

Director General
Department administering the *Environmental Protection Act 1986*
Locked Bag 10
Joondalup DC WA 6919
info@dwer.wa.gov.au

RE: Environmental Compliance Report for W6504/2021/1 – Monitoring Bores

This Environmental Compliance Report has been prepared by Norton Gold Fields Pty Limited (Norton) to detail compliance with Condition 5 (Compliance Reporting) of Works Approval W6504/2021/1. Licence details are provided in Table 1.1.

Table 1.1 – Licence details

Works Approval number:	W6504/2021/1	Works Approval file number:	DER2018/001042-4
Holder name:	Norton Gold Fields Pty Limited		
Trading as:	Norton Gold Fields Pty Limited		
ACN:	112 287 797		
Registered business address:	'Viskovich House' Level 1, 377 Hannan Street Kalgoorlie WA 6430		
Premises details	Binduli North Project – Crushing and Screening plant Mining tenement M26/446 BOULDER WA 6432		
Reporting date:	16/ 04/ 2022		

1. Purpose

Norton has prepared this report to comply with Condition 5 of Works Approval W6504/2021/1 which states:

The works approval holder must, within 60 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report showing compliance with the requirements of Table 2.

This report will provide a description of the geology encountered, the well construction logs and final survey inclusive of maps.

2. Design and construction/installation requirements

As per Condition 4 of Works Approval W6504/2021/1, Norton must design, construct and install groundwater monitoring wells in accordance with the requirements specified in Table 2.

In summary this includes:

- Monitoring wells are to be designed and constructed in accordance with ASTM D5092/D5092M-16;

- □ Soil samples must be collected, logged and a record of the geology encountered described in accordance with AS1726;
- □ Well construction details must be documented; and
- □ A survey is to be conducted after installation to accurately determine location and casing height.

3. Monitoring Bore Design

Knight Piésold Consulting were engaged in the engineering design of most of the processing infrastructure at the Binduli North Project. This included the design of the monitoring bores of which the design drawing is included as Figure 3.1.

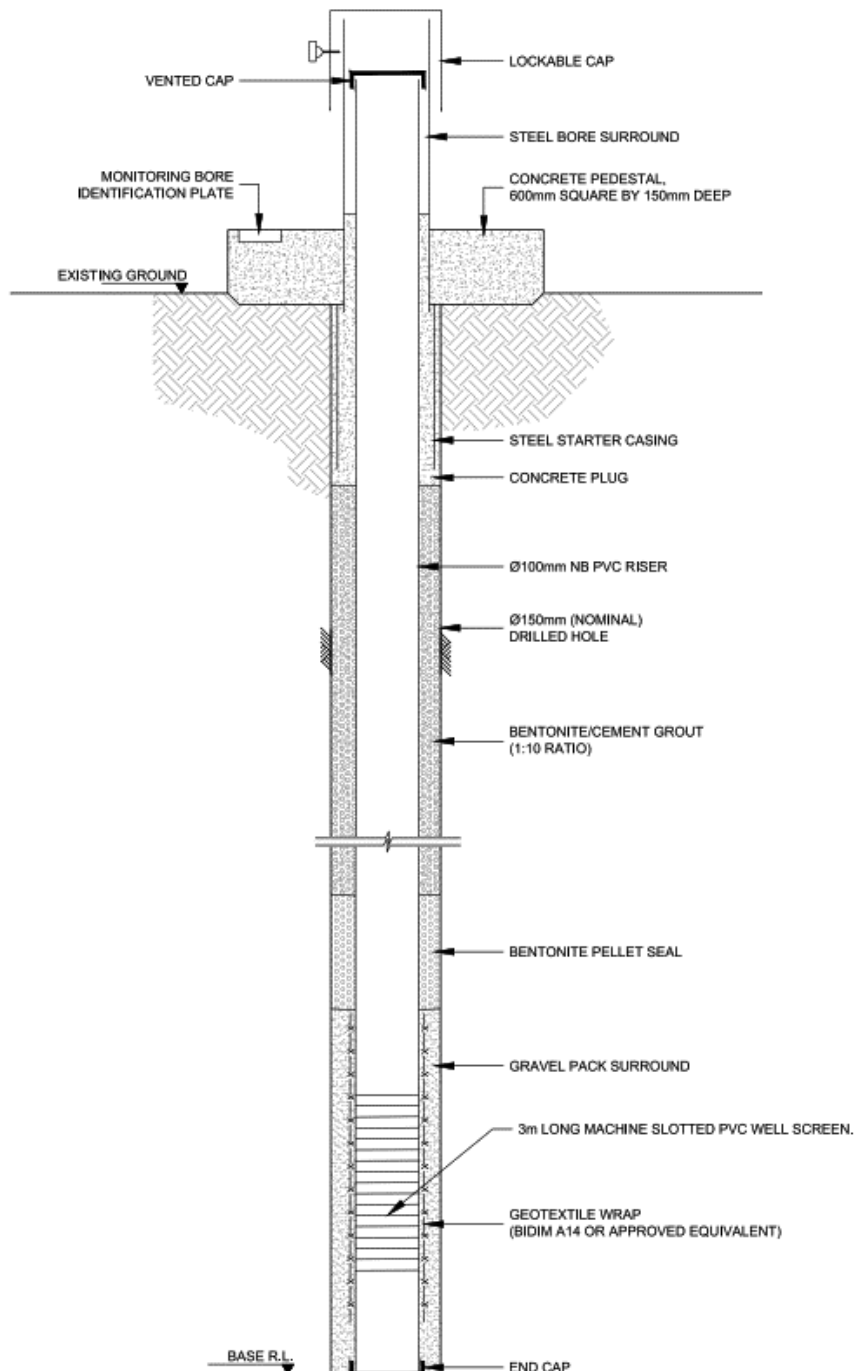


Figure 3.1 Monitoring Bore Installation Detail (Knight Piésold, 2021)

The following information has been excerpted from *Heap Leach Pad and Process Ponds Technical Specification - Phase 1*, prepared by Knight Piésold (2021).

3.1. Drilling

All drilling equipment shall be subject to the approval of the Engineer. The Principal shall supply in good working order percussion drilling equipment or other equivalent equipment, as approved by the Engineer, capable of drilling to a maximum depth of 60 m.

Monitoring bores shall be drilled 250 mm in diameter to a depth of 2 m and surface casing inserted. Bores shall then be drilled 200 mm in diameter to the required depth and temporarily cased with steel casing except where they pass through material which is capable of remaining free standing, e.g. rock.

Monitoring bores shall be drilled to terminate a minimum of 5 metres below standing water level (SWL) in a surface unconfined aquifer. Where no defined SWL exists, drilling shall terminate at a depth where an impermeable soil horizon limits further water intrusion, or as determined by the Engineer.

3.2. Installation

Monitoring bores shall be cased with 100 mm diameter nominal bore PVC riser Schedule 40 pre-treaded pipe. The casing shall be slotted at the depth and over the length as detailed on the Drawings or as directed by the Engineer. The casing shall extend a minimum 500 mm above the surface of the surrounding ground. The bottom of the casing shall be sealed with a PVC cap. All pipe connections shall be made by solvent welding with an approved solvent (as there is the possibility that solvent can mask the presence of certain chemicals this should be checked depending on expected chemicals. Where this is a potential problem screw threaded joints shall be utilised instead).

The permanent PVC casing shall be inserted inside the temporary steel casing, which shall be withdrawn as the hole is evenly backfilled to ensure the PVC casing remains centrally located, straight and vertical.

The annulus between the casing and the hole perimeter shall be carefully and evenly filled to a minimum of 0.5 metres above the slots with a graded sand pack. The level of the sand shall be kept between 0.5 and 1 metre above the bottom of the steel outer casing as it is withdrawn.

The sand shall be uniformly graded between a minimum size material retained on a 300 micron sieve, 85 % greater than 1.5 mm and a maximum size passing a 4.75 mm sieve. Geotextile may be used, at the direction of the Engineer, as a filter around the slotted casing if suitable sand is not available.

Above the sand pack the annulus between the casing and wall of the bores shall be backfilled to 1 metre below the surface using a suitable stone free, non-lumpy and free running soil approved by the Engineer. The depths of general backfill and sand pack shall be measured and recorded for each bore by the Principal at the time of installation and agreed with the Engineer.

Once the concrete associated with the capping has set, monitoring bores shall be developed and cleaned by air lift until only clean water is purged from the hole.

Each monitoring bore shall be provided with a lockable steel cap or other vandal resistant device as shown on the Drawings or approved by the Engineer.

4. Bore Hole Logging

Drilling was undertaken by Precision Drilling Australia using a Hydrapower Scout-V rig with downhole hammer to produce a 155mm in diameter hole to the required depth. Soil or regolith samples were taken at each 1m interval and classified by Norton's project geologist.

The results of the geological classification have been tabulated in Table 4.1 and diagrams produced (Figure 4.1 and Table 4.2).

Table 4.1 – Geological Classification

Hole ID	Depth (mbgl)	Lithology*	Texture	Grain Size	Oxidation	Colour
MBH-01	0 – 4	OTAG	Gravelly	Small Pebble	Transported	Dark Red (2R)
	4 – 39	LSU	Massive	Silt	Highly weathered	Medium White (3W)
	39 – 44	LSL	Massive	Fine Sand	Moderately weathered	Dark White (2W)
	44 – 48	LSL	Massive	Fine Sand	Moderately weathered	Dark White (2W)
MBH-02	0 – 7	OTAG	Gravelly	Small Pebble	Transported	Dark Red (2R)
	7 – 17	OTAC	Massive	Silt	Transported	Light Red (4R)
	17 – 32	LSU	Massive	Silt	Highly weathered	Light Brown (4U)
	32 – 39	LSU	Massive	Silt	Highly weathered	Medium Brown (3U)
	39 – 44	LSU	Massive	Fine Sand	Highly weathered	Light Brown (4U)
	44 – 45	LSL	Massive	Fine Sand	Moderately weathered	Light Brown (4U)
MBH-03	0 – 3	OTAG	Gravelly	Fine Sand	Transported	Dark Red (2R)
	3 – 10	LSU	Massive	Clay	Highly weathered	Light Cream (4C)
	10 – 44	LSU	Massive	Clay	Highly weathered	Medium Brown (3U)
	44 – 48	LSL	Massive	Silt	Moderately weathered	Dark Grey (2A)
MBH-04	0 – 3	OTAG	Gravelly	Small Pebble	Transported	Dark Red (2R)
	3 – 6	LSL	Massive	Fine Sand	Moderately weathered	Light Green (4G)
	6 – 33	LSL	Massive	Fine Sand	Moderately weathered	Dark Brown (2U)
	33 – 50	LSL	Massive	Fine Sand	Moderately weathered	Light Grey (4A)
MBH-05	0 – 3	OTAG	Gravelly	Fine Sand	Transported	Medium Brown (3U)
	3 – 47	LSL	Massive	Silt	Moderately weathered	Light Yellow (4Y)
MBH-06	0 – 4	OTAG	Gravelly	Fine Sand	Transported	Dark Red (2R)
	4 – 29	LSU	Massive	Clay	Highly weathered	Light Brown (4U)

Hole ID	Depth (mbgl)	Lithology*	Texture	Grain Size	Oxidation	Colour
	29 – 31	LSL	Massive	Silt	Moderately weathered	Pale Brown (5U)
	31 – 46	LSL	Massive	Silt	Moderately weathered	Dark Grey (2A)
MBH-07	0 – 4	OTAG	Gravelly	Small Pebble	Transported	Dark Red (2R)
	4 – 7	OTAC	Massive	Silt	Transported	Medium Red (3R)
	7 – 11	OTAC	Massive	Silt	Transported	Pale Red (5R)
	11 – 13	OTAC	Massive	Silt	Transported	Medium Red (3R)
	13 – 20	LSU	Massive	Silt	Highly weathered	Light Brown (4U)
	20 – 29	LSU	Massive	Silt	Highly weathered	Dark Brown (2U)
MBH-08	0 – 3	OTAG	Gravelly	Small Pebble	Transported	Very Dark Red (1R)
	3 – 9	CLFE	Mottled	Fine Sand	Transported	Medium Red (3R)
	9 – 21	LSU	Massive	Silt	Highly weathered	Medium Brown (3U)
	21 – 22	LSR	Massive	Coarse Sand	Slightly weathered	Medium Brown (3U)
MBH-09	0 – 4	OTAG	Gravelly	Fine Sand	Transported	Dark Red (2R)
	4 – 6	LSL	Massive	Silt	Moderately weathered	Light Cream (4C)
	6 – 7	LSL	Massive	Silt	Moderately weathered	Dark Red (2R)
	7 – 10	LSL	Massive	Silt	Moderately weathered	Pale Green (5G)
	10 – 50	LSR	Massive	Coarse Sand	Slightly weathered	Light Green (4G)

***Lithology Key**

OTAG	Overburden transported Alluvium - GRAVEL (+/-pisolites)
LSU	Upper Saprolite (leached zone, kaolin+goethite)
LSL	Lower Saprolite (Clays < 20%, Primary rock fabric preserved)
OTAC	Overburden transported Alluvium - CLAY
CLFE	Iron mottled clays
LSR	Saprock (Lower Saprolite - recognisable fabric, clays<20%)

Table 4.2 – Alteration

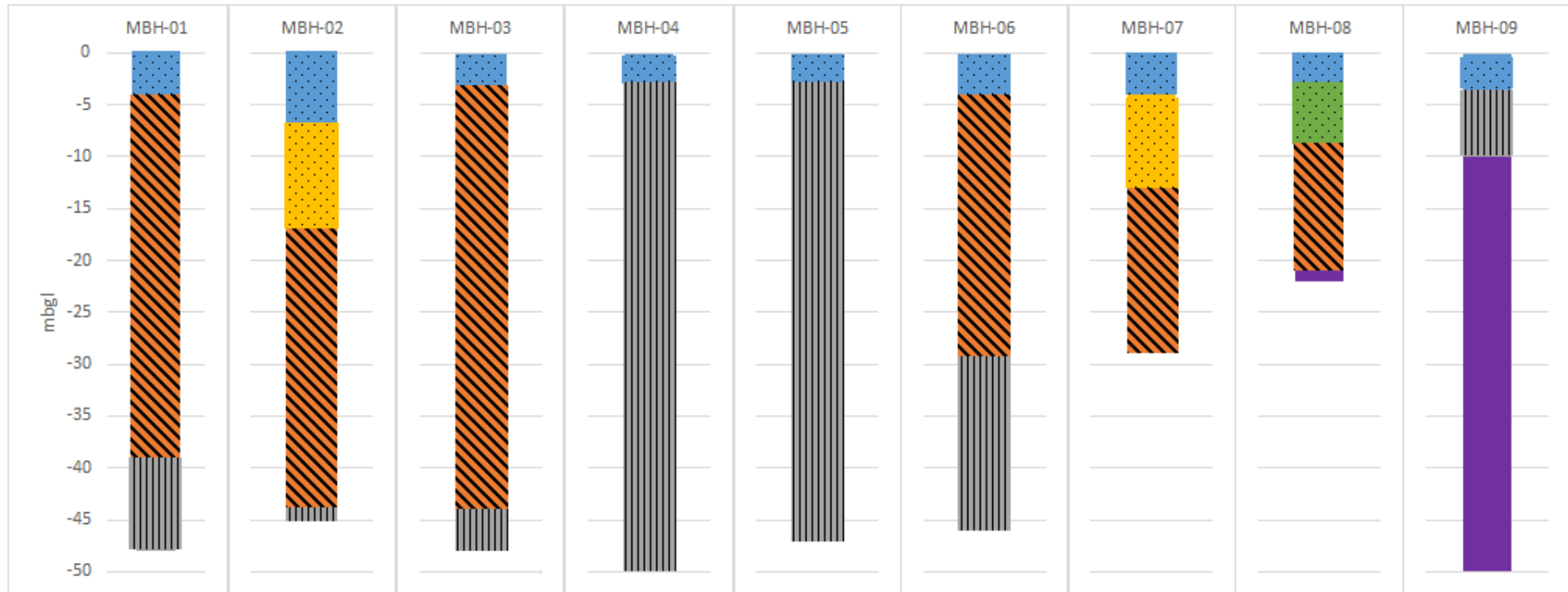
Hole ID	Depth (mbgl)	Alteration 1	Style	Intensity	Alteration 2	Style	Intensity
MBH-03	44 – 48	Chlorite	Patchy	Slight	-	-	-
MBH-05	3 – 47	Goethite	Pervasive	Moderate	Kaolinite	Pervasive	Slight
MBH-06	29 – 31	Haematite	Patchy	Slight	Chlorite	Patchy	Slight
	31 – 46	Chlorite	Pervasive	Slight	Haematite	Patchy	Slight
MBH-09	4 – 6	Chlorite	Patchy	Slight	Kaolinite	Patchy	Slight
	6 – 7	Haematite	Pervasive	Moderate	Kaolinite	Patchy	Slight
	7 – 10	Chlorite	Pervasive	Slight	Kaolinite	Patchy	Slight
	10 – 50	Chlorite	Patchy	Moderate	Goethite	Patchy	Slight



Menzies Highway, PO Box 1653, Kalgoorlie,
Western Australia 6430
Tel (08) 9080 6800 • Fax (08) 9080 6893 •
ABN: 98 008 585 886 www.nortongoldfields.com.au

An undifferentiated vein of quartz composition was observed at depth in bores MBH-01 (44 – 48m) and MBH-02 (39 – 44m).

No observations of staining, odours or other indications of contamination were identified by the drillers or geologist throughout the drilling, monitoring bore installation and soil/regolith classification.



Key:



Figure 4.1 Downhole Lithology and Oxidation State

5. Well Construction Logs

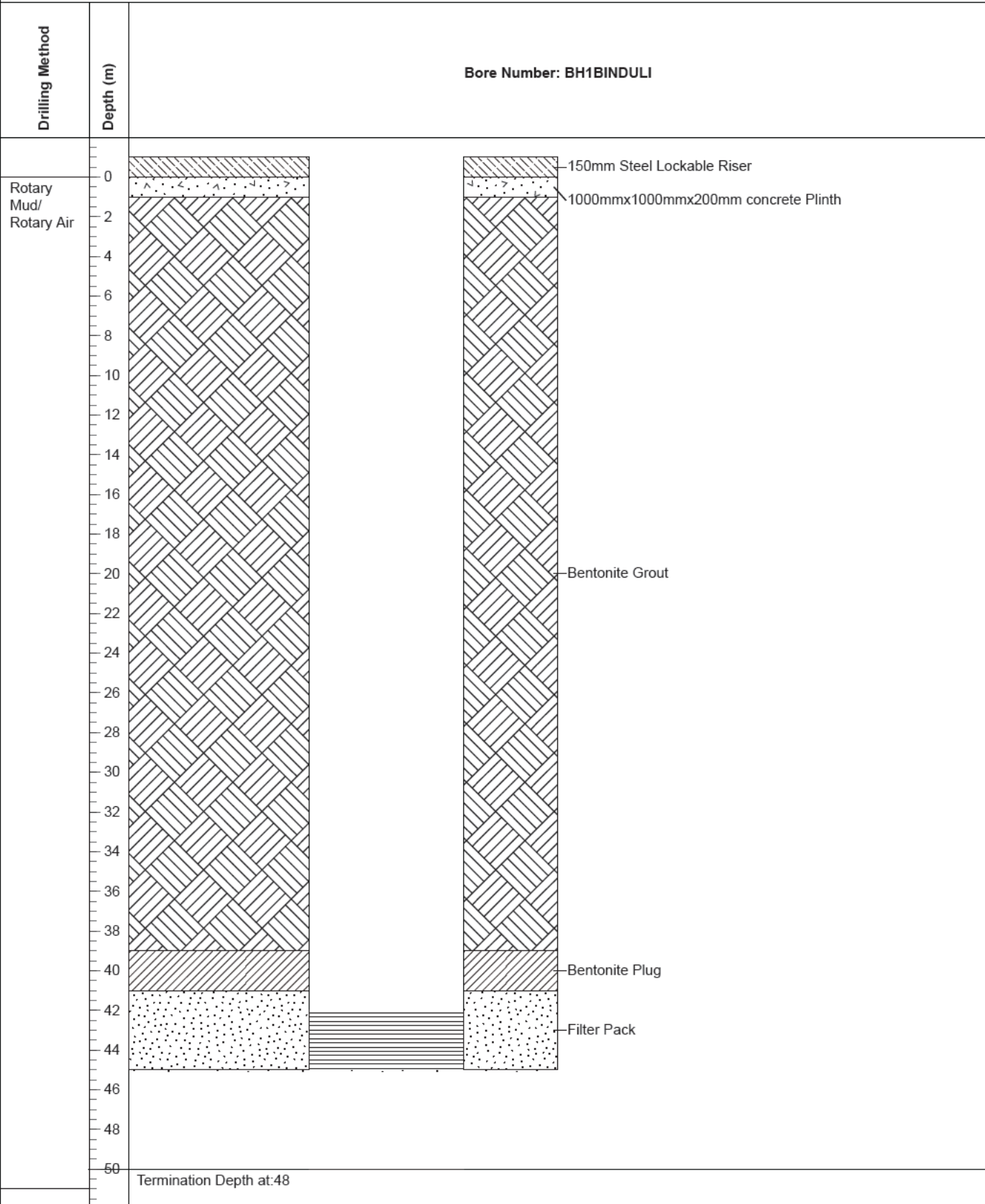
Norton engaged Cast Civil to undertake the monitoring bore construction as part of their earthworks and civil scope. Cast Civil subcontracted the works to Precision Drilling who undertook the drilling and monitoring bore installation between the 20th and 27th of February 2022. The drilling was carried out using a Hydrapower Scout-V with a downhole hammer, and blade bit in softer grounds. The drill hole produced was 155mm.

Drilling was terminated at a depth of 5m below the interception of groundwater. Well installation was conducted as per the following well construction drawings. All monitoring bores were air lifted following installation to remove fine sands, silts, clays and drilling residue from the bores. Confirmation of adequate well development was provided by Karrillon Groundwater BPS Pty Ltd, following the first round of sampling at the start of March 2022.



PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 27/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 45
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen	Drilled by [REDACTED]
	CHECKED BY [REDACTED]





PROJECT NUMBER 00000926

COORDINATES

DRILLING DATE 27/02/2022

PROJECT NAME Norton Gold Binduli HLP Ponds

TOTAL Well DEPTH 38

CLIENT Cast Civil

SURFACE ELEVATION

HOLE DIAMETER 155

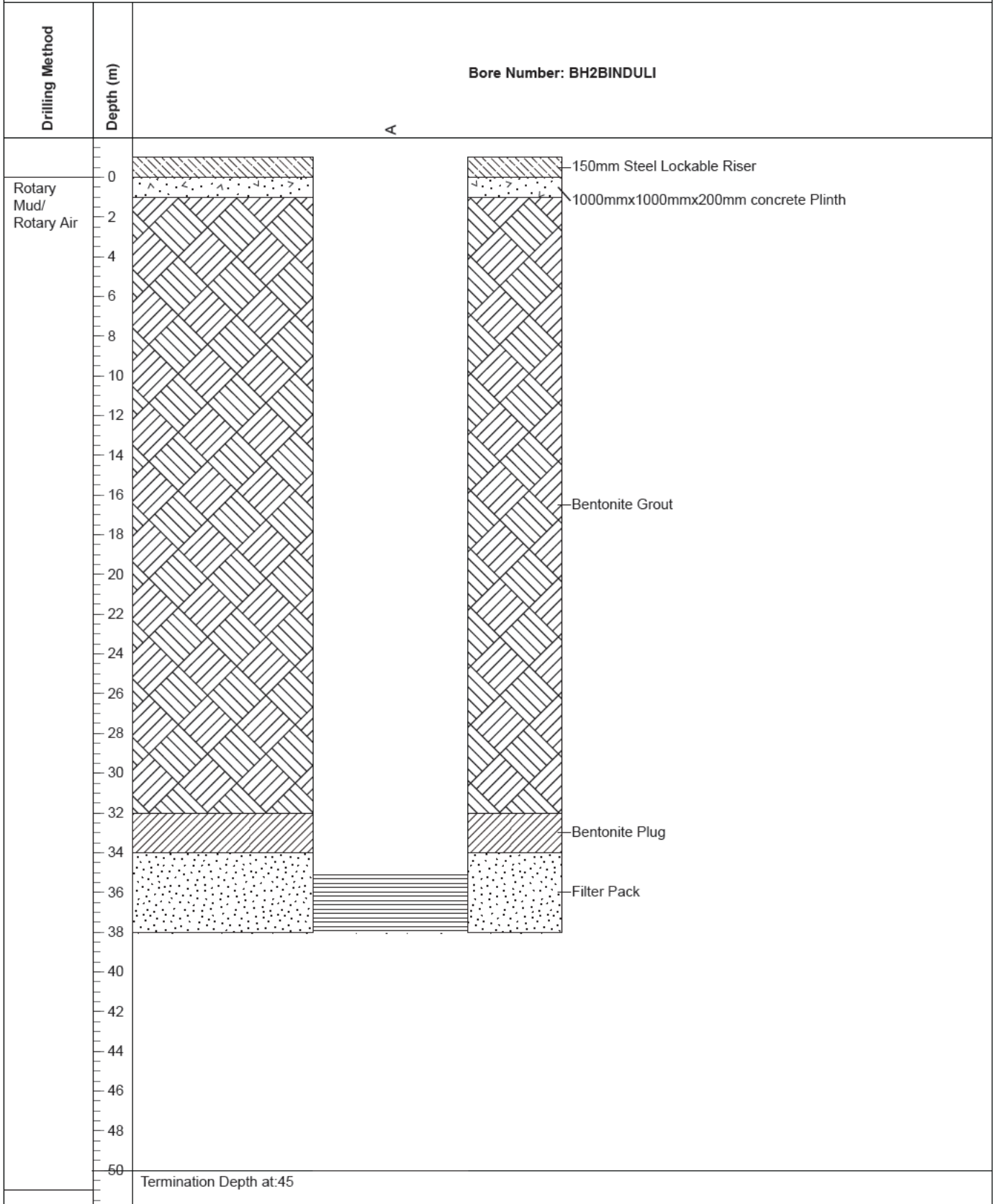
CASING SIZE 100MM PVC

SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen

Drilled by [REDACTED]

CHECKED BY [REDACTED]

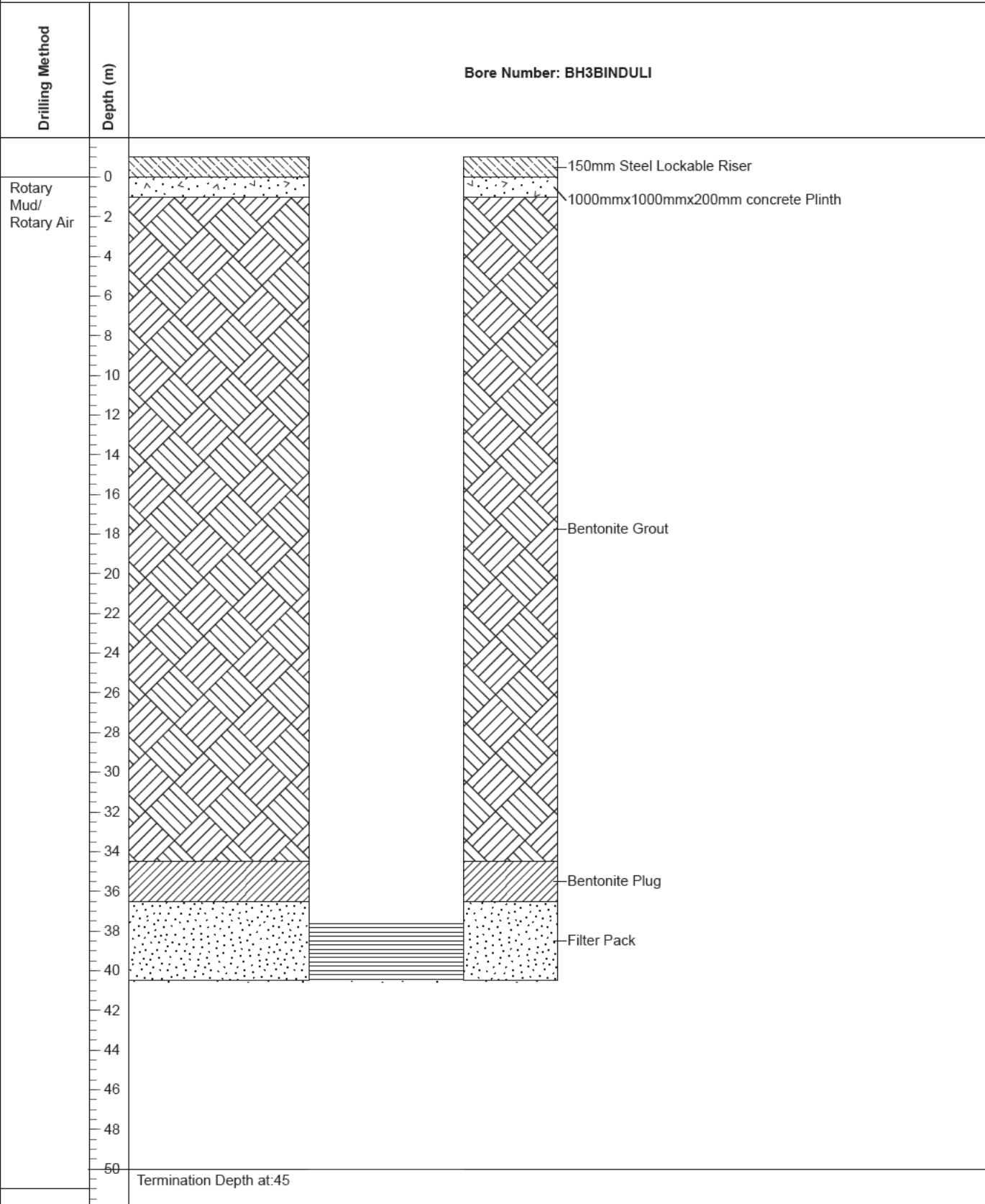




PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 27/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 40.5
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen

Drilled by [REDACTED]
CHECKED BY [REDACTED]





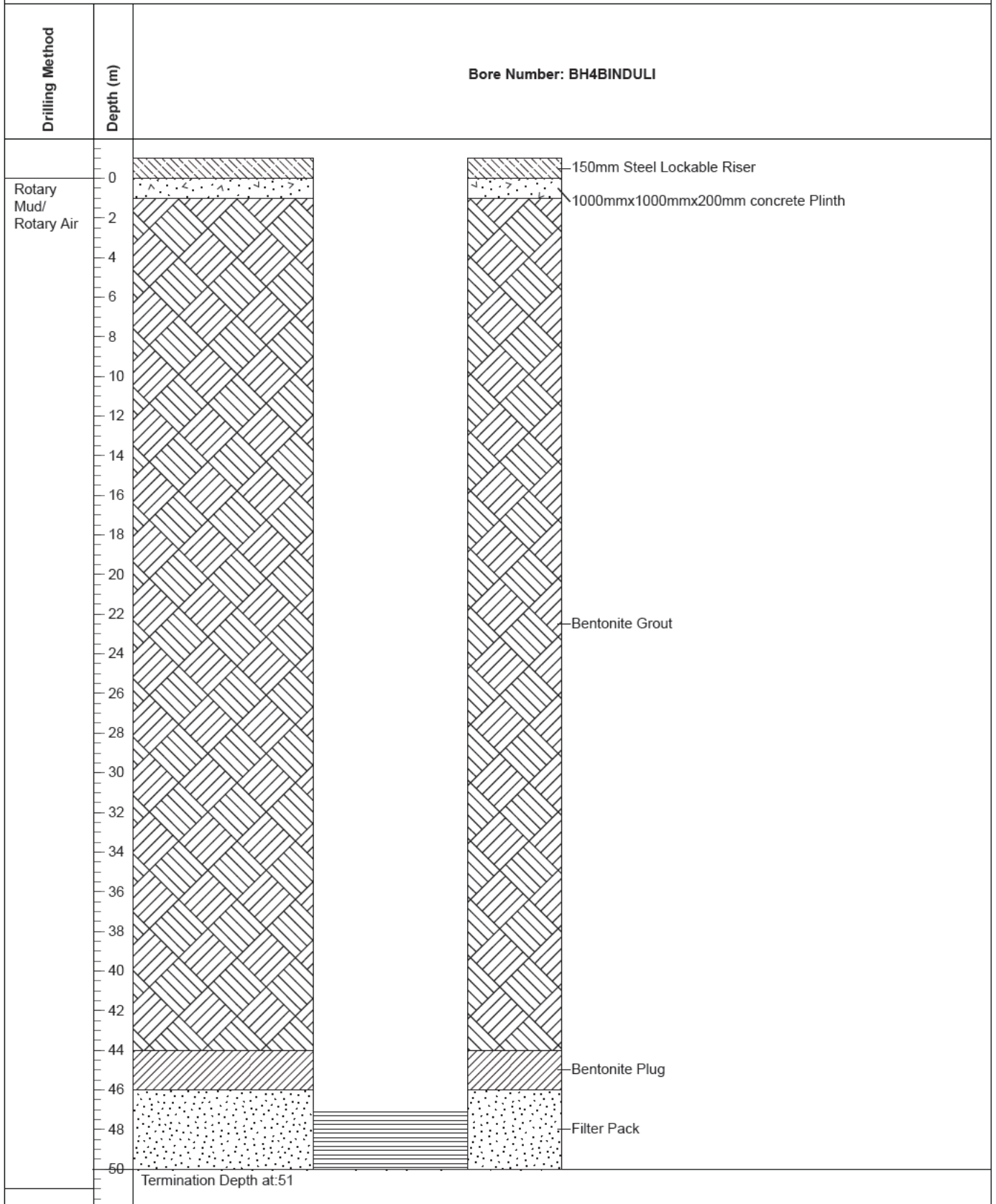
PROJECT NUMBER 00000926
PROJECT NAME Norton Gold Binduli HLP Ponds
CLIENT Cast Civil
[Redacted]

COORDINATES
SURFACE ELEVATION

DRILLING DATE 27/02/2022
TOTAL Well DEPTH 50
HOLE DIAMETER 155
CASING SIZE 100MM PVC
SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen

Drilled by [Redacted]
CHECKED BY [Redacted]





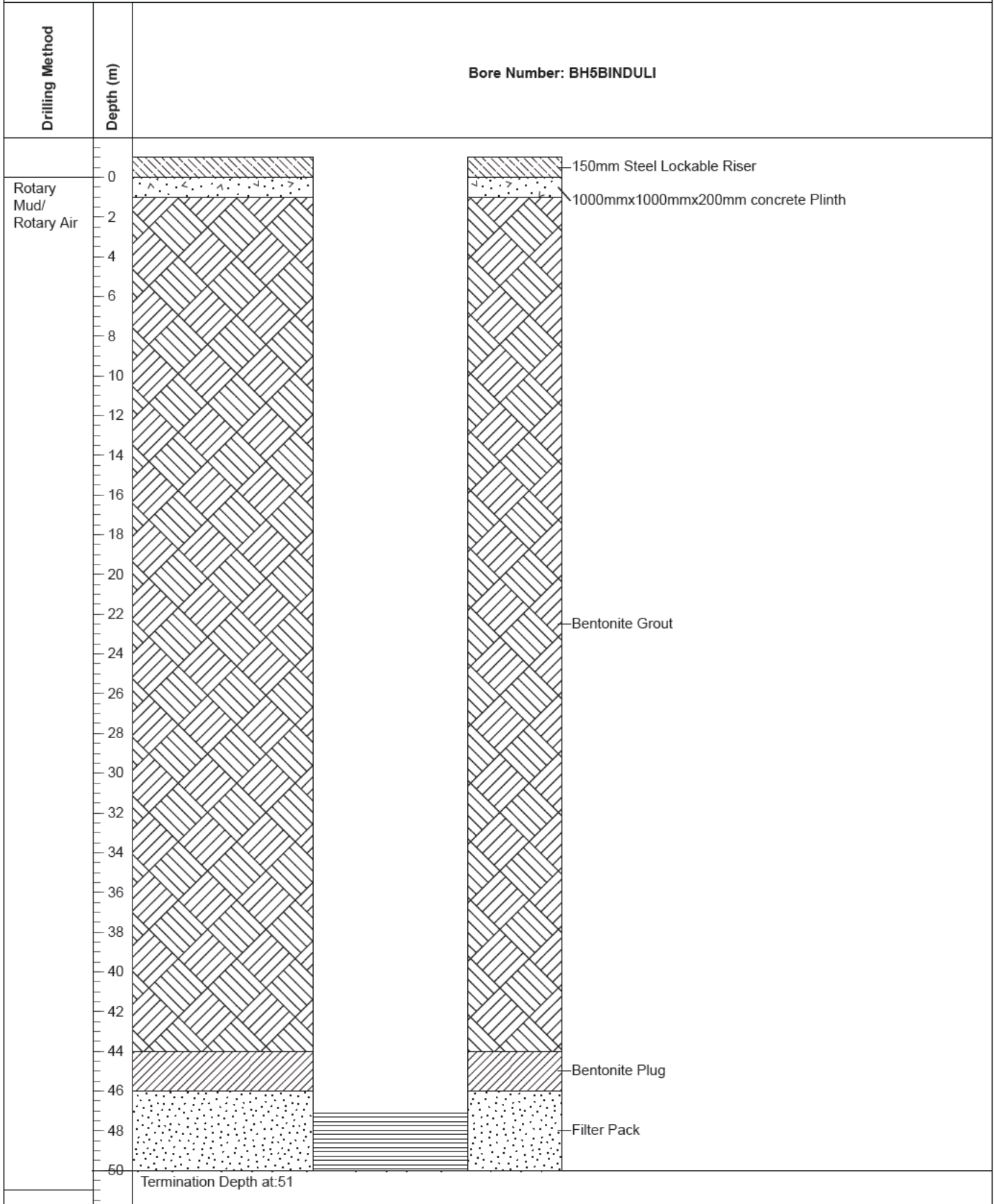
PROJECT NUMBER 00000926
PROJECT NAME Norton Gold Binduli HLP Ponds
CLIENT Cast Civil

COORDINATES
SURFACE ELEVATION

DRILLING DATE 27/02/2022
TOTAL Well DEPTH 50
HOLE DIAMETER 155
CASING SIZE 100MM PVC
SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen

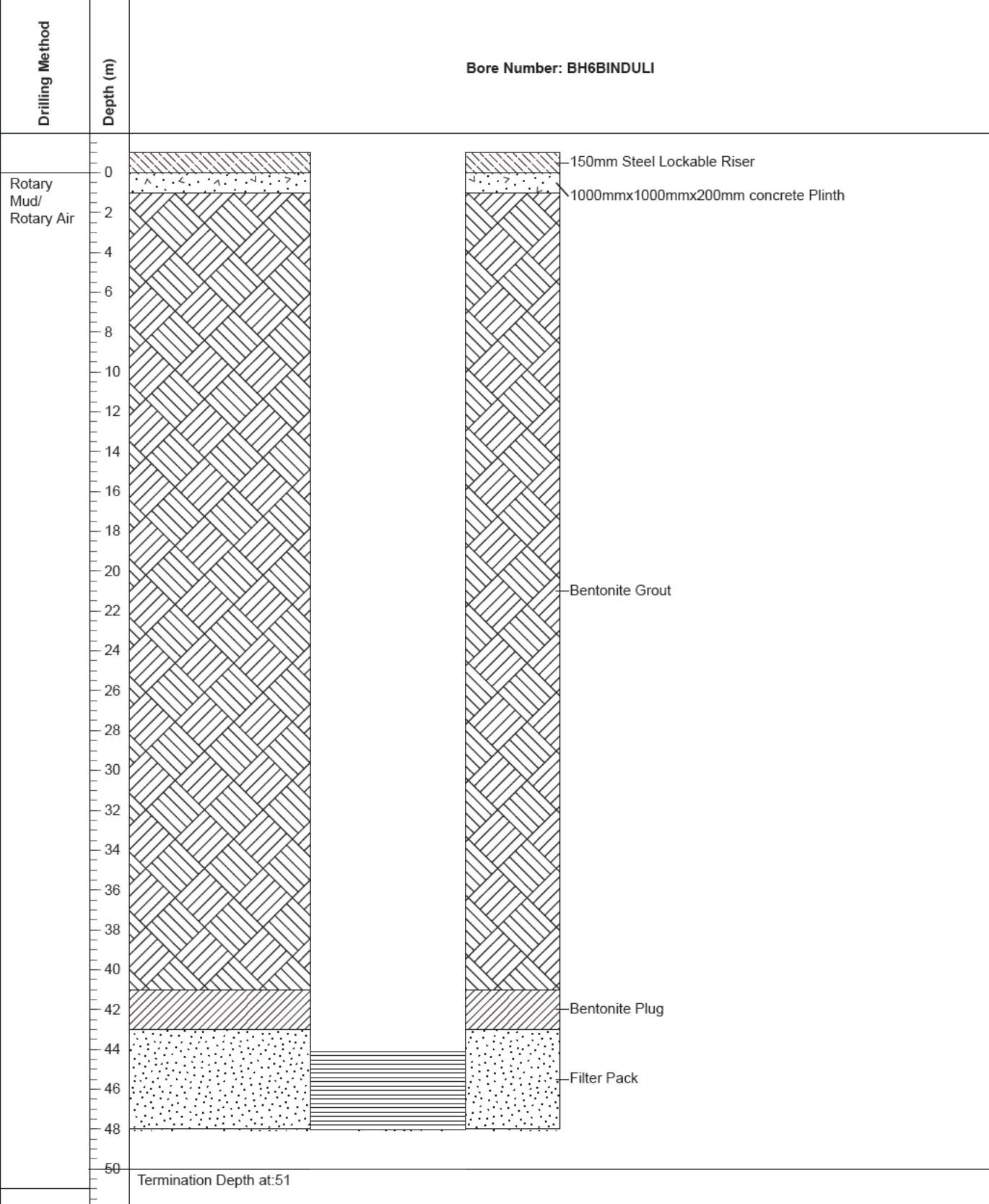
Drilled by [REDACTED]
CHECKED BY [REDACTED]





PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 27/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 48
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

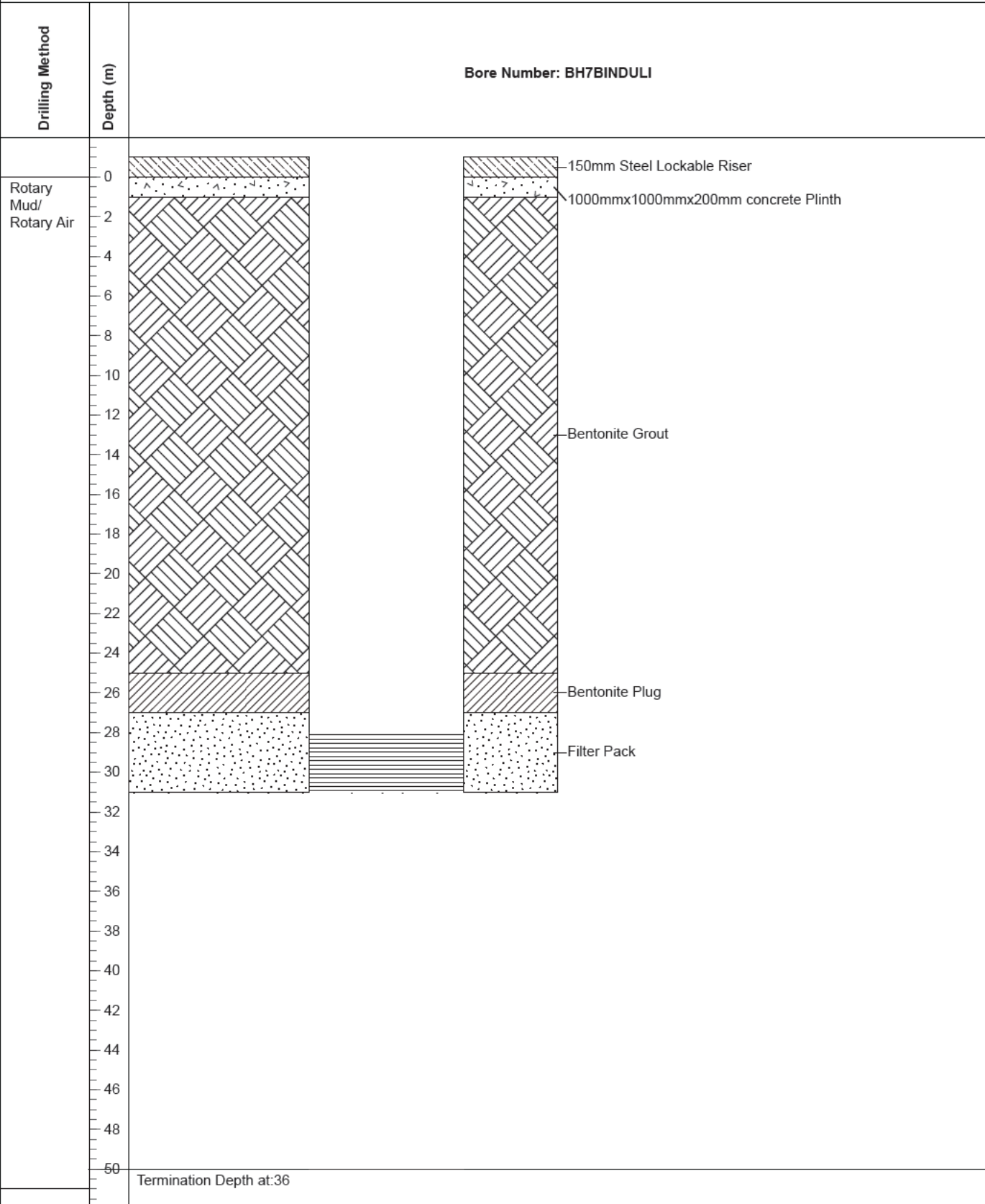
COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen	Drilled by [REDACTED]
	CHECKED BY [REDACTED]





PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 27/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 31
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

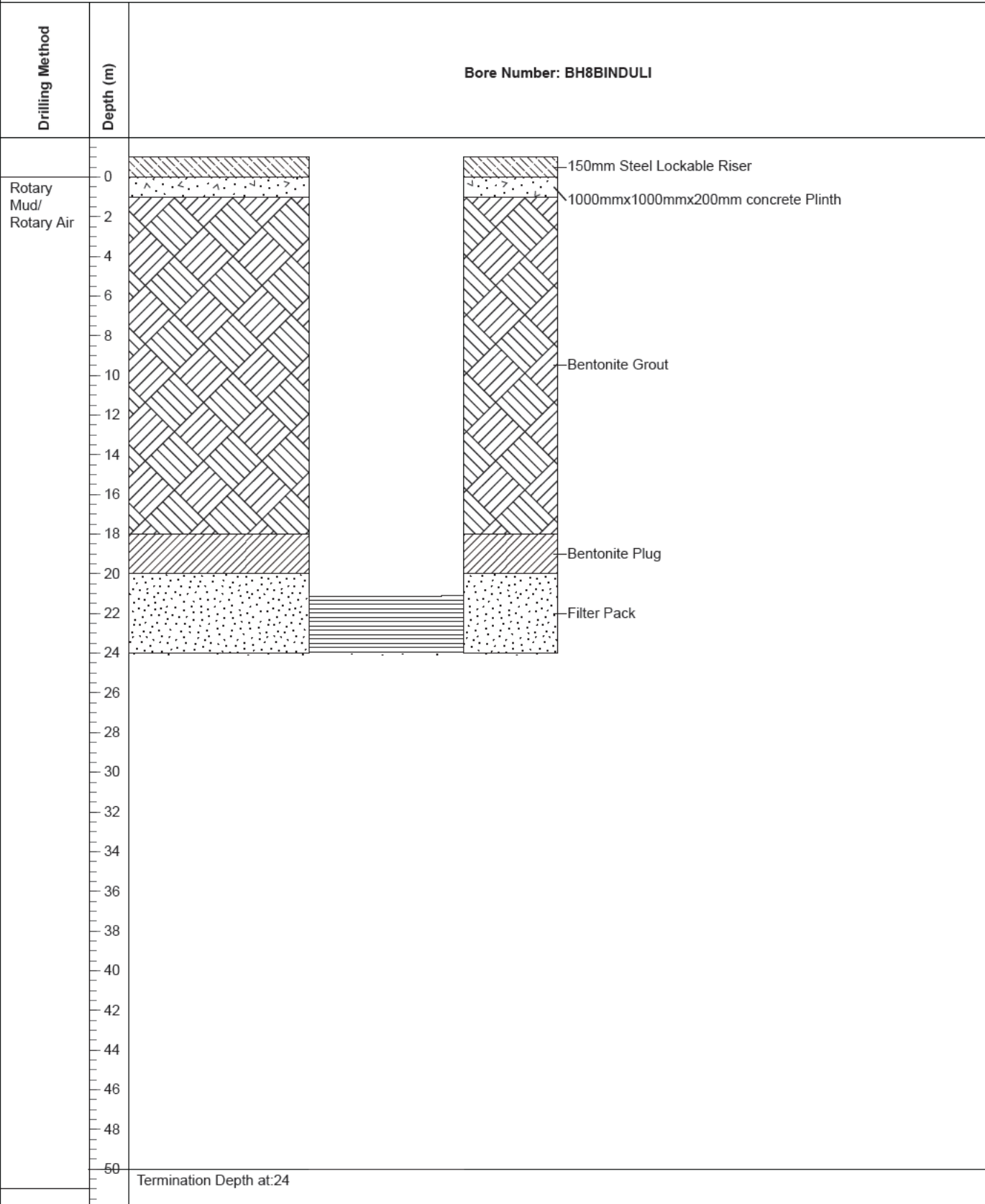
COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen	Drilled by [REDACTED]
	CHECKED BY [REDACTED]





PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 27/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 24
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

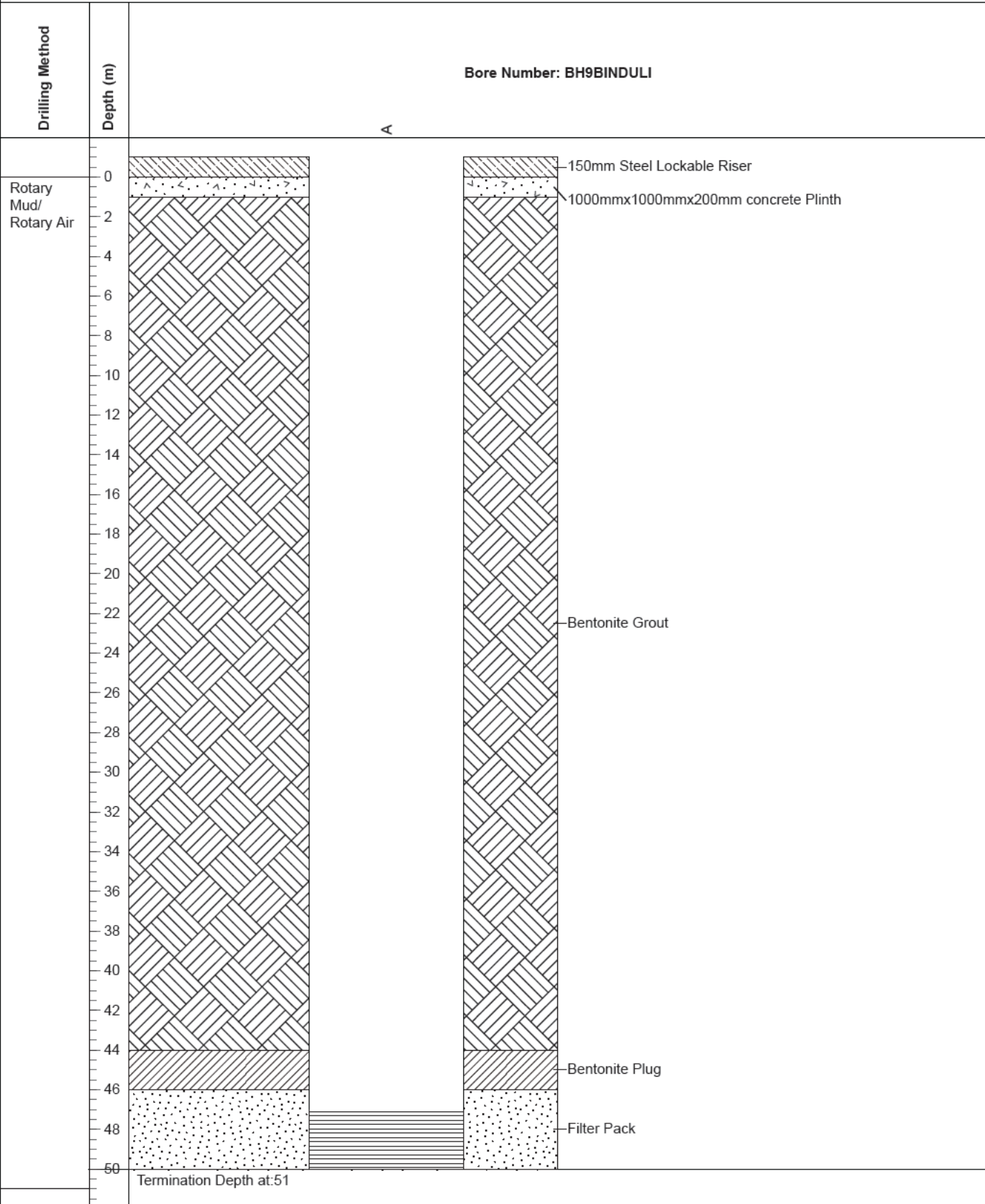
COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen	Drilled by [REDACTED]
	CHECKED BY [REDACTED]





PROJECT NUMBER 00000926	COORDINATES	DRILLING DATE 20/02/2022
PROJECT NAME Norton Gold Binduli HLP Ponds		TOTAL Well DEPTH 50
CLIENT Cast Civil	SURFACE ELEVATION	HOLE DIAMETER 155
		CASING SIZE 100MM PVC
		SCREEN SIZE 100MM PVC

COMMENTS 3M Screen installed with GEOTEXTILE WRAP over the Screen	Drilled by [REDACTED]
	CHECKED BY [REDACTED]



MBH-01



MBH-02



MBH-03



MBH-04



MBH-05



MBH-06



MBH-07



MBH-08



NORTON GOLD FIELDS

Menzies Highway, PO Box 1653, Kalgoorlie,
Western Australia 6430
Tel (08) 9080 6800 • Fax (08) 9080 6893 •
ABN: 98 008 585 886 www.nortongoldfields.com.au

MBH-09



6. Installation Survey

Post installation, a survey to identify the exact location of each monitoring bore was undertaken by [REDACTED] from Premium Surveys. The results of the survey are provided in Table 6.1 and a map produced (Figure 6.1 and Figure 6.2).

Table 6.1 – Installation Survey

Hole ID	Easting	Northing	mRL	Drill Depth (mbgl)	Well Depth (mbgl)	Water Level (mbgl)	Bore Casing*
01	342683.2946	6595117.3791	347.3075	48	45	12.5	63.5
02	343301.8812	6594430.8184	352.0370	45	38	18	87
03	343651.8675	6594013.6840	354.6029	45	40.5	17.5	90
04	343906.9301	6593107.1312	360.2498	51	50	23.5	95
05	343355.1781	6593041.1588	367.3759	51	50	28.5	82
06	343000.1980	6593457.9909	361.2218	51	48	29	101.5
07	342399.7772	6594163.1311	351.5219	36	51	31	71
08	342112.2727	6594616.7527	347.3417	24	24	8.5	71
09	342742.9375	6594458.1992	349.6754	51	50	32.5	103.5

*centimetres above ground level

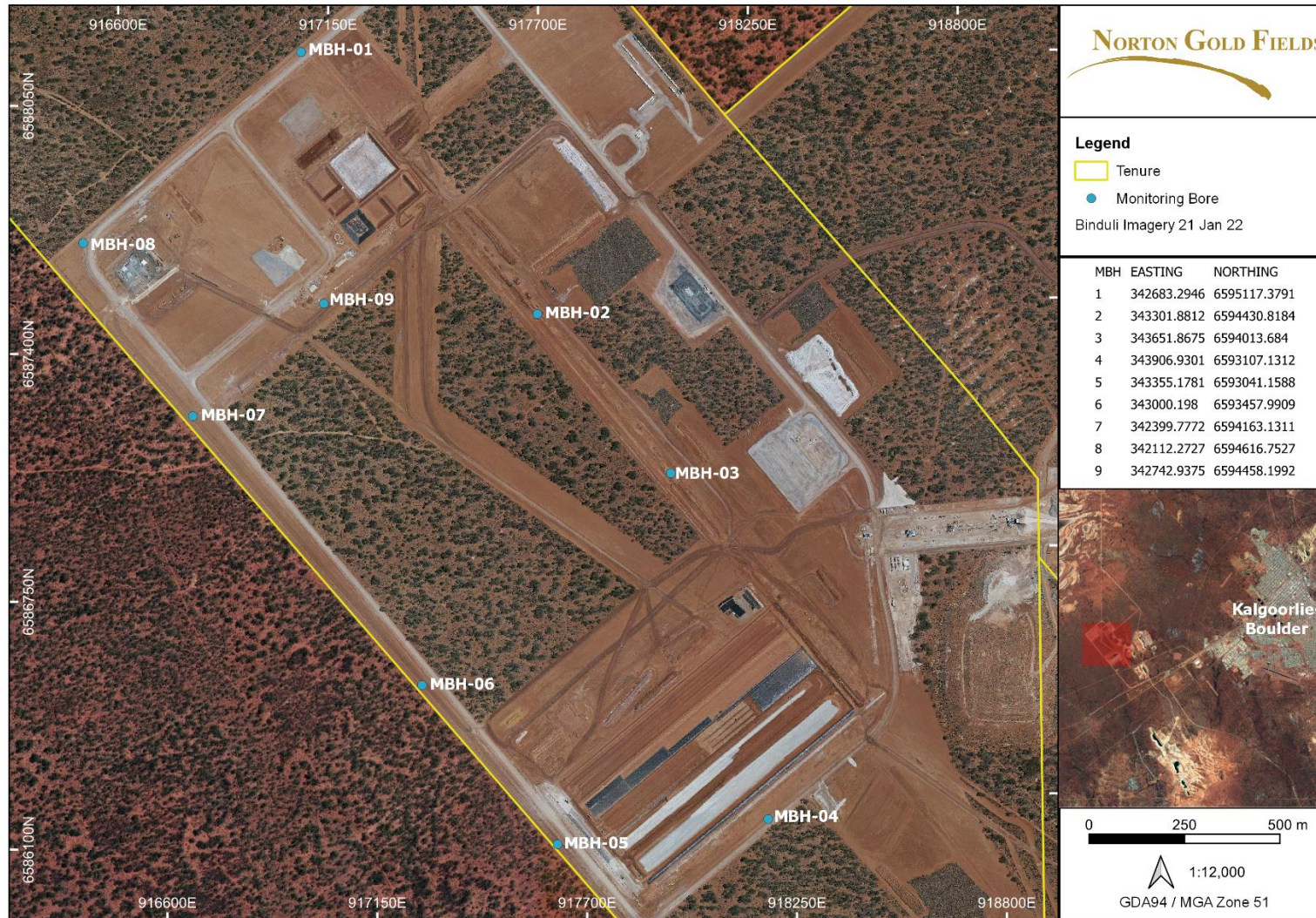


Figure 6.1 Bore Locations

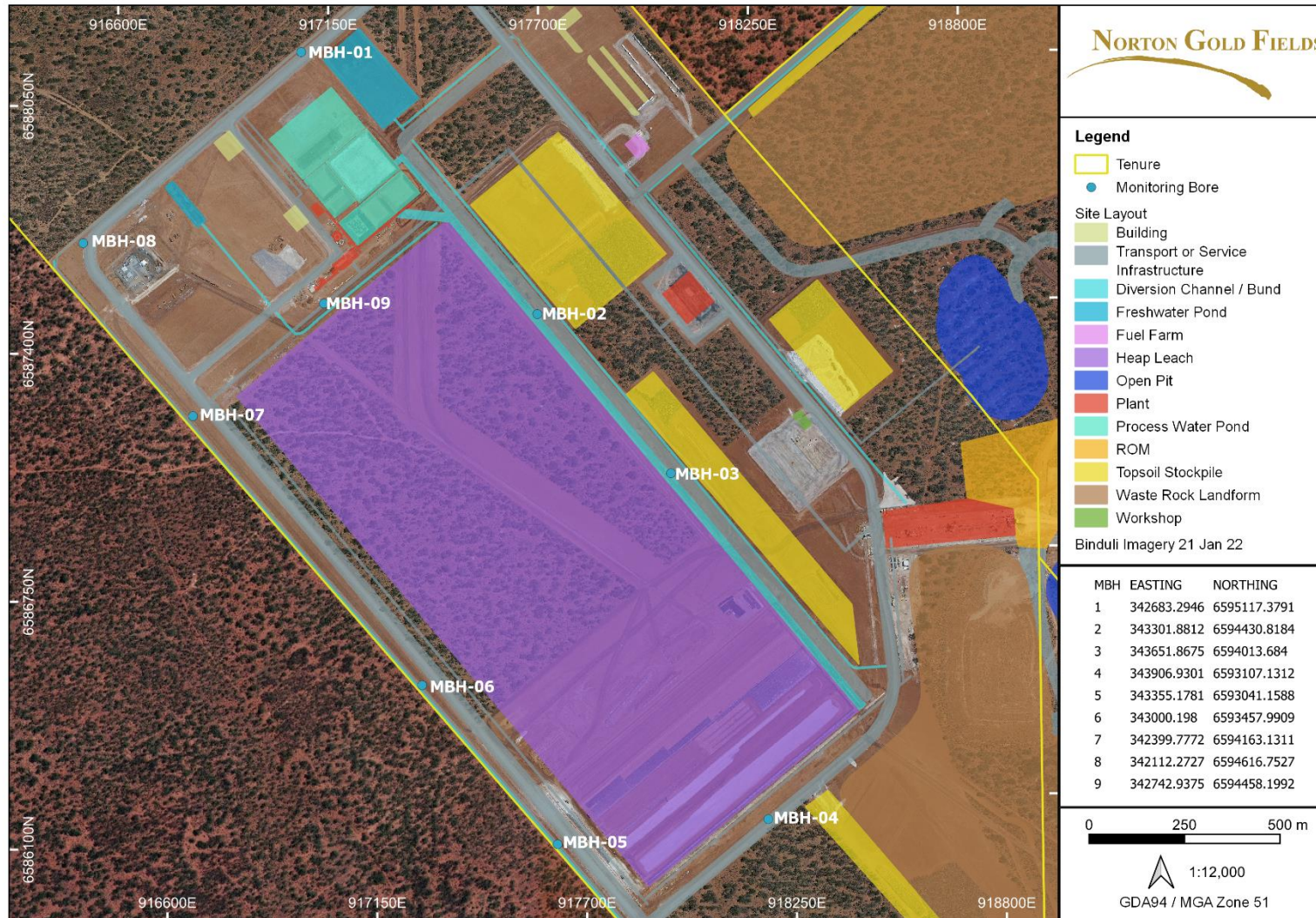


Figure 6.2 Bore Locations in respect to Site Layout



Menzies Highway, PO Box 1653, Kalgoorlie,
Western Australia 6430
Tel (08) 9080 6800 • Fax (08) 9080 6893 •
ABN: 98 008 585 886 www.nortongoldfields.com.au

7. Other Applicable Conditions

Groundwater monitoring has commenced in line with Norton's Operational Water Management Strategy. Additional monitoring will be undertaken to meet the requirement of Condition 6.

8. Declaration

I declare that the information in this Environmental Compliance Report is true and correct. As a person authorised to represent the works approval holder (Norton) I certify that the items of infrastructure or component(s) thereof, as specified in condition 4, have been constructed in accordance with the relevant requirements specified in condition 4 of Works Approval W6504/2021/1.

Name: [REDACTED]
Position: [REDACTED]

Signature: [REDACTED]
Date: 16/04/2022