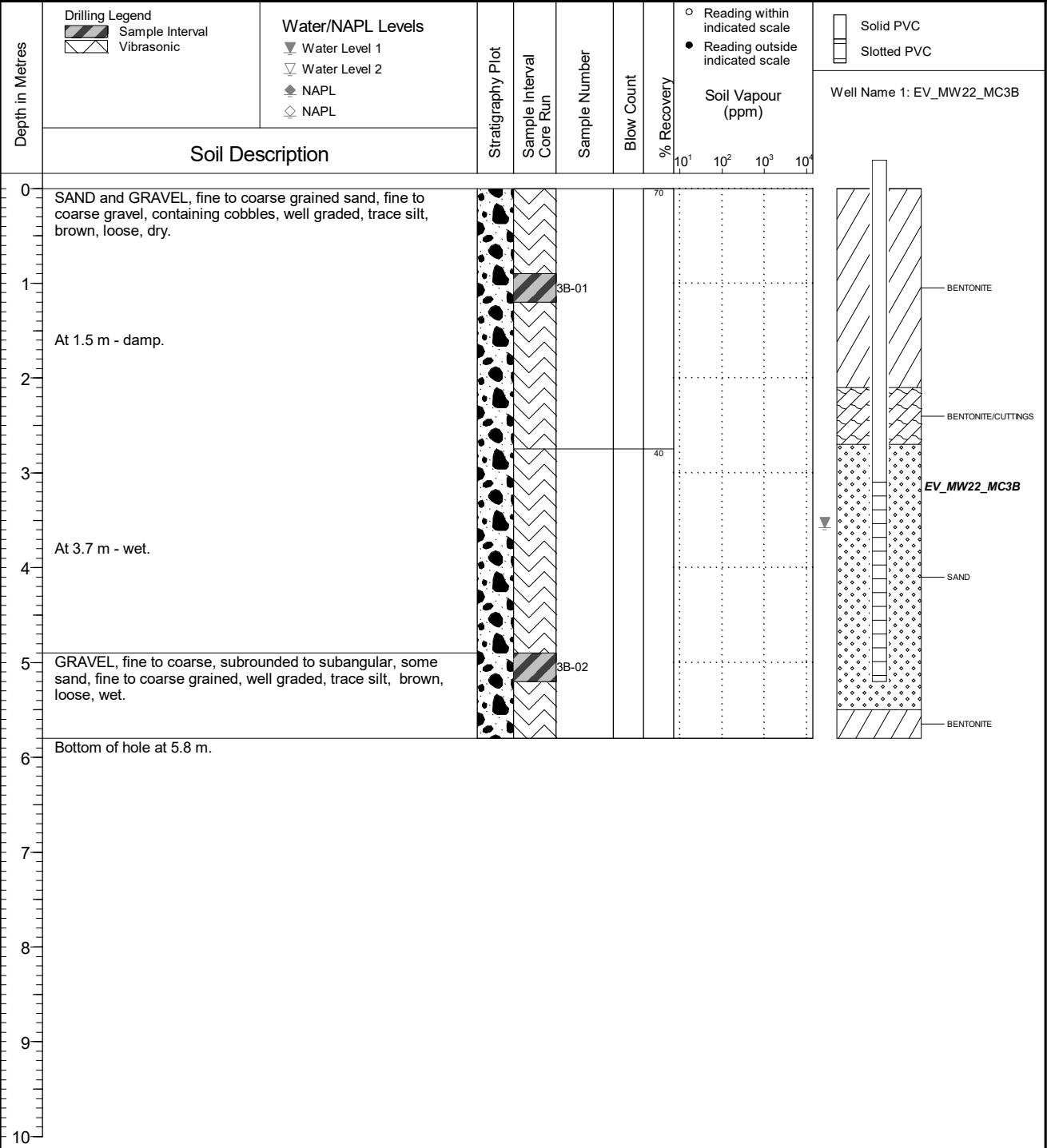


NOTES
 Bold sample denotes sample analyzed.

FINAL

	Client Teck Coal Limited	Borehole No. : EV_BH22_MC3B
	Location EVO Michel Creek	PAGE 1 OF 1

Drilling Contractor: Forged Drilling Drilling Method: Vibratory Sonic Borehole Dia. (m): 0.15 Pipe/Slotted Pipe Dia. (m): 0.05/0.05	Date Monitored: 2022 07 29 Ground Surface Elev. (m): 1137.776 Top of Casing Elev. (m): 1138.758 1137.776 Northing: 5510982.854 Easting: 653659.766	Project Number: 692054 Borehole Logged By: MTB Date Drilled: 2022 07 23 Log Typed By: MF
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NOTES
 Bold sample denotes sample analyzed.

Appendix XV

Groundwater Monitoring Study Design
Phase II LCO Monitoring Program Proposal
Permit No. 107517 (and amendments)





SNC • LAVALIN

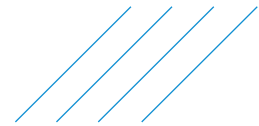
Groundwater Monitoring Study Design Phase II LCO Monitoring Program Proposal

Permit No. 107517 (and amendments)

Line Creek Operations
Elk Valley, British Columbia

March 24, 2023

SNC-Lavalin Project: 694450



Signature Page

Prepared By:

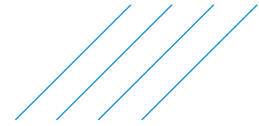
**ORIGINAL SIGNED ON
MARCH 27, 2023**

Sheila Duchek, MSc, P.Geol.
Senior Hydrogeologist
Environment Practice
Engineering Services Canada

Reviewed By:

**ORIGINAL SIGNED ON
MARCH 27, 2023**

Erin Larder, P.Eng., EP
Project Manager
Environment Practice
Engineering Services Canada



Notice to Reader

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The findings, conclusions and recommendations in this report (i) have been developed in a manner consistent with the level of skill normally exercised by professionals currently practicing under similar conditions in the area, and (ii) reflect SNC-Lavalin's best judgment based on information available at the time of preparation of this report. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our original contract and included in this report. The findings and conclusions contained in this report are valid only as of the date of this report and may be based, in part, upon information provided by others. If any of the information is inaccurate, new information is discovered, site conditions change or standards are amended, modifications to this report may be necessary. The results of this assessment should in no way be construed as a warranty that the subject site is free from any and all environmental impact.

Any soil and rock descriptions in this report and associated logs have been made with the intent of providing general information on the subsurface conditions of the site. This information should not be used as geotechnical data for any purpose unless specifically addressed in the text of this report. Groundwater conditions described in this report refer only to those observed at the location and time of observation noted in the report.

This report must be read as a whole, as sections taken out of context may be misleading. If discrepancies occur between the preliminary (draft) and final version of this report, it is the final version that takes precedence. Nothing in this report is intended to constitute or provide a legal opinion.

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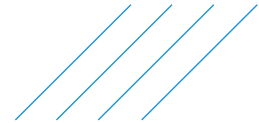


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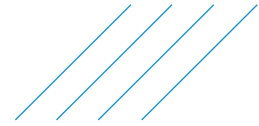
Signature Page

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In-Text Tables

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1 Introduction

This report is a groundwater monitoring program proposal specifically designed for Teck Coal Limited's (Teck) Line Creek Operation (LCO) Phase II mine area. The groundwater monitoring program proposal, which is also referred to as a Study Design, presents the proposed program intended to characterize the groundwater resource (including quality, quantity, flow characteristics, hydraulic connectivity to the affected aquifer(s) and relationship to the surface water system) and identify any potential impacts to groundwater from mining-related activities (and if identified, quantify the impacts).

1.1 Phase II Operations

LCO is a metallurgical coal mine located in the Elk Valley 25 km north of Sparwood, British Columbia in the Dry Creek, Line Creek and Elk River watersheds. Coal is recovered through traditional open pit mining techniques. The LCO Phase II footprint, which is 6 km long by 3 km wide, is presented in [Drawing LC-01 of Appendix VII](#). The Phase II area is in the LCO Dry Creek watershed on the north side of the LCO C-129 permitted mining area. The Dry Creek watershed includes a narrow valley that drains to the north and discharges to Fording River, southeast and upstream of Teck's Greenhills Operation (GHO). In the headwaters of the watershed, some former stream features are buried by waste rock and now act as rock drains. Two pits are mined: the Burnt Ridge North on the west side of the Phase II area and Mount Michael on the east side of the Phase II area. Spoil piles and various infrastructure required for mining have been or are undergoing construction. To meet surface water quality objectives for Dry Creek, the Dry Creek Water Management System was constructed in the upper portion of the valley near the confluence of Dry Creek East Tributary and LCO Dry Creek. The Dry Creek Water Management System includes a head pond, diversion structure, two sedimentation ponds, piping, and calcite treatment. The sedimentation ponds are double lined and have a leak detection system.

1.2 Objective and Scope of Work

The objective of this work is to propose an appropriate Study Design for 2023, compliant with requirements set out under Section 8.2.2.1 of the Amended Permit 107517 (current as of December 19, 2022).

To meet this objective, this report was prepared in accordance with best practices for proposed groundwater monitoring study designs, as outlined in the Water and Air Baseline Monitoring (Ministry of Environment, 2016). This study design:

1. Reviews and summarizes existing groundwater information, including groundwater surface water interactions.
2. Presents a network of monitoring locations to adequately characterize the Dry Creek area to understand and characterize impacts to groundwater from mining-related activities.
3. Provides a summary of how groundwater quantity and quality has been assessed and a summary of the quarterly data since monitoring inception.

Table 1-1, presented below, provides the requirements listed in Permit 107517, pertaining to Section 8.2.2.1. In addition, **Table 1-1** provides the location of the required information within the 2022 annual groundwater monitoring program summary ([Appendix VII](#)).

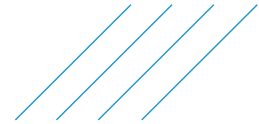


Table 1-1: Summary of Line Creek Operation Mine Phase II GWMP Permit Requirements and Report Sections

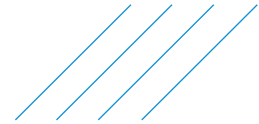
Description of Permit Requirement, Section 8.2.2.1	Relevant Report Sections
	LCO Phase II Dry Creek; Study Area 2 Appendix VII
<i>i. Characterize the groundwater resource (including water quality, quantity, flow characteristics, hydraulic conductivity of the affected aquifer(s), and relationship to surface water system).</i>	Section 1.5 of Appendix VII; Tables LC-01 to -05; Drawings LC-01 to -03, -12 to -15; Figures LC-01 to -05; Diagram LC-01; Attachment III
<i>ii. Identify (and if necessary, quantify) impacts to groundwater from mining-related activities.</i>	Section 1.5 of Appendix VII
<i>iii. Provide the information necessary to support the development and verification of water quality predictions for the mine site (as per Section 9.9 Water Quality Modelling).</i>	Tables LC-03 to -05; Attachment III

1.3 Non-compliance

Teck received correspondence from the Ministry identifying a non-compliance with Permit No. 107517. The BC ENV (2022) letter stated:

“The 2021 Regional and Site-Specific Groundwater Monitoring Report does not contain a Study Design for the next year, and no other Study Design submission for Line Creek Mine Phase II, required by this section, could be located on Ministry files. Therefore, Teck is out of compliance with the requirement to submit the study design required by this section by March 31, 2022”.

This report was also prepared to fulfill the conditions required to close this non-compliance.



2 Previous Groundwater Monitoring Programs

The LCO Site-Specific Groundwater Monitoring Program (SSGMP), which includes monitoring of the Phase II area, is completed on a quarterly-annual basis (winter, spring, summer, and fall). Groundwater monitoring has been completed in the Phase II area since 2013. The current approved 2018 SSGMP Update was approved by the Ministry of Environment & Climate Change Strategy (ENV) on March 11, 2020. The 2021 LCO SSGMP Update is currently awaiting approval from the ENV. Annual Reporting of groundwater monitoring results for the LCO include the Phase II Groundwater Monitoring Program (GWMP) and the SSGMP specified in Section 8.2.2.1 and Section 9.4.1, respectively, of Amended Permit 107517.

Since 2013, groundwater conditions (quality and groundwater elevations) from the LCO Phase II area have been assessed under the annual groundwater monitoring evaluation of the LCO Dry Creek area. Reports that summarize annual groundwater monitoring results, including the LCO Phase II area, are presented in **Table 2-1**.

Table 2-1: Reports Summarizing Groundwater Monitoring Programs of the LCO Phase II Area

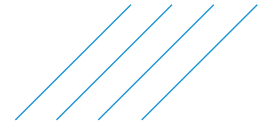
Report Year	Report Title	Qualified Professional
2016	2015 LCO Site Annual Groundwater Monitoring Report	Golder Associates Ltd.
2017	2016 LCO Site Annual Groundwater Monitoring Report	Golder Associates Ltd.
2018	2017 LCO Site Wide Annual Groundwater Monitoring Report	Golder Associates Ltd.
2019	Site-Specific Groundwater Monitoring: 2018 Annual Monitoring Report (Line Creek Operations)	Golder Associates Ltd.
2020	Line Creek Operations Site-Specific Groundwater Monitoring (2019)	Golder Associates Ltd.
2021	2020 Annual Report: Elk Valley Regional and Site-Specific Groundwater Monitoring Programs (includes LCO)	SNC-Lavalin Inc.
2022	2021 Annual Report: Elk Valley Regional and Site-Specific Groundwater Monitoring Programs (includes LCO)	SNC-Lavalin Inc.

In addition, the regional groundwater monitoring program for Teck’s Elk Valley operations (the RGMP) has eleven Study Areas to specifically address regional scale groundwater monitoring. RGMP Study Area 2 is located adjacent to the northern extent of the Phase II area. Monitoring results from eight wells at five locations (including three well clusters) are used to evaluate groundwater conditions. Monitoring results from five surface water stations are also considered in the groundwater assessment.

2.1.1 SSGMP Results from 2022

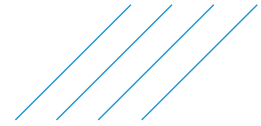
The 2022 LCO SSGMP results for the Dry Creek area, which coincides with the LCO Phase II area, are presented in [Appendix VII](#).

The Phase II area is in the LCO Dry Creek watershed, which discharges to Fording River. In the headwaters, former stream features buried by waste rock act as rock drains. Water management infrastructure (i.e., settling ponds) have been constructed in the upper portion of the valley near the confluence of Dry Creek East Tributary and LCO Dry Creek.



In the upper portion of the watershed, artesian conditions were noted in 2022 during freshet. Groundwater elevations have historically been the highest during freshet and variations in vertical gradients may seasonally occur. All concentrations of order constituents (OCs) were less than primary screening criteria. Non-OC concentrations above primary screening criteria included molybdenum, barium, and lithium which may be associated with background conditions. An increasing nitrate trend (LC_PIZDC1306) and a probable increasing cadmium trend (LC_PIZDC0901) were noted but at concentrations below primary screening criteria. Groundwater quality is generally consistent with non-contact waters, except for potential mixing of mine-influenced waters from waste rock at LC_PIZDC1306. LC_PIZDC1306 is a shallow well adjacent to a pond diversion structure near the headwaters of LCO Dry Creek.

In the lower portion of the watershed, a well cluster consisting of two wells has been installed near the valley outlet. The shallow well (RG_MW_DC1B) is screened in the alluvial deposits while the deeper well (RG_MW_DC1A) is screened below a confining unit. Similar to 2021, flowing artesian conditions were observed at RG_MW_DC1A. The concentration of OCs at these wells were one to two orders of magnitude lower compared to surface water quality in LCO Dry Creek as measured at LC_DC1 (a surface water station in Dry Creek). Mine influence is not suspected in groundwater in this area given the low OC concentrations and analytical results below primary screening criteria.



3 Physical Setting and Hydrology

The framework for the study design for the LCO Phase II area groundwater monitoring program was based on the conceptual site model (CSM) presented in the approved 2018 SSGMP Update (Golder, 2019b), the approved 2020 RGMP Update (SNC-Lavalin, 2020) and the 2021 SSGMP Update (SNC-Lavalin, 2021b; awaiting approval). The CSMs include descriptions of the physical setting, hydrology, geology, mine-related features, physical hydrogeology, and chemical hydrogeology, and present detailed analysis and interpretation of groundwater flow patterns, groundwater geochemistry, groundwater – surface water interactions and potential sources and transport pathways of OCs (nitrate, sulphate, cadmium, and selenium) in groundwater to the main stem valley bottoms (e.g., valleys containing the Fording River and Elk River).

In addition, a general overview of the hydrogeologic setting for the Phase II geographical area is provided within the Main Report, with reference to hydrogeological cross-sections presented on Drawings LC-03 of [Appendix VII](#) and block diagrams, as well as geologic mapping included in the Main Report.

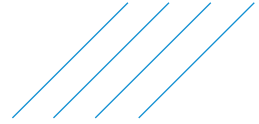
The Dry Creek area consists of Lower and Upper Dry Creek watersheds. Dry Creek flows to the northern end of the Phase II mining area and discharges to the Fording River, southeast of GHO. The drainage area associated with Dry Creek contains waste rock from the LCO Phase II area. A flow accretion study at Dry Creek (Golder, 2020) indicated flows from the drainage headwaters (LC_DC3) contribute to a losing reach from the Dry Creek East Tributary confluence (LC_DCDS) with Dry Creek. Downstream of this location, the reach is then gaining or neutral until to nearly the confluence with Fording River. Golder (2020) indicated upwards gradients may have contributed to gaining reaches of the creek; however, two relatively large tributary drainages to the east also join Dry Creek over this reach, which likely also supplement overall flows.

As the drainage contains Phase II spoils, surface water in Dry Creek is considered mine-affected, as concentrations of dissolved selenium, nitrate-N, and sulphate have been noted to be increasing by Golder (2020). All concentrations of OCs were less than primary screening criteria. An increasing nitrate trend and a probable increasing cadmium trend were noted but at concentrations below primary screening criteria. Groundwater quality has been generally consistent with non-contact waters, except for potential mixing of mine-influenced waters from waste rock at LC_PIZDC1306.

3.1 Geology and Hydrogeology

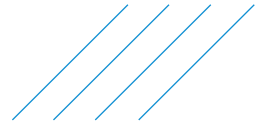
Sedimentary bedrock belonging to the Kootenay Group underlies the upper portion of the Dry Creek watershed (Main Report, [Drawing 3](#)). Dry Creek roughly parallels the axis of the Alexander Syncline and the subcropping bedrock is Kootenay Group (mostly the Elk Fm). The Elk Fm comprises sandstone, siltstone, mudstone, rare conglomerate, and coal. None of the wells installed in the Dry Creek watershed, prior to 2022, have been advanced to bedrock. For example, near the confluence of Dry Creek and the Fording River, monitoring well RG_MW_DC1A was advanced to a depth of 21 metres below ground surface (mbgs) and farther upstream along Dry Creek, monitoring well LC_PIZDC1404D was advanced to 35.3 mbgs without encountering bedrock.

Dry Creek drains a formerly glaciated valley that is predominantly blanketed with low permeability till and colluvium near the valley flanks. It flows over the Dry Creek alluvial fan before reaching the Fording River floodplain (SNC-Lavalin, 2020) and fluvial deposits have been mapped near the Dry Creek – Fording River confluence. As illustrated on cross section LA-LA' (Drawing LC-03 of Appendix VII) and borehole logs, the surficial geology is primarily fine-grained and continuous.



Available site-specific bedrock hydrogeology information is limited for the Dry Creek area. Seasonal artesian conditions occur in the upper drainage of Dry Creek and significant fluctuations in groundwater surface elevations have been noted in deeper wells (such as LC_PIZDC1307).

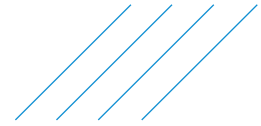
In Q1 of 2023, a monitoring well cluster of 4 wells (LC_MW23_DCDS_1A/B/C/D) was drilled and installed. Two wells were installed in bedrock formations, LC_MW23_DCDS1A was completed in competent siltstone and LC_MW23_DCDS1B was completed in weathered sandstone overlying the competent bedrock. These new wells are being monitored and sampled and will undergo evaluation for inclusion in the LCO SSGMP, once sufficient data has been acquired and assessed.



4 Site Activities

The primary sources of impacts to groundwater quality include:

- Leachate from spoil piles, including any oxygenated precipitation that passes through the spoil piles and discharges into surface water.
- Pit lakes that form in the mined pits, where coal and other formation rock is exposed to both atmospheric oxygen and moisture.
- Any location where mine-affected surface water of unacceptable quality (especially with respect to OCs) has the potential to infiltrate into groundwater, such as losing reaches of creeks and rivers.



5 Proposed Groundwater Monitoring Program

5.1 Existing Groundwater Monitoring Network

The groundwater monitoring network for LCO Phase II area is presented on [Drawing LC-01 of Appendix VII](#). Within the Phase II area, groundwater wells installed near the Dry Creek settling ponds are within Upper LCO Dry Creek, while wells near the valley outlet are included in Lower LCO Dry Creek. RGMP Study Area 2 is in the Fording River valley bottom and is closest to Lower LCO Dry Creek.

The 2021 SSGMP Update (SNC-Lavalin, 2021b) included a thorough groundwater monitoring program assessment for the LCO Dry Creek Phase II mining area. The Update outlined hydrogeological characteristics of the Dry Creek surface water drainage area, which is the capture area downgradient of the LCO Phase II spoils area. Relevant hydrogeological information provided in that update included hydraulic conductivity values, gradients, groundwater velocity and flow direction and groundwater – surface water interaction information (SNC-Lavalin, 2021b).

Currently, the monitoring network within the Dry Creek area includes monitoring locations:

- Groundwater: LC_PIZDC0901, LC_PIZDC1306, LC_PIZDC1307, LC_PIZDC1308, LC_PIZDC1404S/D;
- Seep: LC_SEEP8;
- Surface Water: LC_DC1, LC_DC3, LC_FRDSDC; and
- Other Relevant Monitoring Locations, including wells under evaluation: RG_MW_DC1A/B.

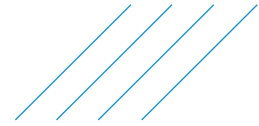
In addition, investigations have been conducted in Q1 of 2023, where monitoring wells (LC_MW23_DCDS_1A/B/C/D) were drilled and completed to provide further characterization, including improving understanding of bedrock (lithified strata) groundwater zones. Further details regarding the 2023 drilling program will be provided to ENV when the data has been compiled, reviewed, and evaluated.

5.2 Proposed Groundwater Monitoring and Sampling Protocols

The *Groundwater Monitoring Program Study Design* has been prepared as an operational program, and was designed to characterize groundwater at the Site, and screen for potential impacts to groundwater from LCO mining activities. Proposed sampling locations and laboratory analyses are based on the current operation, including the current mining footprint and benchmark data provided by the Background Assessment (BGA SNC-Lavalin, 2020) to assess OC parameters.

5.2.1 Groundwater Sampling Methods

The protocols regarding sample collection, sample integrity, and sample storage are presented in [Appendix XI of the Main Report](#). These protocols are consistent with the British Columbia Field Sampling Manual (BCFSM) Parts A and E (BC MOE, 2013a, b) as required in Permit 107517. A consistent general methodology will be followed for each location by adhering to Teck's updated Standard Practices and Procedures (SP&Ps) for water level measurements, well purging and groundwater sampling (TC_GW-01, TC_GW-02; Attachment 1). Field activities will be conducted in accordance with industry accepted



practices and Teck SP&Ps. Combined, these procedures are designed to obtain consistent and representative data, minimize cross-contamination, and ensure the health and safety of all parties.

5.2.2 Sampling Frequency

Sampling frequency for the LCO SSGMP is presented in [Appendix XI of the Main Report](#). Permit 107517 prescribes a minimum quarterly sampling frequency after well installation, to assess seasonal variability of groundwater conditions, which is consistent with the BC Ministry of Environment & Climate Change Strategy (ENV) Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016).

5.2.3 Analytical Parameters

A list of analytes is appended to the Main Report in [Appendix X of the Main Report](#). Groundwater will be analyzed for select constituents from the core list of general water quality analytes provided in Table 2 of the BC ENV's Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016). Minimum detection limits for each parameter are suitable for comparison to the screening criteria. The list of recommended constituents, detection limits, and rationale is presented in the 2018 SSGMP Update report (Golder, 2019b).

5.3 Proposed Groundwater Quality Standards

Groundwater quality data will be screened against different criteria based on applicable receptors. A technically based screening process was described in both the 2021 SSGMP Update (SNC-Lavalin, 2021b) and the 2020 RGMP Update (SNC-Lavalin, 2020). Primary and secondary screening criteria may be evaluated and adjusted, based on the needs and requirements for other programs.

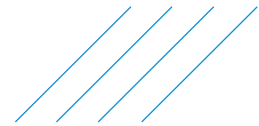
The primary screening criteria provide the main indicators for groundwater quality, and the approach is consistent with regulatory guidance, including Technical Guidance Document 6 (TG 6): *Assessment of Hydraulic Properties for Water Use Determination* (BC MOE, 2015) for EMA Applications and Technical Guidance Document 15 (TG 15): *Concentration Limits for the Protection of Aquatic Receiving Environments* (BC ENV, 2017).

Groundwater analytical chemistry will be compared to a secondary screening criterion for aquatic life when concentrations of dissolved selenium are above the primary screening criteria. The secondary screening criterion provides context for Teck's operational surface water quality requirements, as well as a technical-based framework for regional evaluation of groundwater to protect aquatic life in the Elk Valley.

A description of the groundwater quality standards is provided in [Section 2.1 of the Main Report](#).

5.4 Program Schedule

Following submission of this study design groundwater monitoring proposal, the program will be implemented as outlined herein. If any changes are required, the requested changes should be communicated to Teck early enough, so the requests can be implemented into the monitoring program. If no communication is received, Teck will assume the study design is deemed satisfactory and has ENV approval.



6 References

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- British Columbia Ministry of Environment (BC MOE). 2013b. Part E Ambient Freshwater and Effluent Sampling. British Columbia Field Sampling Manual. 2013.
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- SNC-Lavalin Inc. (SNC-Lavalin). 2021b. 2021 Site-specific Groundwater Monitoring Program Update (2021 SSGMP Update). Prepared for Teck Coal Limited. October 31, 2021.
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