



# 1 November 2025 – 1 February 2026 Environmental Water Report

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## Abbreviations, Acronyms, Initialisms and Definitions

Acronym	Definition
AFL	Agreement for Lease
AHD	Australian Height Datum
AIP	Aquifer Interference Policy
CoA	Infrastructure Conditions of Approval (SSI 9687)
Construction envelope	The maximum extent within which the disturbance area corridor can move to allow the final siting of infrastructure through the detailed design process
DAWE	Commonwealth Department of Agriculture, Water and the Environment
Disturbance footprint	The disturbance footprint as described in the PIR–RTS is the indicative corridor inside the construction envelope, where construction works required to build Snowy 2.0 can be carried out.
DOI	Department of Industry
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EPA	NSW Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPL	Environmental Protection Licence
Exploratory Works	The development of the exploratory tunnel and associated infrastructure described in the Environmental Impact Statement for the Snowy 2.0 Exploratory Works (CSSI 9208) dated July 2018, and modified by: <ul style="list-style-type: none"> <li>• Submissions Report dated October 2018 and 4 October information provided to the Department on 17 October 2018, 19 November 2018 and 23 January 2019;</li> <li>• Modification Report dated 6 June 2019 and associated Submissions Report dated 2 September 2019 and determination dated 4 October 2019; and</li> <li>• Modification Report dated 17 October 2019 and associated Submissions Report dated 10 January 2020.</li> </ul>
Future Generation	Future Generation Joint Venture
Future Generation–PMS	Project Management System
GDE	Groundwater Dependent Ecosystem — ecosystems that require access to groundwater to meet all or some of their water requirements so as to maintain the communities of plants and animals, ecological processes they support, and ecosystem services they provide.
GMP	Groundwater Management Plan (SE2-GU-ENV-PLN-012) (This Plan)
IBA	Interim Biogeographic Regionalisation for Australia
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may cause a breach or a non-compliance
Kosciuszko National Park	A National Park protected under the National Parks and Wildlife Act 1974 (NSW) and managed by NSW National Parks and Wildlife Service. It covers an area of 673,543 hectares and forms part of Australia’s only Alpine area.
KNP	Kosciuszko National Park
Lobs Hole site	The development in the vicinity of Lobs Hole, including the GFO1 emplacement area; construction facilities (Main Yard), including workers’ accommodation camp and temporary spoil emplacement areas; Main Access Tunnel and Emergency Cable and Ventilation Tunnel portals; and ancillary infrastructure including access roads, substation, cableyard and utilities.
LFB	Lachlan Fold Belt
LPF	Long Plain Fault
Main Works	The development of an underground power station and associated infrastructure described in the Environmental Impact Statement for the Snowy 2.0 Main Works (CSSI 9687) dated February 2020, and modified by: <ul style="list-style-type: none"> <li>• Preferred Infrastructure Report and Response to Submissions – Snowy 2.0 Main Works, dated February 2020; and</li> </ul>

	• Additional information provided to the Department by EMM on 24 March 2020 and 7 April 2020.
Marica site	The development in the vicinity of Marica, including the headrace surge shaft; ventilation shaft; construction facility workers' camp; and ancillary infrastructure including access roads and utilities.
MDB	Murray–Darling Basin
NSW DPI	The NSW Department of Primary Industries within Regional NSW
NPWS	National Park and Wildlife Services
NRAR	NSW Natural Resources Access Regulator
Plateau site	The development in the vicinity of the Plateau, including the intake structure, barrier in Tintangara Creek and ancillary infrastructure including access roads and utilities.
Plateau area	The plateau area; located to the east of the Snowy Mountains Highway and spanning the area between the highway and Tintangara Reservoir. It is typical of elevated alpine environments, dominated by low energy streams, gentle rolling hills and mostly flat terrain. The plateau area includes the Plateau and Tintangara work site.
POEO Act	Protection of the Environment Operations Act 1997
POEO Regulation	Protection of the Environment (General) Regulation 2009
Project	Snowy 2.0 Main Works
Project area	The project area is the broader region within which Snowy 2.0 will be built and operated, and the extent within which direct impacts from Snowy 2.0 Main Works are anticipated. The project area does not represent a footprint for the construction works, but rather indicates an area that was considered during environmental assessments.
PSE	Permanent spoil emplacement
Ravine area	The ravine area; located mostly to the west of the Snowy Mountains Highway, is characterised by deep gorges and steep sloping terrain formed from river incision within the local granodiorite bedrock. The ravine area includes the Talbingo, Lobs Hole and Marica work sites.
REMM	Revised Environmental Management Measures
Rock Forest site	The development on the Rock Forest property, including the Rock Forest emplacement area, explosives laydown area and ancillary infrastructure including access roads.
SC	South Coast
Submissions Report or RTS	Main Works Preferred Infrastructure Report and Response to Submissions
SHC Act	Snowy Hydro Corporatisation Act 1997
SHL	Snowy Hydro Limited
SSI	State Significant Infrastructure under EP&A Act (Infrastructure Approval 9687)
SWMP	Surface Water Management Plan (S2-FGJ-V-ENV-PLN-0011) (Appendix A)
Talbingo Reservoir site	The development in and around the Talbingo Reservoir, including the Ravine Bay emplacement area; water development at Middle Bay, including the water intake and associated structures, barge launch ramp, and construction facilities; and ancillary infrastructure, including access roads and utilities.
Tintangara Reservoir site	The development in and around the Tintangara Reservoir, including the Tintangara emplacement area; water intake and associated infrastructure; barge launch infrastructure; construction and laydown facilities, including workers' camp; fish screens; and ancillary infrastructure, including access roads and utilities.
TARP	Trigger Action Response Plan
TBM	Tunnel boring machine
VWP	Vibrating wire piezometer – a deep, sealed bore that records groundwater pressure
WAL	Water Access Licence
Water Group	The Water Group within the Department
WM Act	Water Management Act 2000
WM Regulation	Water Management (General) Regulation 2011
WMP	Water Management Plan (S2-FGJ-V-ENV-PLN-0010)
WSP	Water Sharing Plan
WTP	Water Treatment Plant

# 1 Introduction

## 1.1 Purpose of this Report

This report has been prepared in line with the approved Groundwater Management Plan (GMP) (FGJV, 2020; document reference S2-FGJV-ENV-PLN-0012), to meet the requirements of Schedule 3, Condition 31(d) of the Critical State Significant Infrastructure Approval (DPIE, 2020a). The purpose of this report is to review and comment on the performance of the groundwater monitoring program during the reporting period, and document any trends, incidents, or environmental concerns observed. Specifically, the report:

- Provides an update on project activities that may have influenced groundwater conditions;
- Assesses groundwater monitoring results against the site-specific trigger values (SSTVs) established in the GMP.
- Presents groundwater level hydrographs.

## 1.2 Reporting Period

The report provides a groundwater update for the period between 1 November 2025 and 1 February 2026.

## 1.3 Project Progress

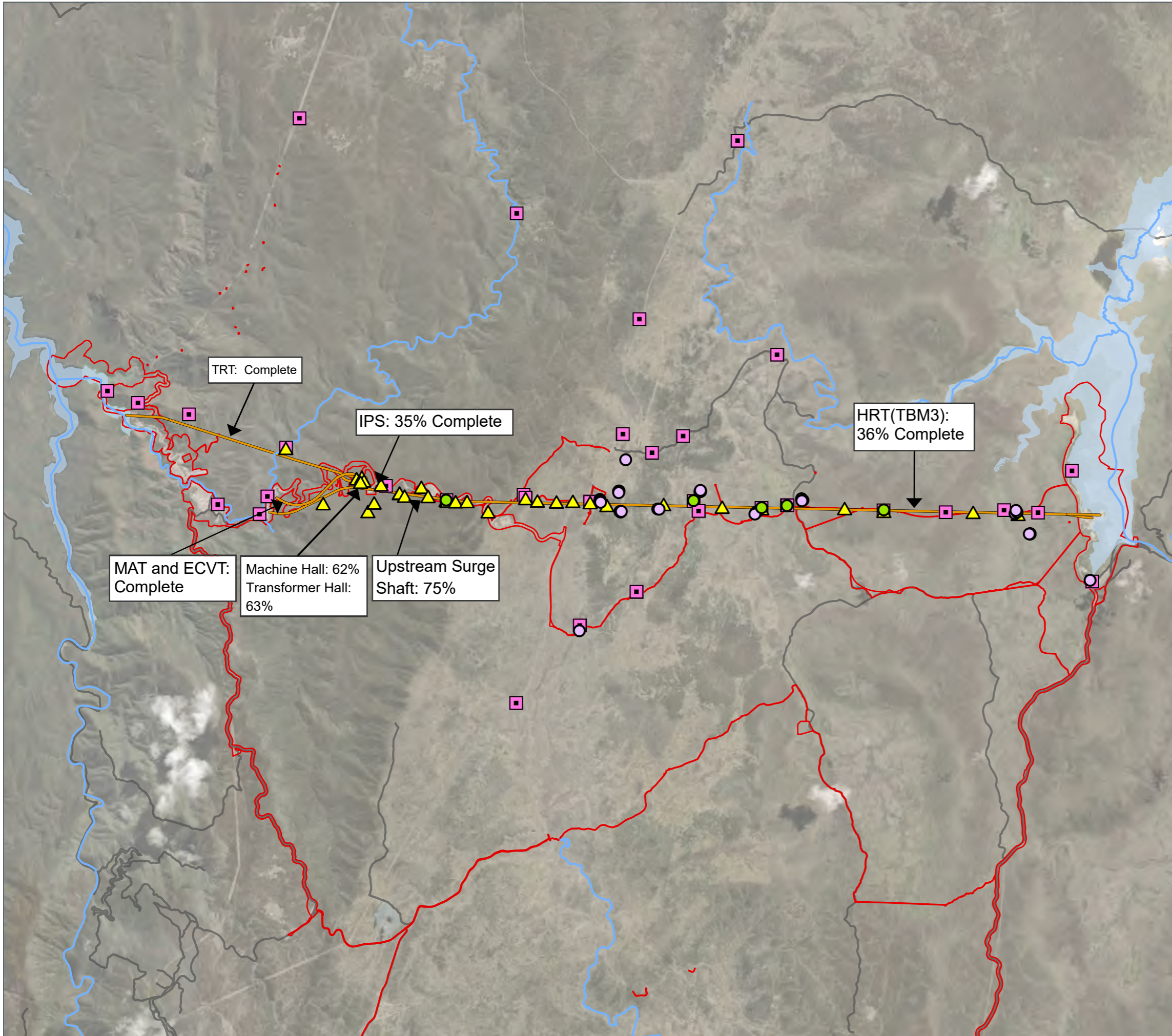
Progress across the different work fronts for this reporting period is detailed in Table 1 and shown in Figure 1.

**Table 1: Construction progress update**

Work Area	Work Front	Status
The Plateau	Headrace Tunnel (TBM3)	Tunnel is 36% complete.
Marica	Inclined Pressure Shaft (TBM1)	Tunnel is 35% complete.
	Upstream Surge Shaft	Shaft is 75% complete
	Cavern	Machine Hall 62% and Transformer Hall is 63% complete.
Lobs Hole	Tailrace Tunnel (TBM2.2)	Complete
	MAT	Complete
	ECVT	Complete

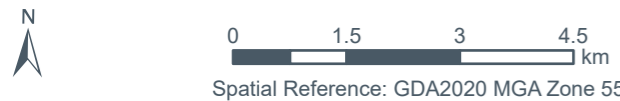
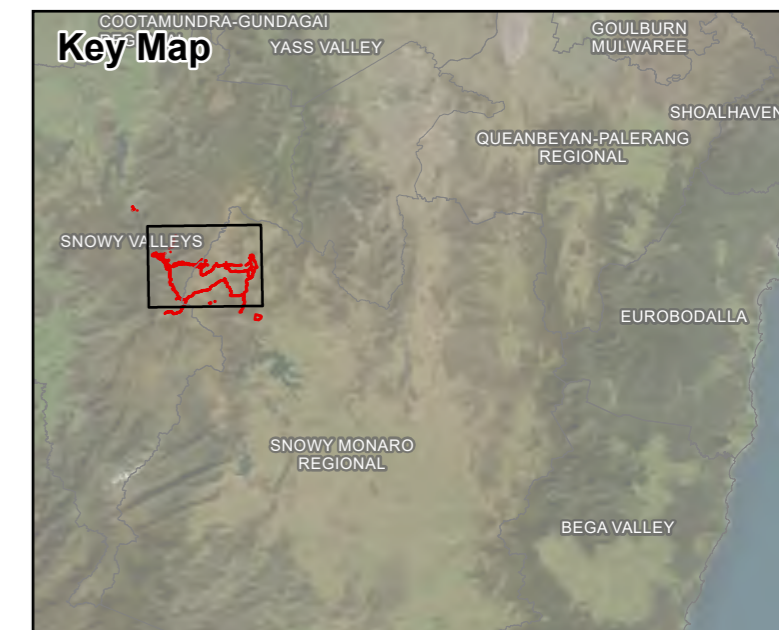
# Snowy 2.0 Groundwater Monitoring - Construction Update

November 2025 - February 2026



### Legend

- Construction Envelope (Dec 2021)
  - Water Storage
  - Access Tunnels
  - Watercourses
  - Road
- Groundwater Monitoring Networks**
- Standpipes
  - Production Bores
  - Swamp Monitoring Bore
  - Vibrating Wire Piezometers



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## 2 Existing Environment

### 2.1 Climate

The project region experiences an alpine climate, marked by mild summers and long, cold, snowy winters with frequent damp conditions. Precipitation is most common from winter through early spring, with amounts typically increasing at higher elevations. In contrast, summer and autumn are drier, with rainfall patterns showing greater month-to-month variability. Summer storms also tend to be more intense but shorter in duration compared to the steadier winter rains.

### 2.1 Rainfall

Three weather stations positioned along the project alignment provide real-time meteorological data:

- **Tantangara** - an automatic weather station managed by FGJV in Tantangara construction site.
- **Lobs Hole** - an automatic weather station managed by FGJV in Lobs Hole construction site.
- **Cabramurra** - an automatic weather station located in the Cabramurra township managed by the Bureau of Meteorology.

The Tantangara and Cabramurra gauges are located in sub-alpine environments at elevations of about 1,220 m and 1475 m, respectively. Cabramurra records significantly higher annual rainfall than the lower-elevation gauges at Lobs Hole and Tantangara. The Tantangara and Lobs Hole stations provide onsite data for their respective construction areas, while the Cabramurra station, at 1470 m, represents conditions at Marica, which lies at a similar elevation of 1480 m and is approximately 15 km to the north.

Rainfall for each weather station is shown in Figures 2 to 4. Climate data has been reviewed over a 12-month span to highlight trends and cycles leading up to the reporting period.

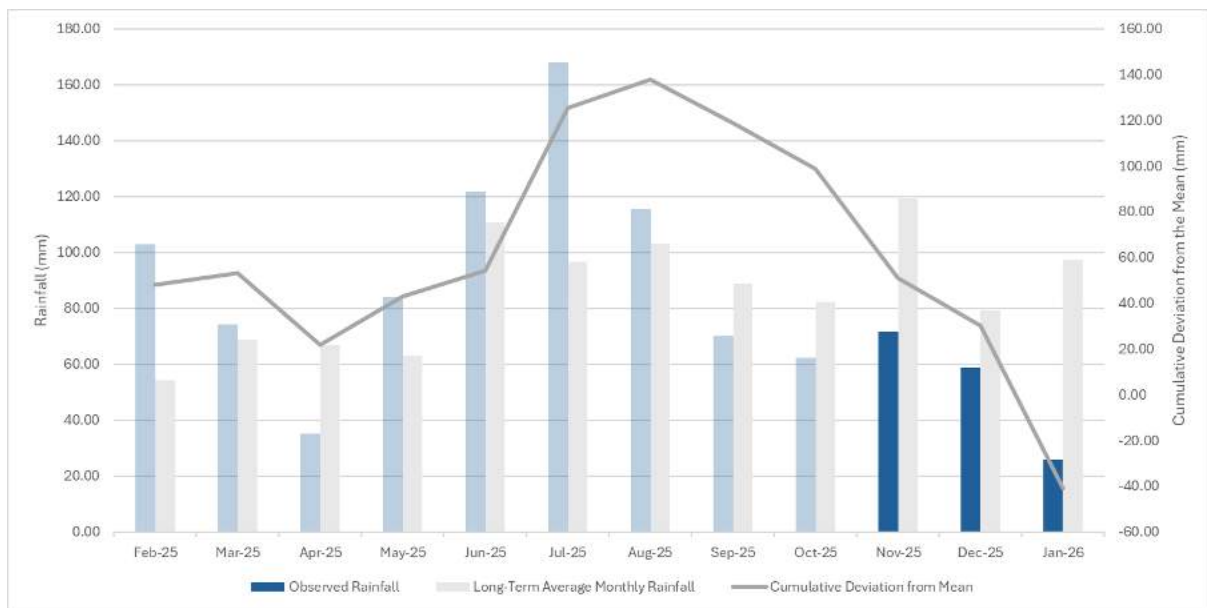


Figure 2: Monthly rainfall and cumulative deviation from mean rainfall at Tantangara weather station

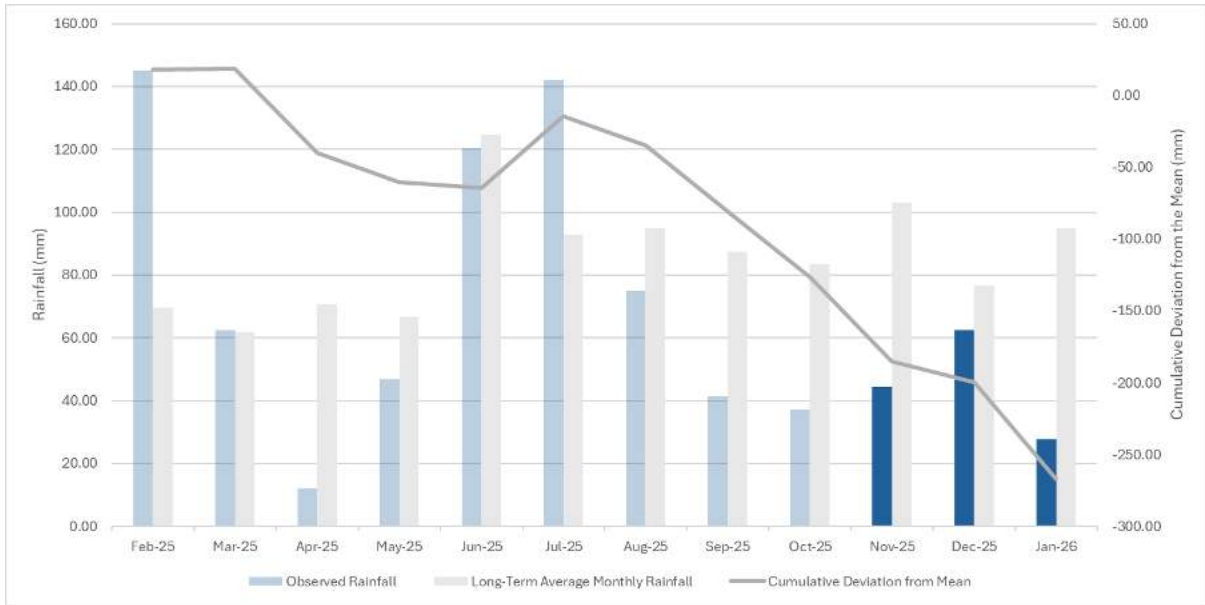


Figure 3: Monthly rainfall and cumulative deviation from mean rainfall at Lobs Hole weather station

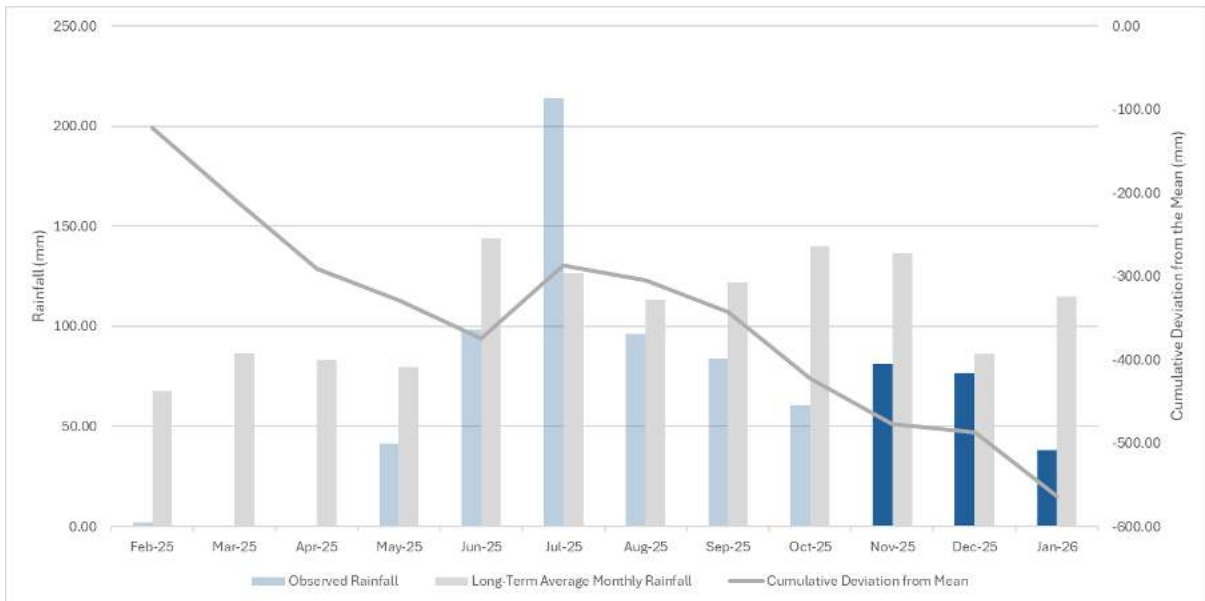


Figure 4: Monthly rainfall and cumulative deviation from mean rainfall at Cabramurra weather station (BoM: 072161)

## 2.2 Drainage and Catchments

The Project’s surface water drainage patterns and catchment characteristics are outlined in Annexure J of the Project’s Main Works Environmental Impact Statement (EIS) includes information on local surface water systems, catchment boundaries, flow paths, and the interaction between surface and subsurface hydrology.

## 2.3 Hydrogeology

The hydrogeological setting of the project site is comprehensively outlined in Annexure J of the Project’s Main Works EIS and includes information on groundwater systems, aquifer characteristics, groundwater-surface water interactions, and potential impacts associated with project activities.

## 3 Monitoring Program

### 3.1 Overview

The regional groundwater monitoring network for the Project includes 106 active groundwater monitoring sites. These sites are shown in Figures 5 to 10.

The Project's groundwater monitoring network is equipped with a combination of remote telemetry and direct-read data loggers, all of which are programmed to log hydrostatic pressure every six hours.

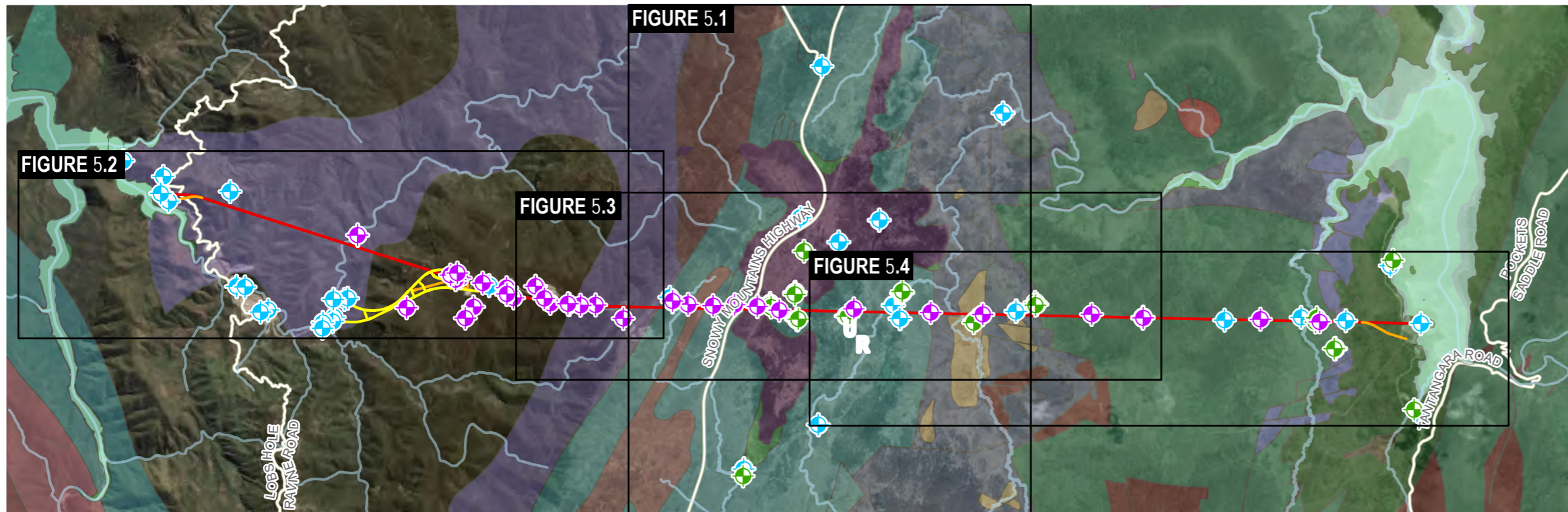
Remote telemetry provides a near-real time feed to Snowy Hydro's Groundwater Dashboard, which graphs the compensated water pressure data as a groundwater level relative to rainfall, and the site-specific water level trigger.

As of February 2026, the active groundwater monitoring sites included:

- 41 conventional groundwater monitoring bores. At some locations multiple monitoring bores are installed next to one another to varying depths (nested bores). These bores are suitable for both water level and water quality sampling.
- 3 test production bores used historically to assess indicative groundwater yields and quality at the proposed tunnel depth.
- 30 shallow bog and fen piezometers.
- 32 Vibrating Wire Piezometer (VWP) locations with 75 sensors installed at depth.

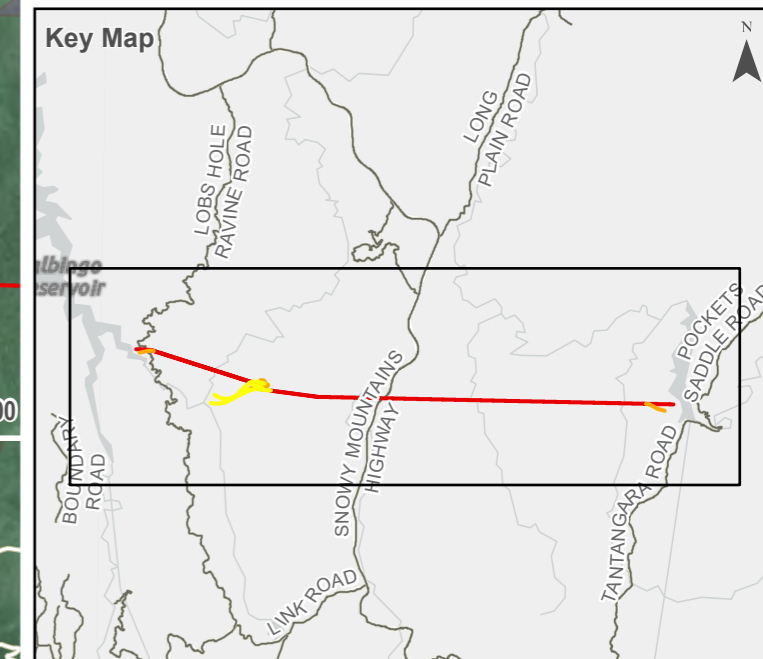
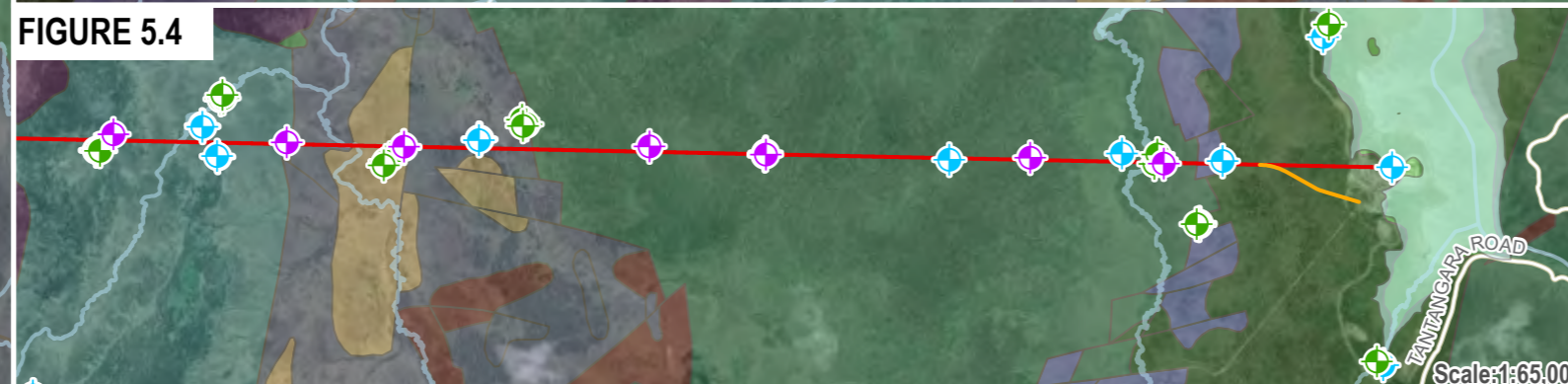
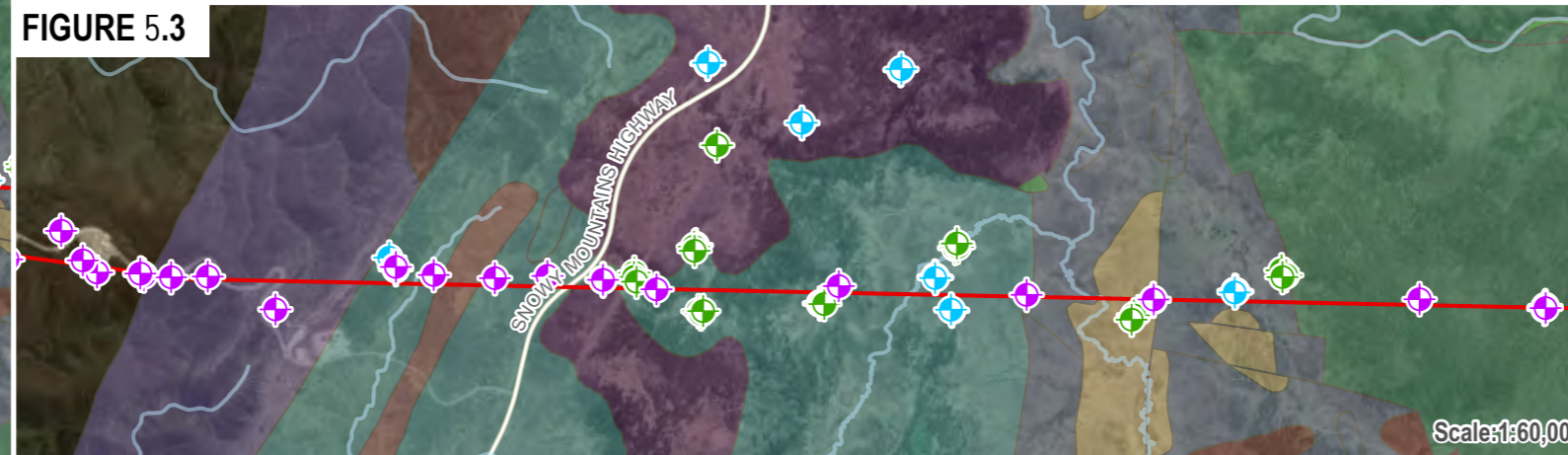
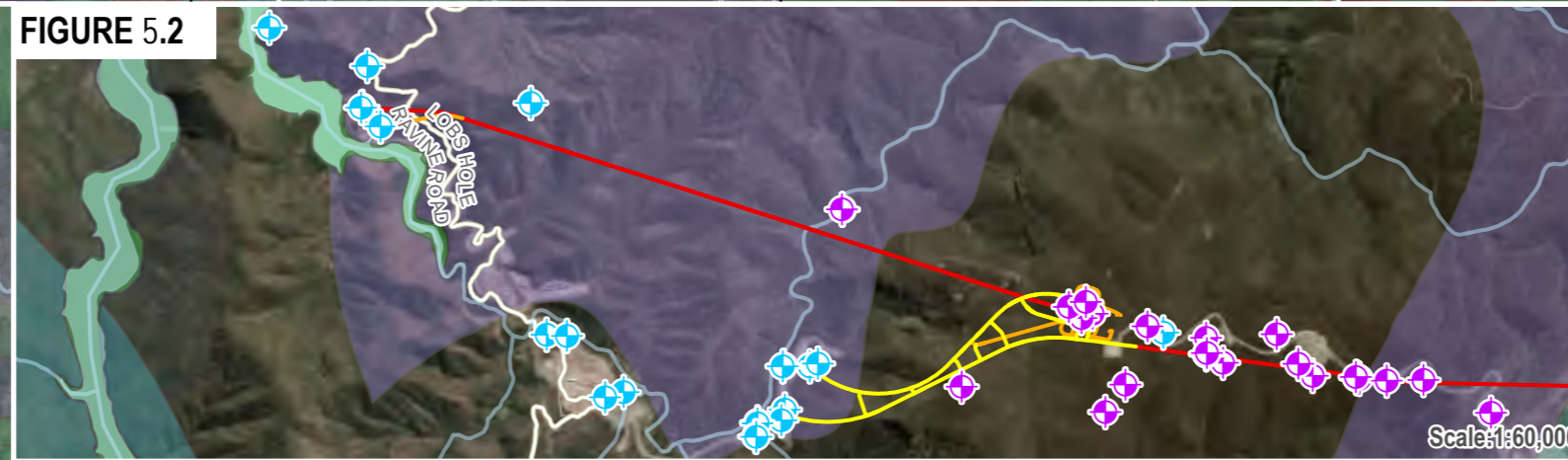
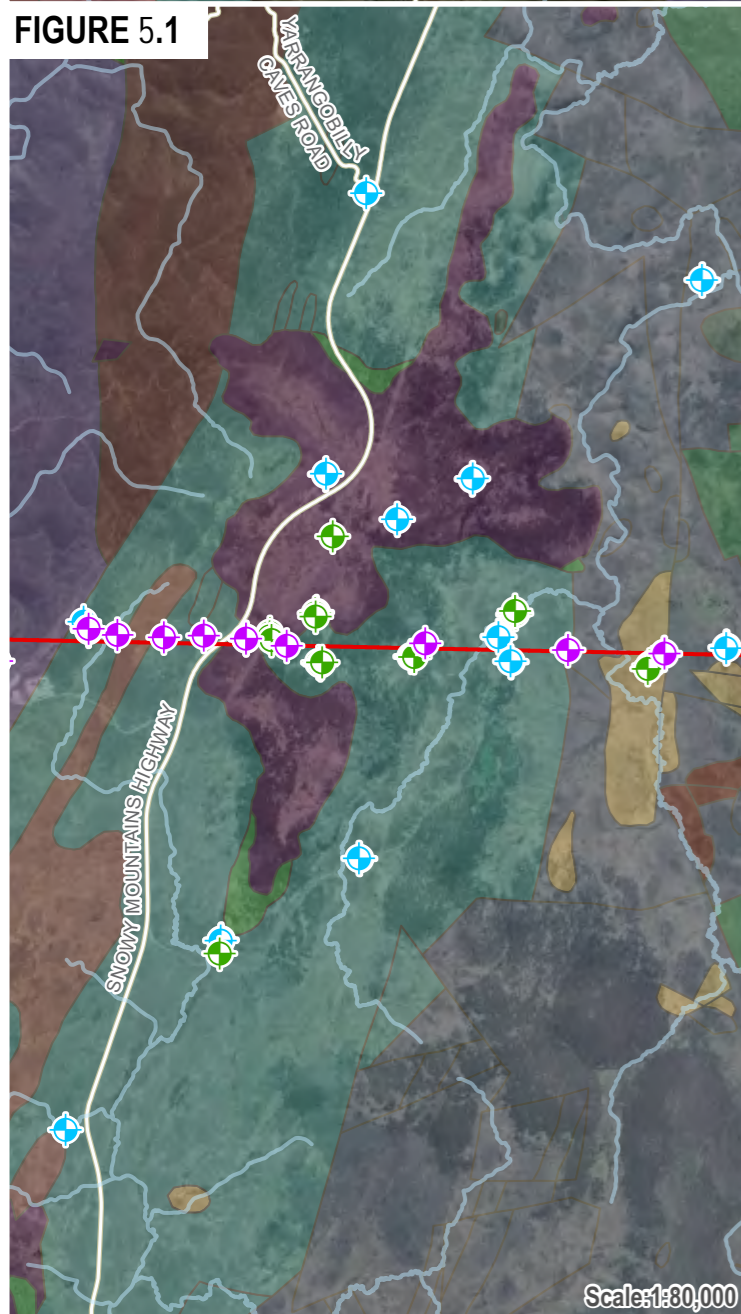
# Groundwater Monitoring Network

## Figure 5 - Overview



### Legend

- |   |   |  |
|---|---|--|
| <b>Monitoring Network</b>                               |   | Bogy Plain Suite - intrusion             |
| VWPs  | Cabramurra Basalt                                   | Gooandra Volcanics                       |
| Shallow Bog Piezometers                                 | Goobarragandra Volcanics                            | Green Hills Granodiorite                 |
| Open Stand pipes  | Hell Hole Creek Monzogranite                        | Kellys Plain Volcanics                   |
| Access Tunnels  | Lobs Hole Monzogranite                              | Peppercorn Formation                     |
| Construction Tunnels                                    | Ravine beds   | Rough Creek Tonalite                     |
| Hydraulic Tunnels                                       | Shaw Hill Gabbro                                    | Tantangara Formation                     |
| Major Road  | Temperance Formation                                | Unassigned Palaeozoic intrusions - dykes |
| Watercourse   | Unassigned Silurian intrusions - porphyry           |  |
| Water Areas   |   |  |
| <b>Surface Geology</b>                                  |   |  |
| Abercrombie Formation                                   | Alluvial sediments                                  |  |
| Anthropogenic stored water, pondage, reservoirs, canals | Bogy Plain Suite - cumulo-phryic textured intrusion |  |



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Prepared by: Karen Zhu  
 Date: 18/06/2025

Spatial Reference: GDA2020 MGA Zone 55

# Groundwater Monitoring Network

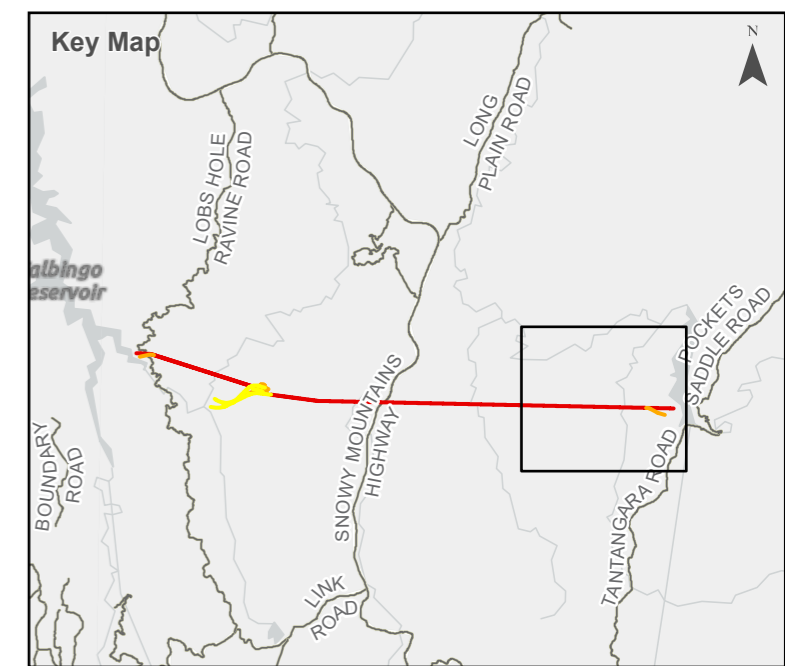
Figure 6 - Tantangara and Zinc Ridge

## Legend

- Construction Tunnels
- Hydraulic Tunnels
- Major Road
- Watercourse
- Water Areas
- Monitoring Network**
- ◆ VWPs
- ◆ Shallow Bog Piezometers
- ◆ Open Stand pipes
- ◆ Open Stand pipes (100% Trigger)

## Surface Geology

- Abercrombie Formation
- Anthropogenic stored water, pondage, reservoirs, canals
- Hell Hole Creek Monzogranite
- Kellys Plain Volcanics
- Peppercorn Formation
- Tantangara Formation
- Temperance Formation



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# Groundwater Monitoring Network

## Figure 8 - Marica and Lobs Hole

### Legend

#### Monitoring Network

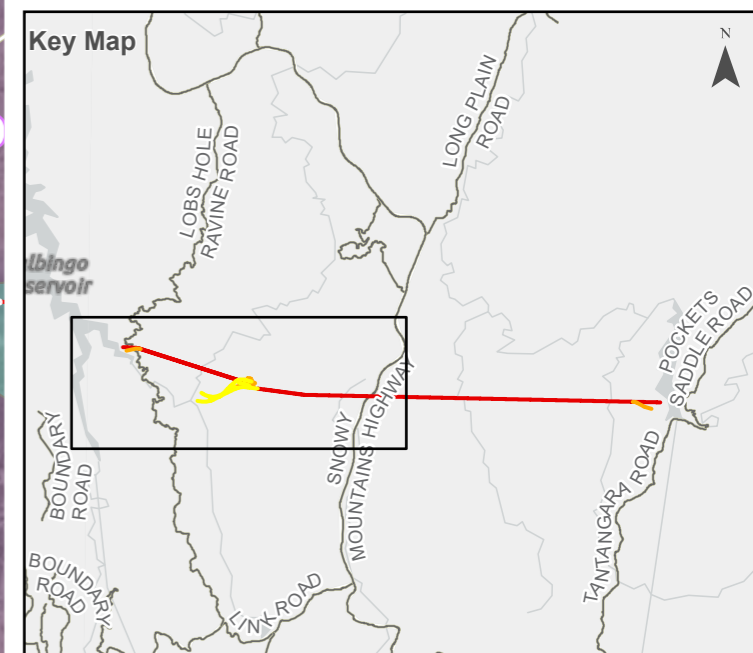
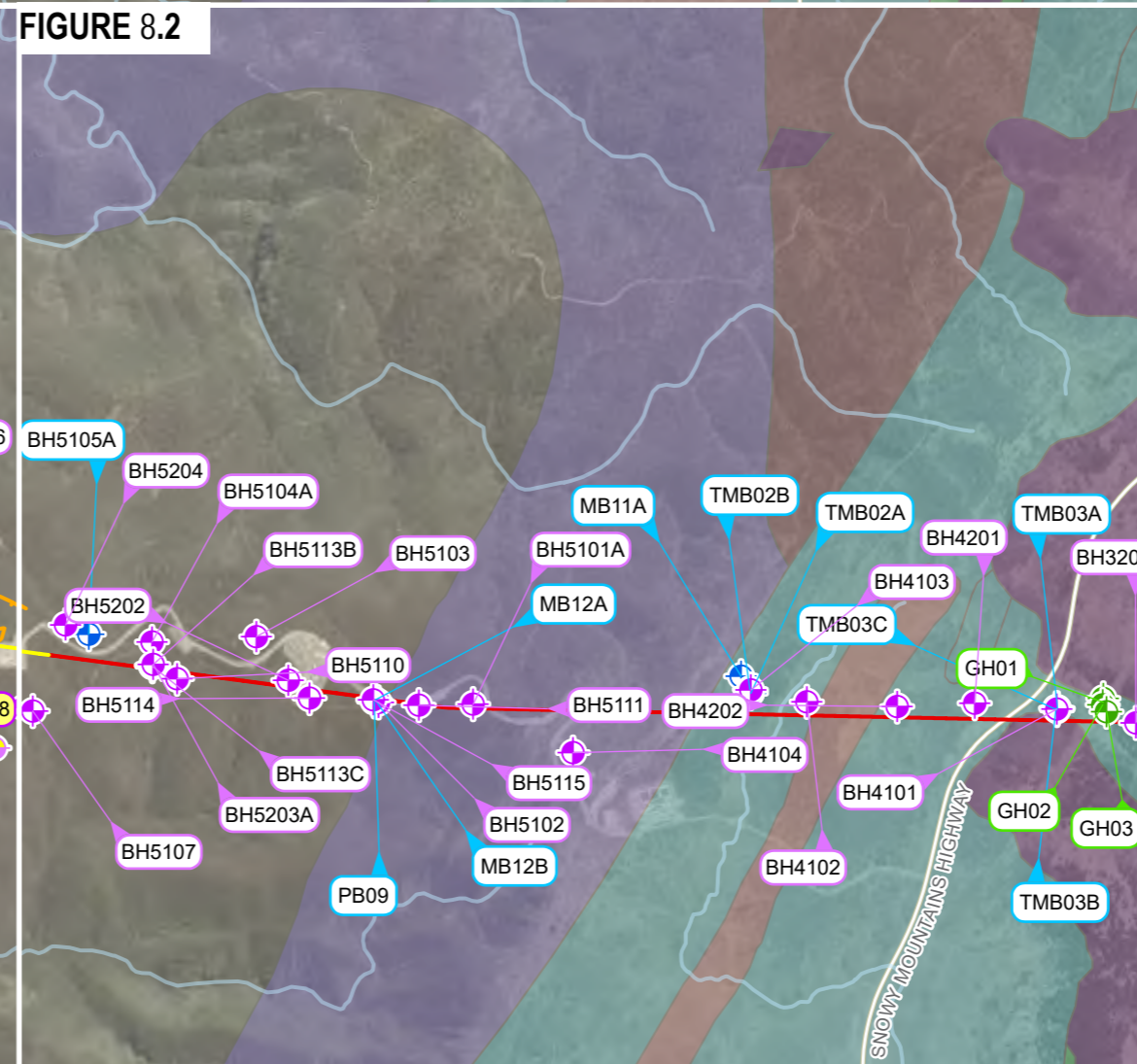
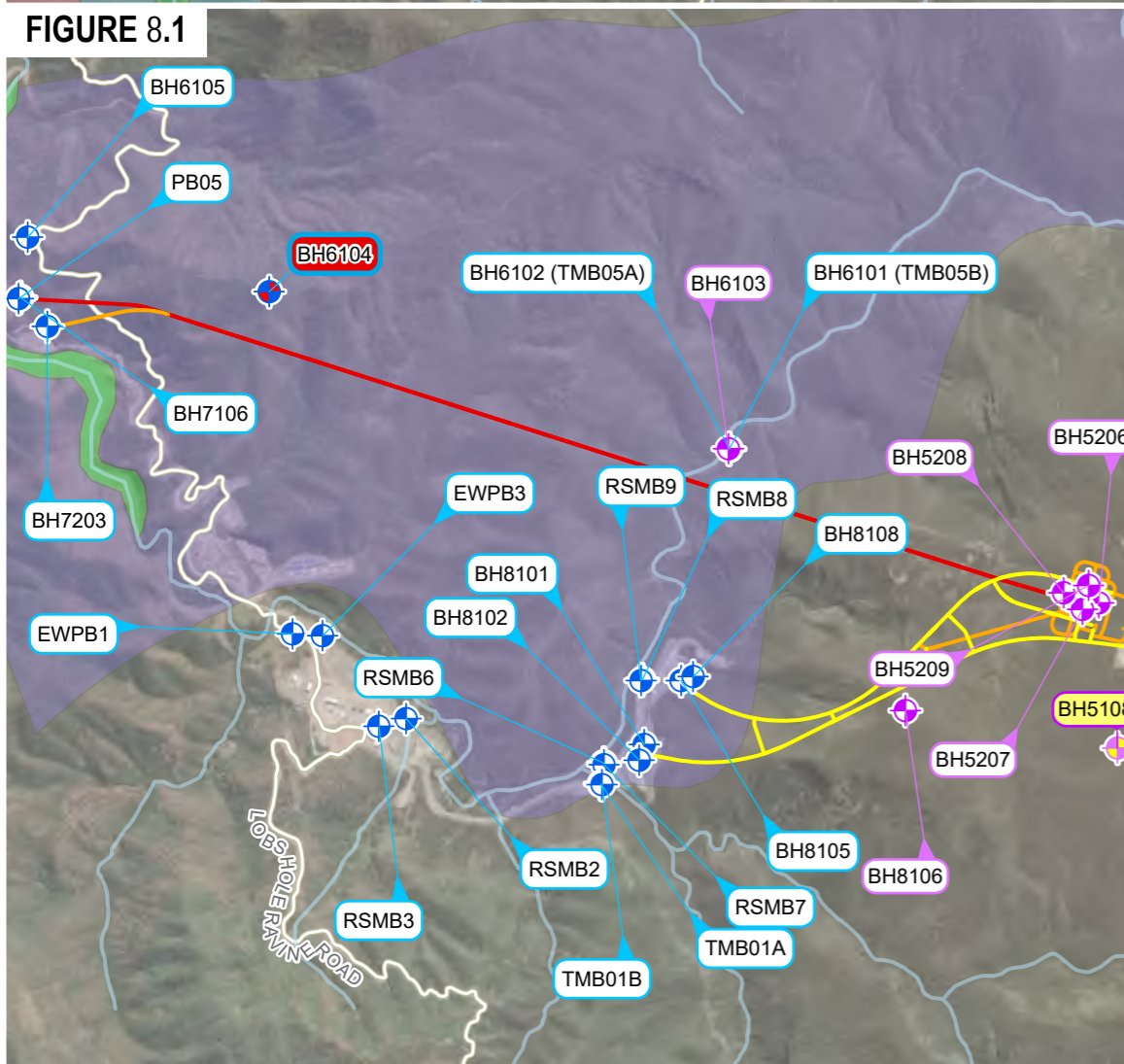
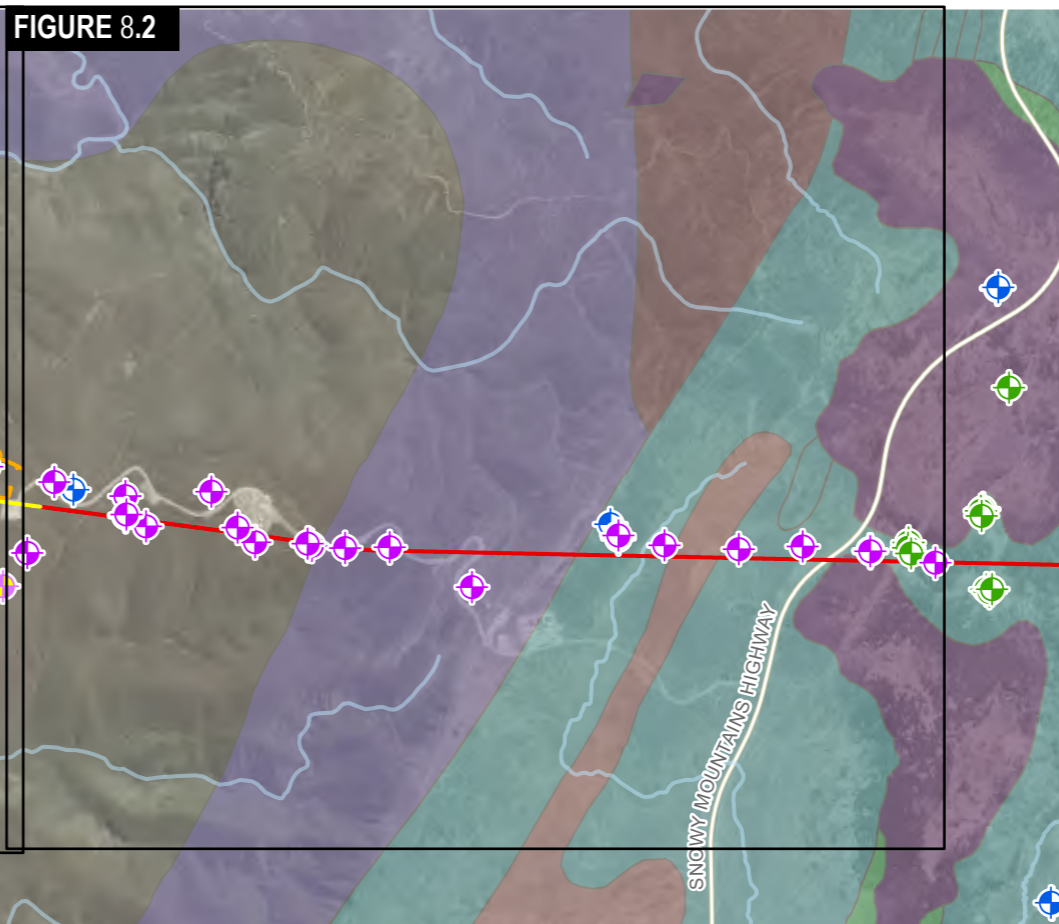
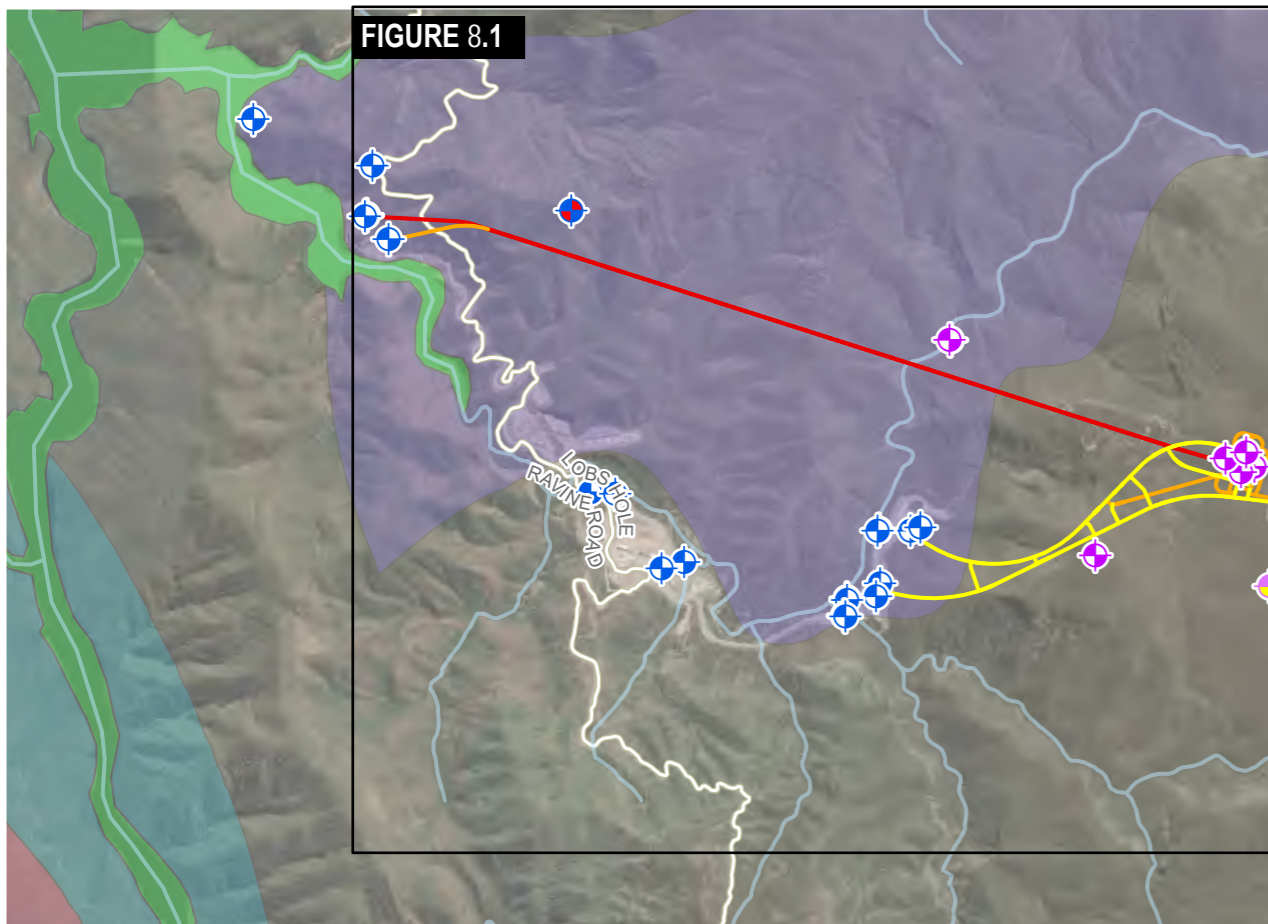
- VWPs
- VWPs (50% Trigger)
- Shallow Bog Piezometers
- Open Stand pipes
- Open Stand pipes (100% Trigger)

- Access Tunnels
- Construction Tunnels
- Hydraulic Tunnels

- Major Road
- Watercourse

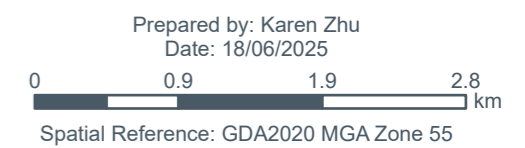
#### Surface Geology

- Alluvial sediments
- Anthropogenic stored water, pondage, reservoirs, canals
- Cabramurra Basalt
- Goandra Volcanics
- Goobarragandra Volcanics
- Ravine beds
- Rough Creek Tonalite
- Shaw Hill Gabbro



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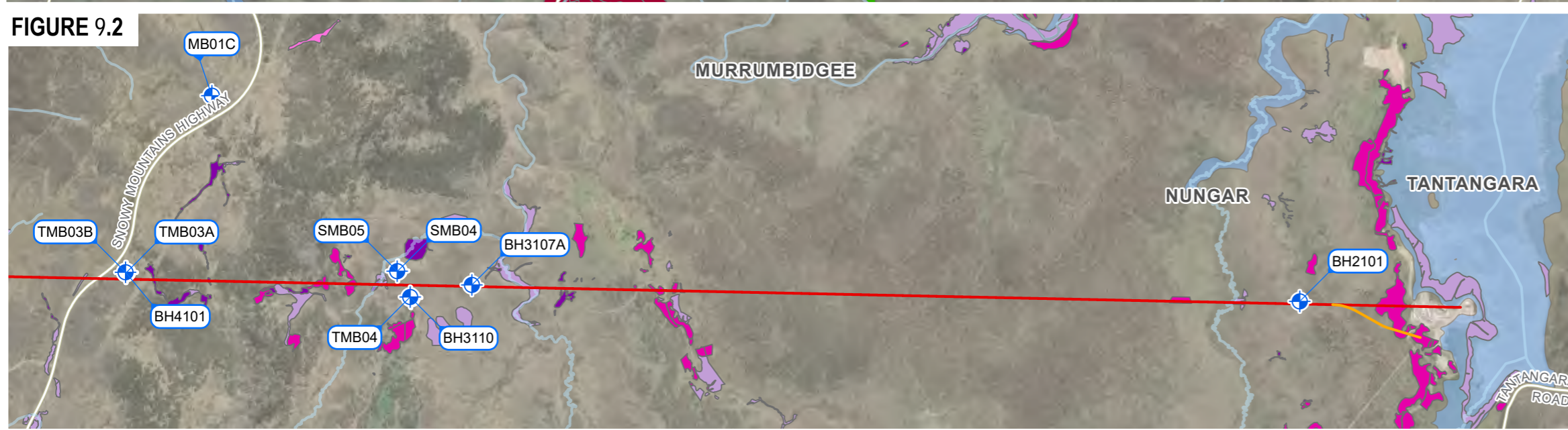
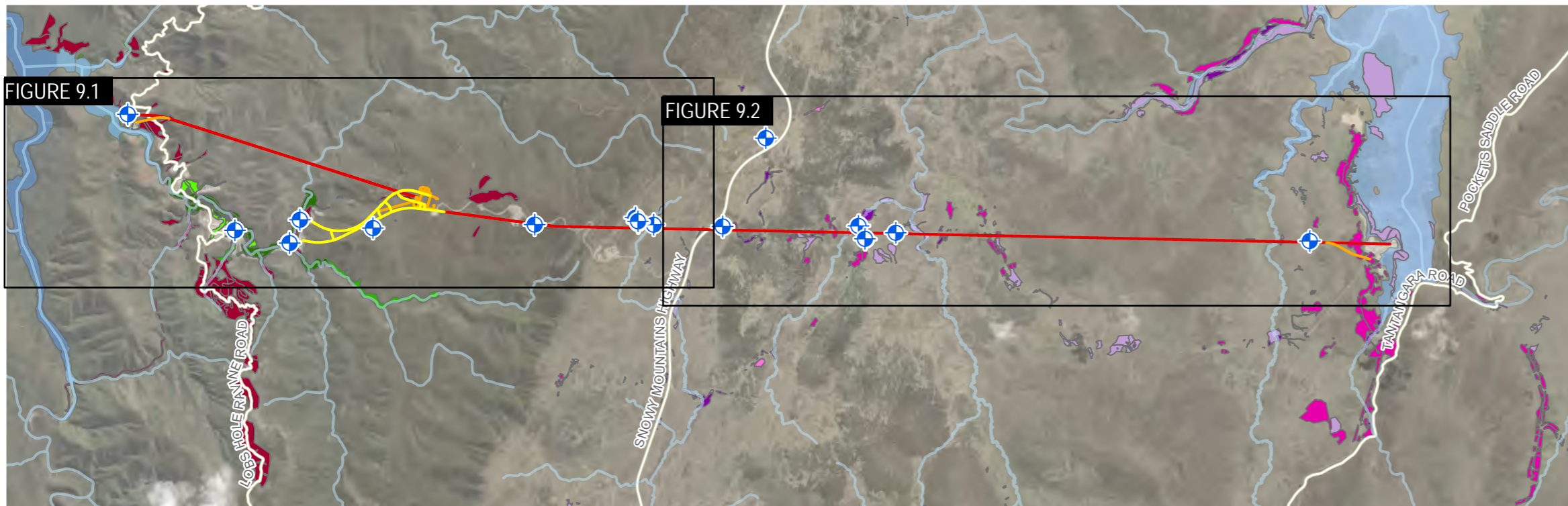
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Date: 18/06/2025

# Groundwater Monitoring Network

## Figure 9 - Level 1 Monitoring Sites



### Legend

**Monitoring Locations**

- Level 1 Bore
- Access Tunnels
- Construction Tunnels
- Hydraulic Tunnels
- Major Road
- Watercourse
- Water Areas

**Entirely/Obligate dependence**

- PCT 637 - Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion;
- PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion
- PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion

**Facultative - proportional**

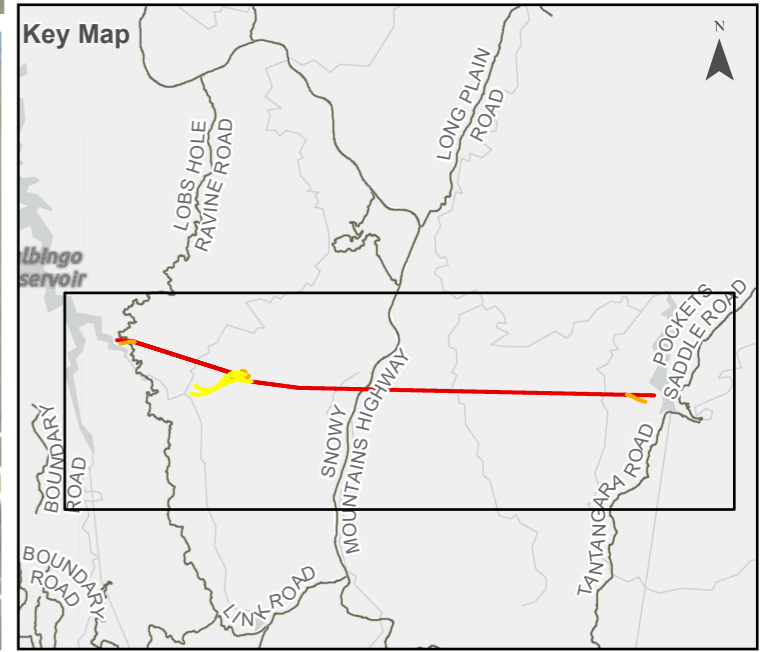
- PCT 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion
- PCT 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion
- PCT 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion

**Facultative - opportunistic**

- PCT 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment
- PCT 302 - Riparian Blakely's Red Gum - Broad-leaved Sally woodland - tea-tree - bottlebrush - wattle shrubland wetland of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion

**Entirely/Obligate dependence**

- PCT 303 - Black Sally grassy low woodland in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion
- PCT 679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion

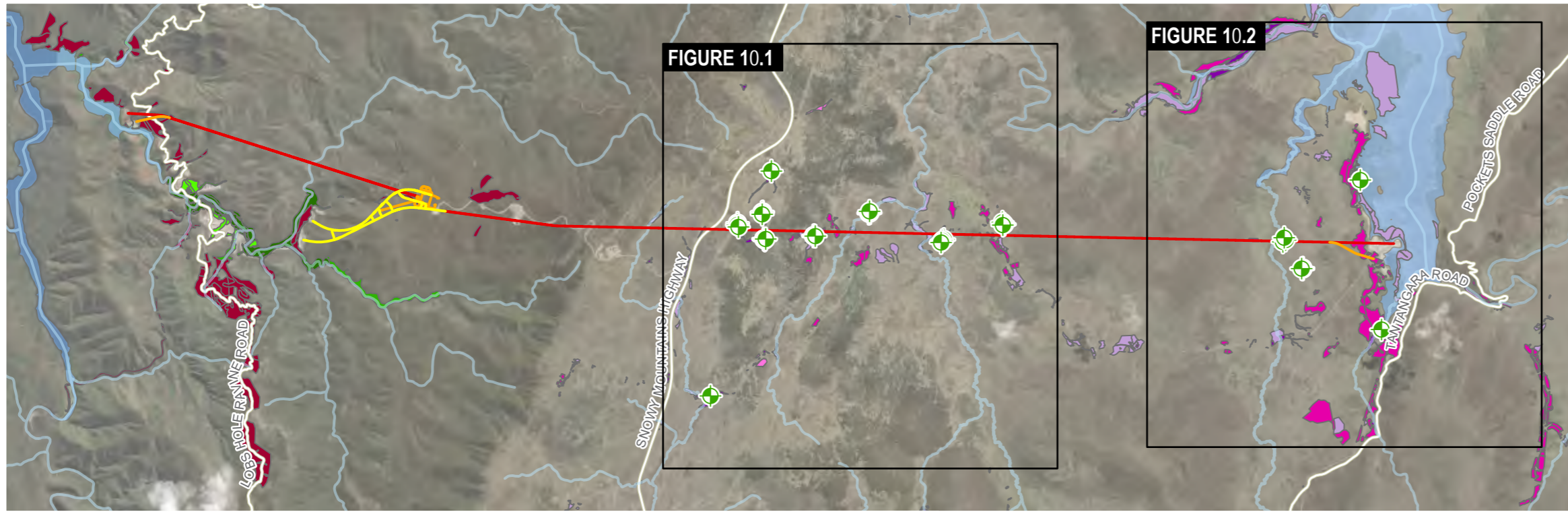


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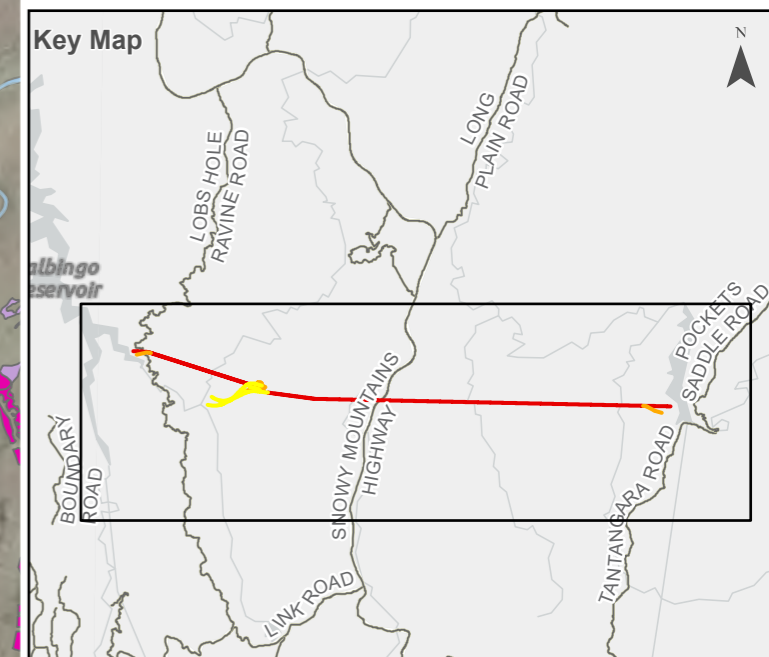
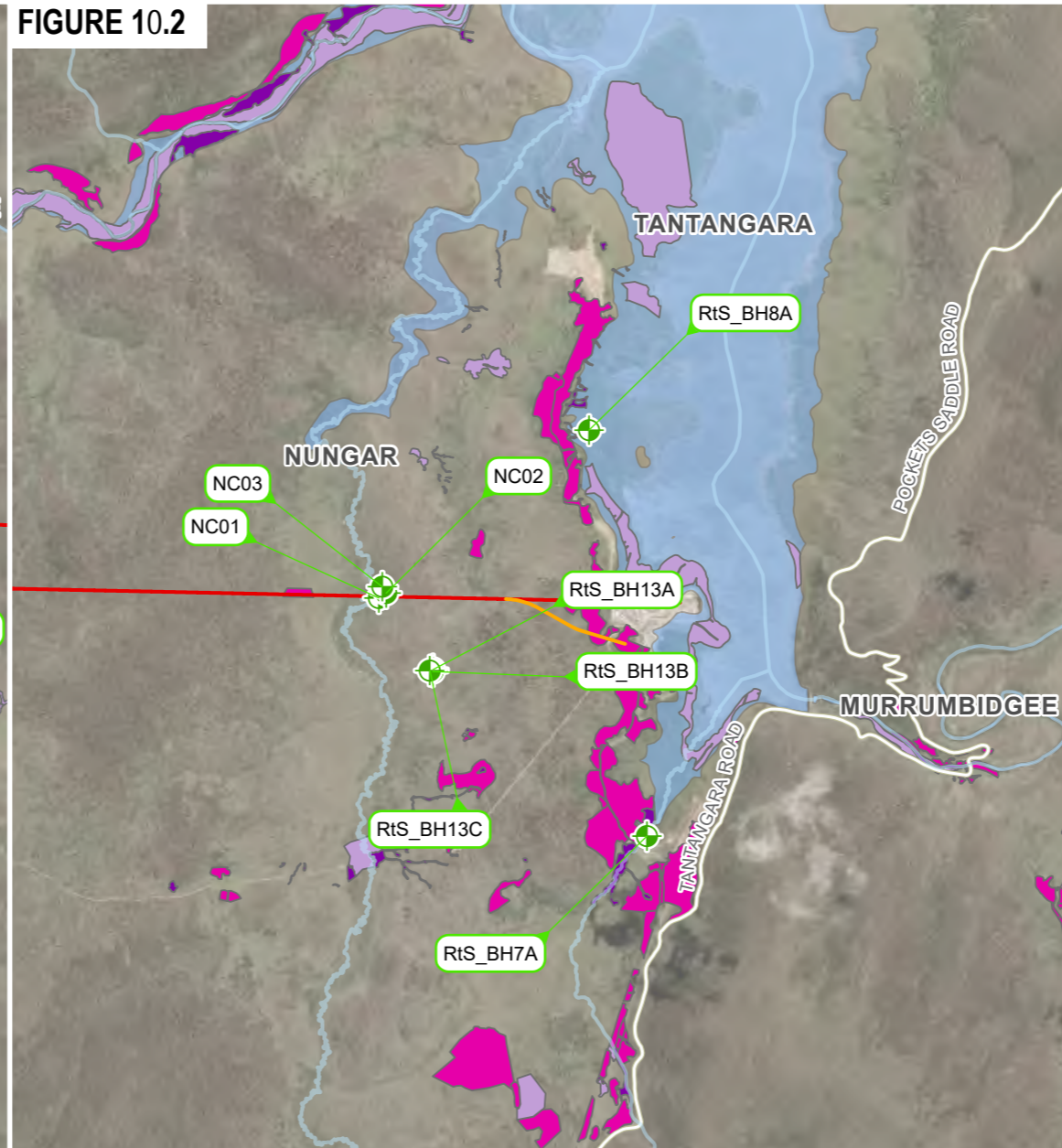
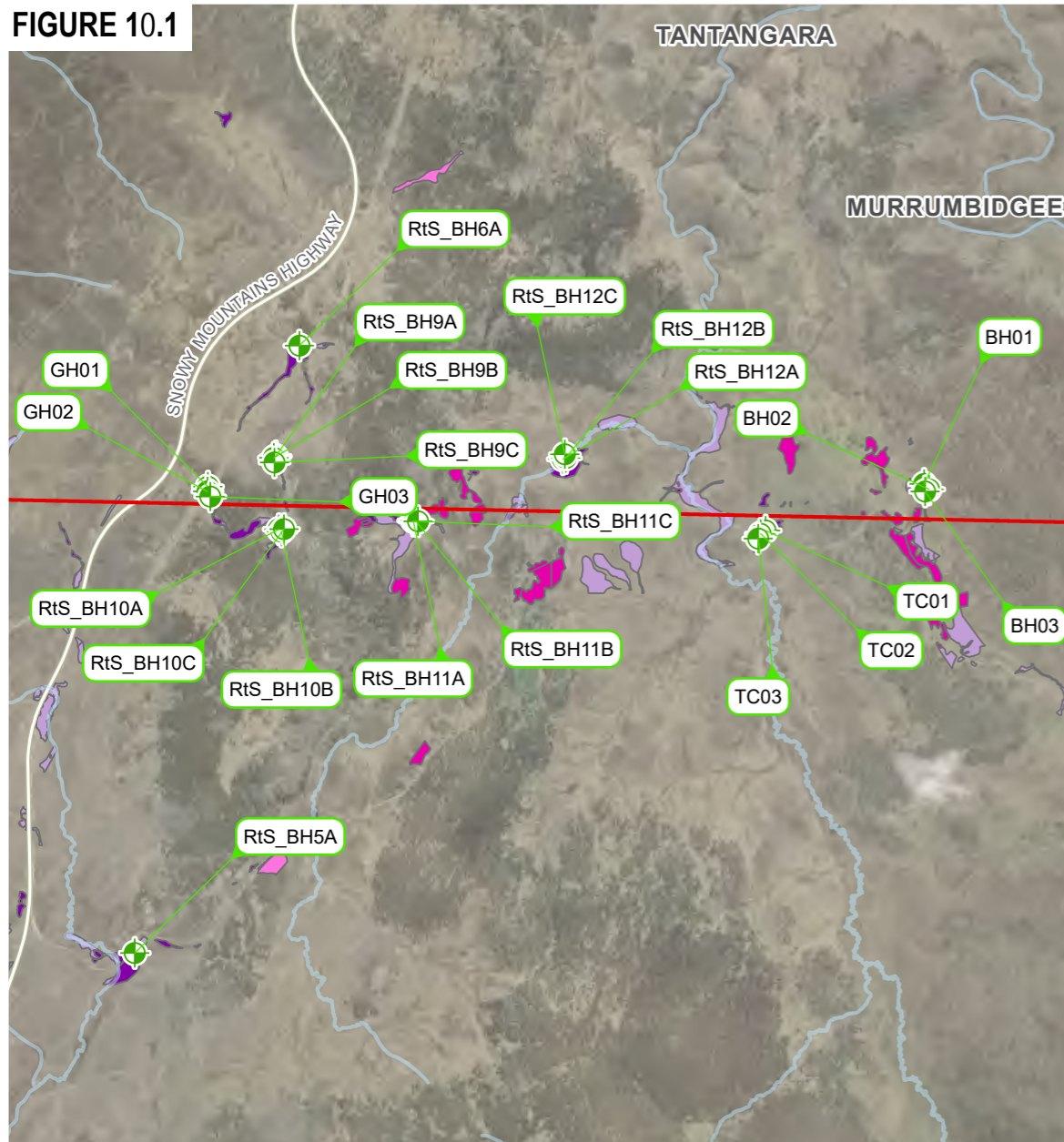
# Groundwater Monitoring Network

## Figure 10 - Bogs and Fens Monitoring Sites



### Legend

- ◆ Shallow Bog Piezometers
  - Access Tunnels
  - Construction Tunnels
  - Hydraulic Tunnels
  - Major Road
  - Watercourse
  - Water Areas
- Entirely/Obligate dependence**
- PCT 637 - Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion;
  - PCT 637 - Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion;
  - PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion
  - PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion
- Facultative - proportional**
- PCT 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion
  - PCT 299 - Riparian Ribbon Gum - Robertson's Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion
  - PCT 299 - Riparian Ribbon Gum - Robertson's Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion
- Facultative - opportunistic**
- PCT 300 - Ribbon Gum - Narrow-leaved (Robertson's) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment
  - PCT 303 - Black Sally grassy low woodland in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion
  - PCT 303 - Black Sally grassy low woodland in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion
  - PCT 679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion
  - PCT 302 - Riparian Blakely's Red Gum - Broad-leaved Sally woodland - tea-tree - bottlebrush - wattle shrubland wetland of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion



**Credits:** Data used is owned by Snowy Hydro Limited except as follows: Earthstar Geographics, Vicmap, Esri, TomTom, Garmin, FAO, MET/NASA, USGS, Maxar [Add credits / acknowledgements for any other third part data sources here]

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## 4 Monitoring Results

Groundwater hydrographs for each groundwater monitoring site are presented in Appendix A, B and C.

### 4.1 Performance of Monitoring Network

The groundwater levels have remained within the predicted levels of the approved regional groundwater model (EMM, 2020), except where noted in Section 4.3.

### 4.2 Trigger Criteria

Groundwater level trigger values, as outlined in Section 6.4 of the Groundwater Management Plan (FGJV, 2020), have been assigned to groundwater monitoring sites predicted to be influenced by project-related activities. These values were established using both numerical modelling outputs and baseline monitoring data, following this process:

1. The highest expected drawdown (in metres) at each monitoring point was taken from the numerical model outputs.
2. A minimum natural groundwater level (in metres AHD) was estimated based on baseline records, up to the point where drawdown attributable to the project was first observed.
3. The modelled maximum drawdown was subtracted from this inferred minimum level to calculate a trigger threshold. An exceedance of this would indicate greater drawdown than anticipated.

For VWP sites, these trigger levels have been applied to the shallowest sensor from ground level, as it best reflects changes in the water table. Project-induced drawdown effects, as forecast by EMM (2020), are primarily expected to influence the shallow groundwater system.

### 4.3 Groundwater Level Triggers During Reporting Period

There were no triggers during this reporting period.

### 4.4 Groundwater Level Triggers from Previous Reporting Periods

#### 4.4.1 BH2101

As per the recommendations of the third-party Trigger Exceedance Report prepared by EMM (E230052\_R8.2\_TER2101\_v2), the following has been carried out:

- Groundwater levels continue to be monitored;
- An ecologist has been engaged to assess potential impacts on Nungar Creek and PCT 637;
- Groundwater from BH2101 and nearby bores were sampled quarterly;
- The regional groundwater model is currently being updated and recalibrated to incorporate the latest data.

#### 4.3.1 BH5204

Between 29 June and 29 July 2025, monitoring bore BH5204 (Sensor 2) exceeded the site-specific trigger value (SSTV) of 901.41 mAHD, remaining below the threshold for more than 30 consecutive days. This exceedance triggered the implementation of the Trigger Action Response Plan (TARP) as set out in the Main Works Groundwater Management Plan. In accordance with Level 3b of the TARP, a third-party Trigger Exceedance Report was required and prepared by AGE Consultants (SNO5001.001).

The report identified the following key findings:

- Groundwater drawdown at BH5204 was likely attributable to excavation of the Inclined Pressure Shaft (IPS) by TBM1, located within 39 m of the bore during the exceedance period.

- Depressurisation was greater in the deeper sensor (Sensor 1) compared to Sensor 2, indicating limited vertical connectivity and impedance of depressurisation to shallow systems.
- Nearby bore BH5107 showed similar but less pronounced depressurisation, consistent with its greater distance from the tunnel alignment, while BH5105A recorded no comparable drawdown and responded primarily to rainfall, highlighting a disconnect between shallow and deep groundwater.
- No obligate GDEs or social receptors were present in the assessment area, and mapped facultative GDEs were not impacted.

The report recommended the following:

- Continue monitoring porewater pressure and groundwater levels across the network.
- Recalibrate the numerical groundwater model (SH4.0) with updated data and revise SSTVs accordingly.

The recommendations of this report are being implemented.

## 5 Groundwater Dependant Ecosystems (GDEs)

### 5.1 Baseline Data Collection

The existing GDE shallow groundwater monitoring network includes 30 sites that co-locate with recognised GDEs (Plant Community Type 637). These sites have been used to define baseline conditions for bogs and associated fens across the Plateau region.

### 5.2 Groundwater Level Triggers in GDEs

The groundwater recharge of the shallow bog and fens standpipes during the 2025 recharge period (May–October) was assessed. The assessment focused on monitoring sites NC02 and NC03 at Nungar Creek, where TBM3 passed nearby, and adjacent control sites RtS\_BH13A–C and RtS\_BH7A. All other shallow piezometer sites were not within proximity of construction activities, and continued to collect baseline data. The observed recharge was compared against the 80th percentile threshold defined in the Groundwater Management Plan (GMP) to assess hydrological health, inform adaptive management, and ensure compliance with Schedule 3, Conditions 15–16. This assessment concluded that the recharge patterns observed at NC02 and NC03 were consistent with broader regional trends and consistent with established baseline conditions. All shallow groundwater monitoring sites, including GDE locations, will continue recording data to support long-term trend analysis and model validation.

### 5.3 Construction works near GDEs

To date, construction has remained outside recognised GDEs, except for TBM 3, which excavated the headrace tunnel under Nungar Creek from November 2024 to January 2025 (i.e. outside of the assessment window).

### 5.4 GDE Ecology Surveys

The Groundwater Management Plan for Snowy 2.0 identifies a PCT that is characterised as entirely obligate Terrestrial Groundwater Dependent Ecosystems (GDEs). This PCT requires ongoing monitoring, adaptive management and potentially offsetting if impacted. The PCT of relevance is:

- PCT 637 – Alpine and sub-alpine peatland, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion.

A representative sample of GDEs, specifically PCT 637, along the alignment that could potentially be affected by the construction of the Snowy 2.0 project in Kosciuszko National Park (KNP) are monitored quarterly, with the exception of winter months. A map of the GDE survey is shown in Figure 11.

GDE monitoring involves field mapping, using random meander surveys to verify Plant Community Type (PCT) boundaries to assess vegetation and ground cover. Surface level rods tracked peat depth changes over time and are also flagged and GPS-recorded. PCTs are classified into condition zones (poor, moderate, high), and a qualitative

assessment of ecological health is included, noting past impacts from ungulates, introduced herbivores, and weeds in Kosciuszko National Park.

## 6 Conclusions

Groundwater monitoring between November 2024 and February 2025 identified exceedances at BH2101 and BH2103, with BH2101 triggering Level 3b of the TARP. No impacts to shallow groundwater or nearby GDEs were observed. Recommendations from the Trigger Exceedance Report are being implemented, including quarterly monitoring, ecological assessments, and groundwater model updates. A groundwater recharge assessment at Nungar Creek (NC02 and NC03) confirmed that groundwater recharge near recent tunnelling activities remained consistent with established baselines and broader regional trends. Other than Nungar Creek, construction remains largely outside recognised GDEs. Baseline ecological surveys were completed in April 2025 to support future assessments.



GDE 637 Proposed Monitoring Sites  
Drone & Ground Monitoring Methodology

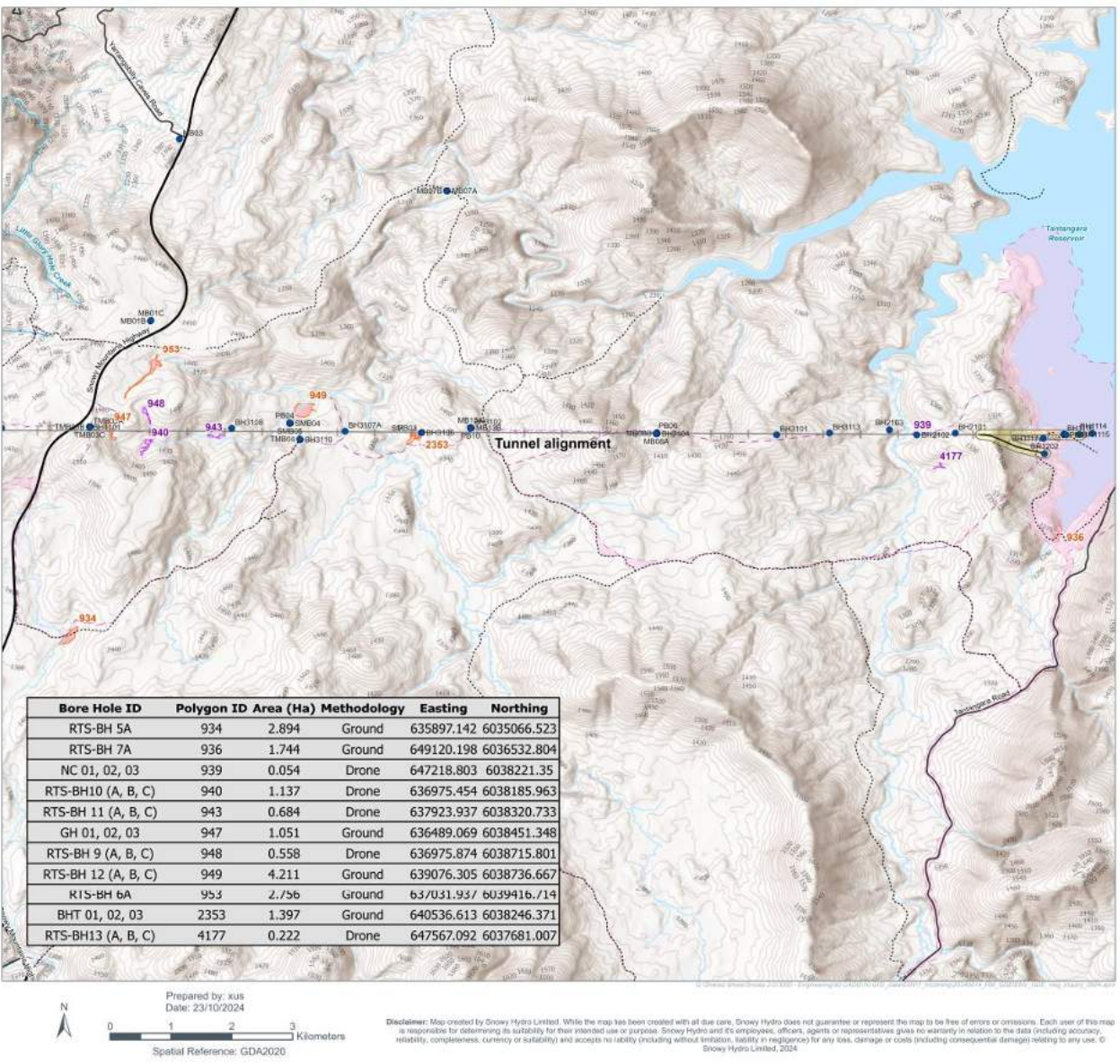
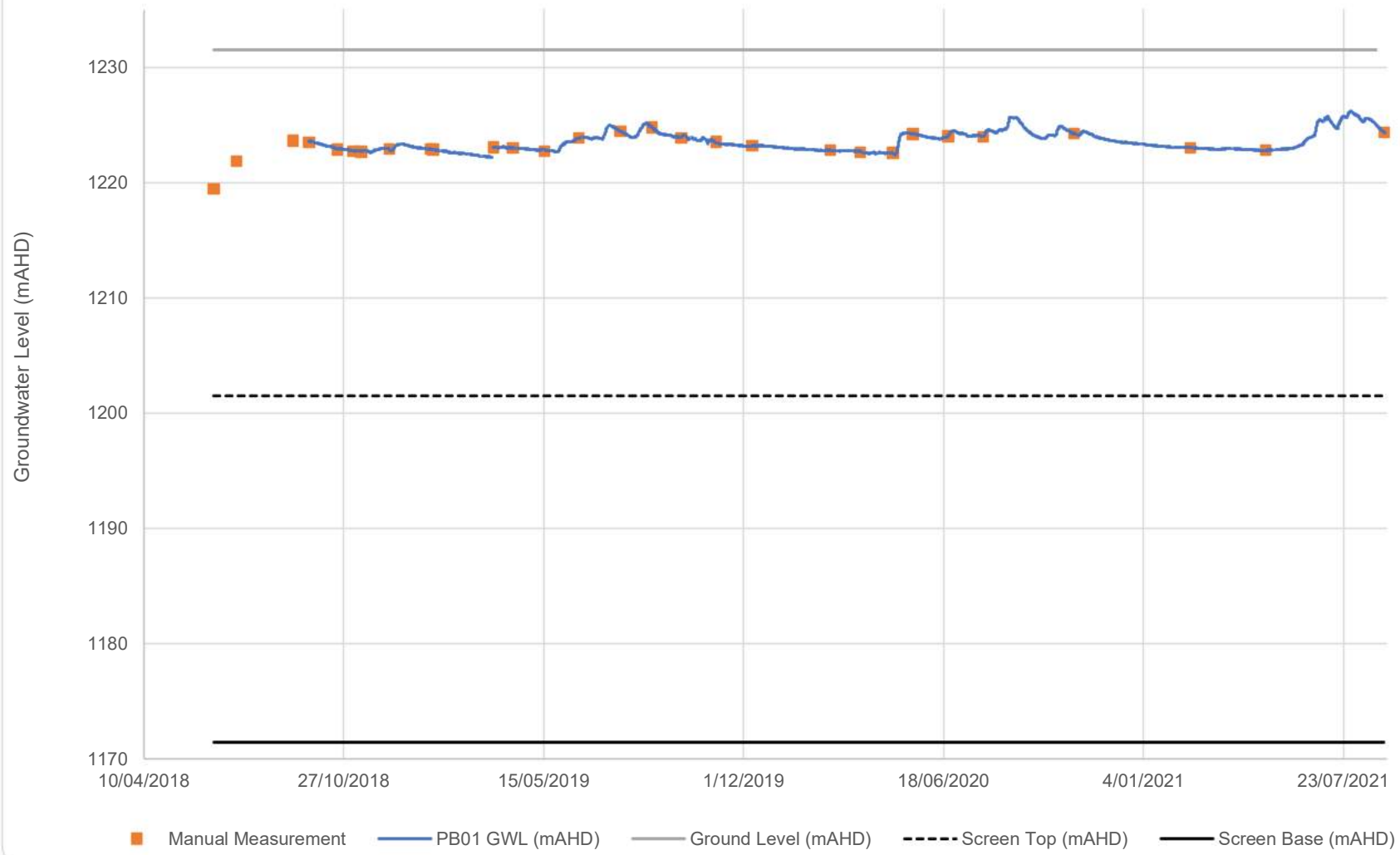


Figure 11: GDE monitoring locations. Orange polygons indicate areas where ground quadrants will be surveys. Pink polygons indicate those areas which will be monitored via drones.  
Alpine Flora [www.alpineflora.com](http://www.alpineflora.com)

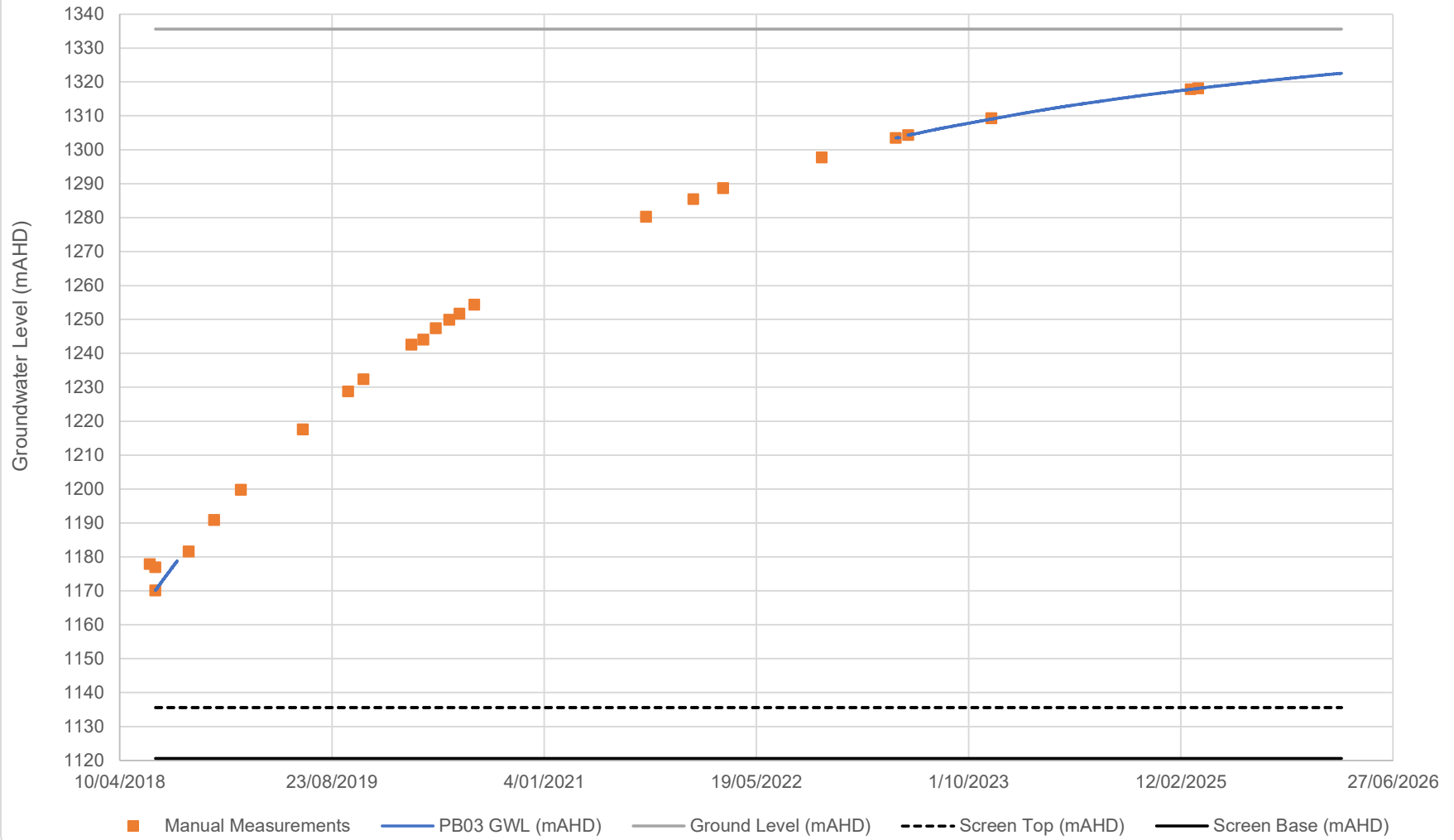
Credits: Borehole Location, SHL, 2024; Tunnels, SHL, 2024; Construction Envelope, SHL, 2024; Road Name Extent, TN5IX, 2023; NSW Hydrography, DCS, 2024; Topographic Maps, DCS, 2022; Vegetation Communities, SHL, 2022.  
Hillshade credits: Esri, Geoscience Australia, NASA, NGA, USGS, Vizzop, Esri, TomTom, Garmin, FourSquare, METI, NASA, USGS

## **Appendix A - Conventional Monitoring Bores Hydrographs**

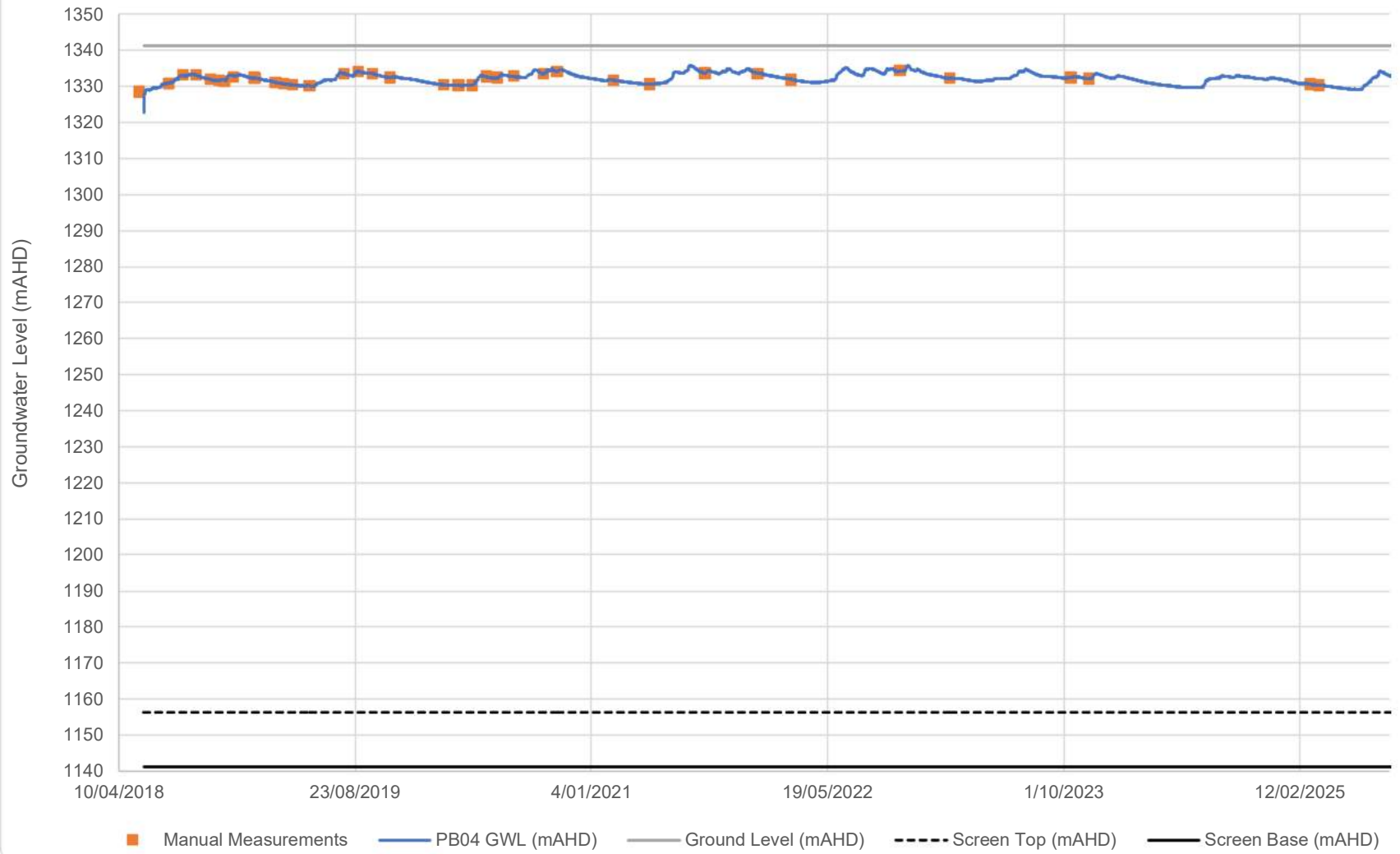
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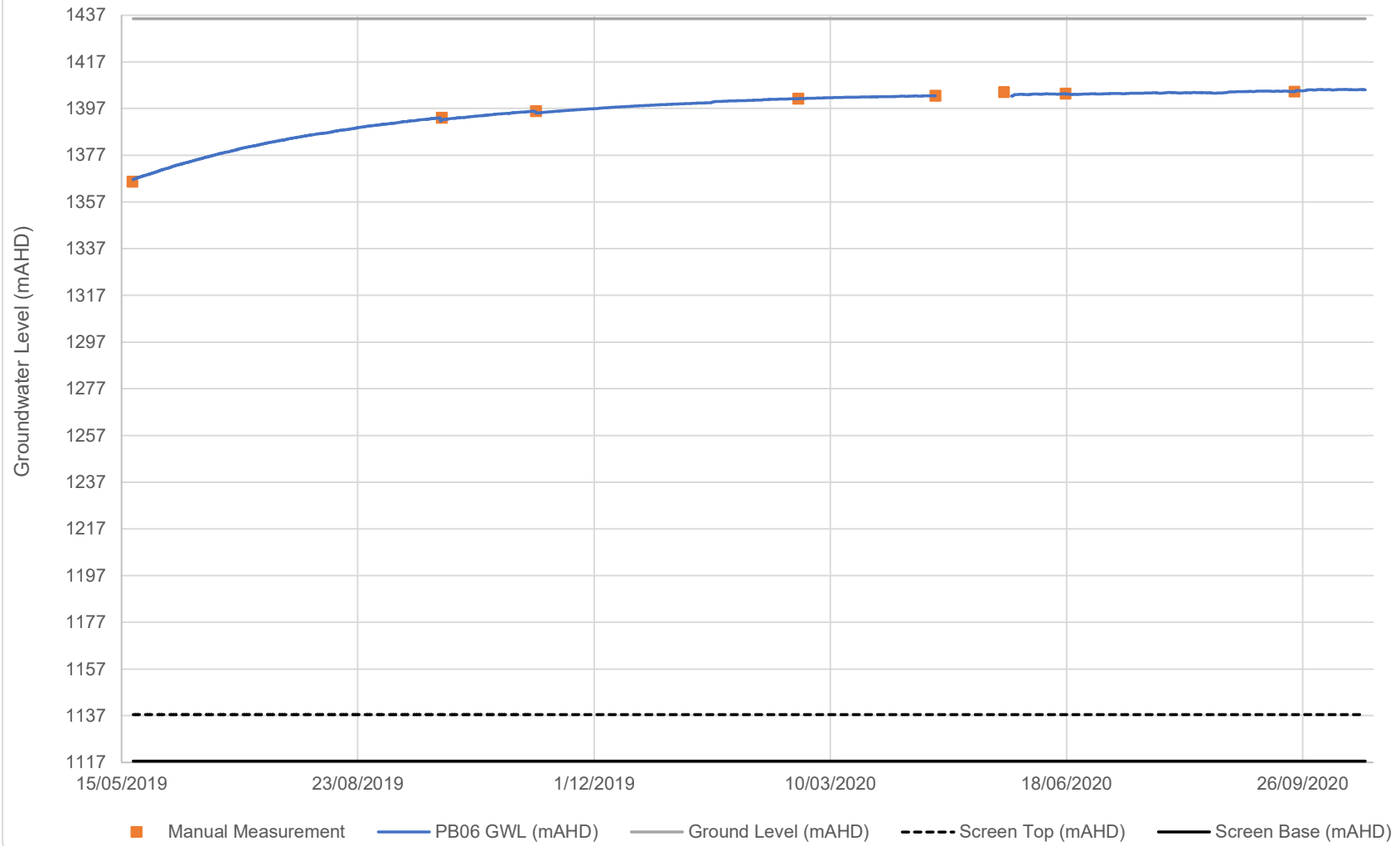
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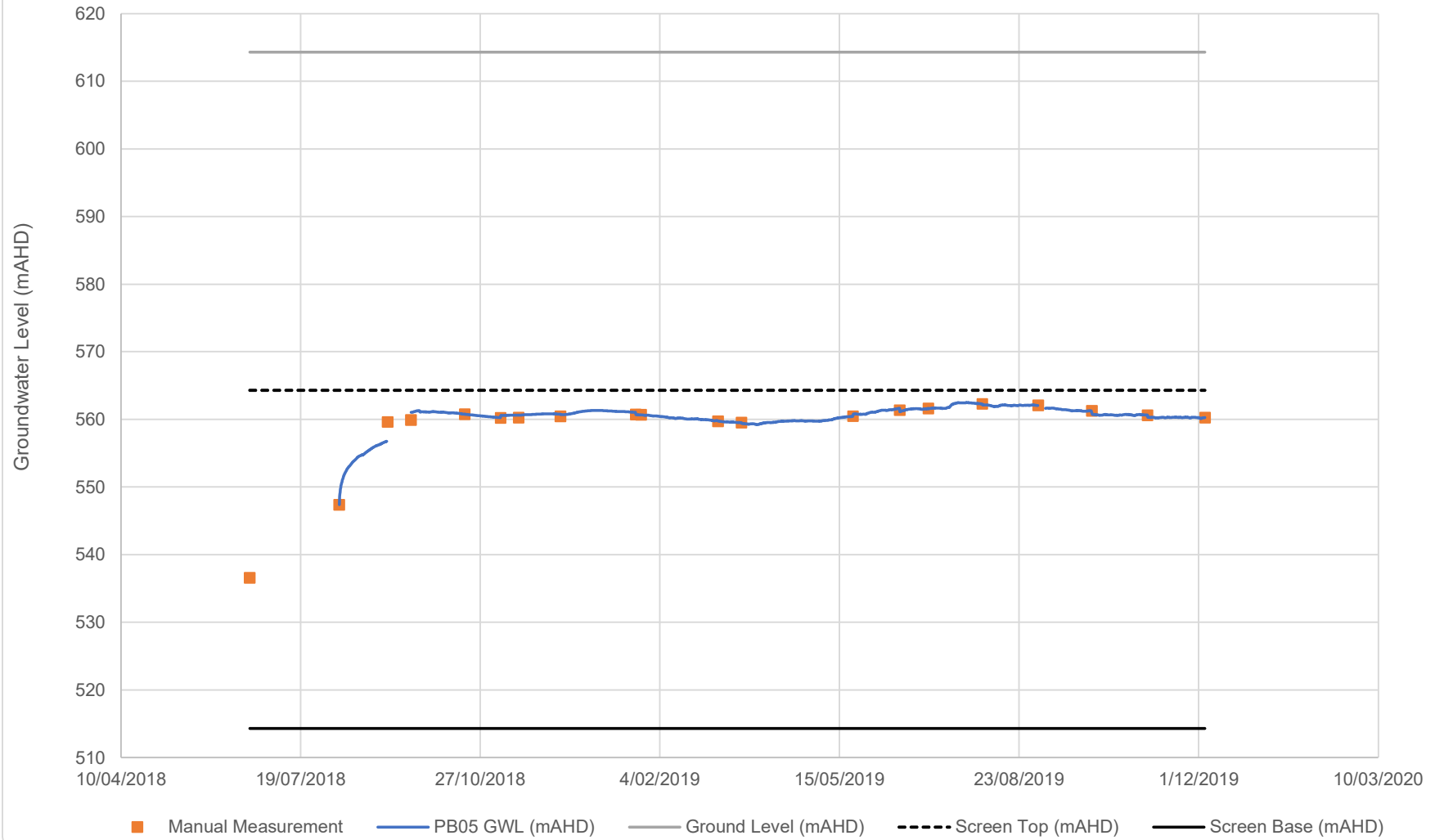
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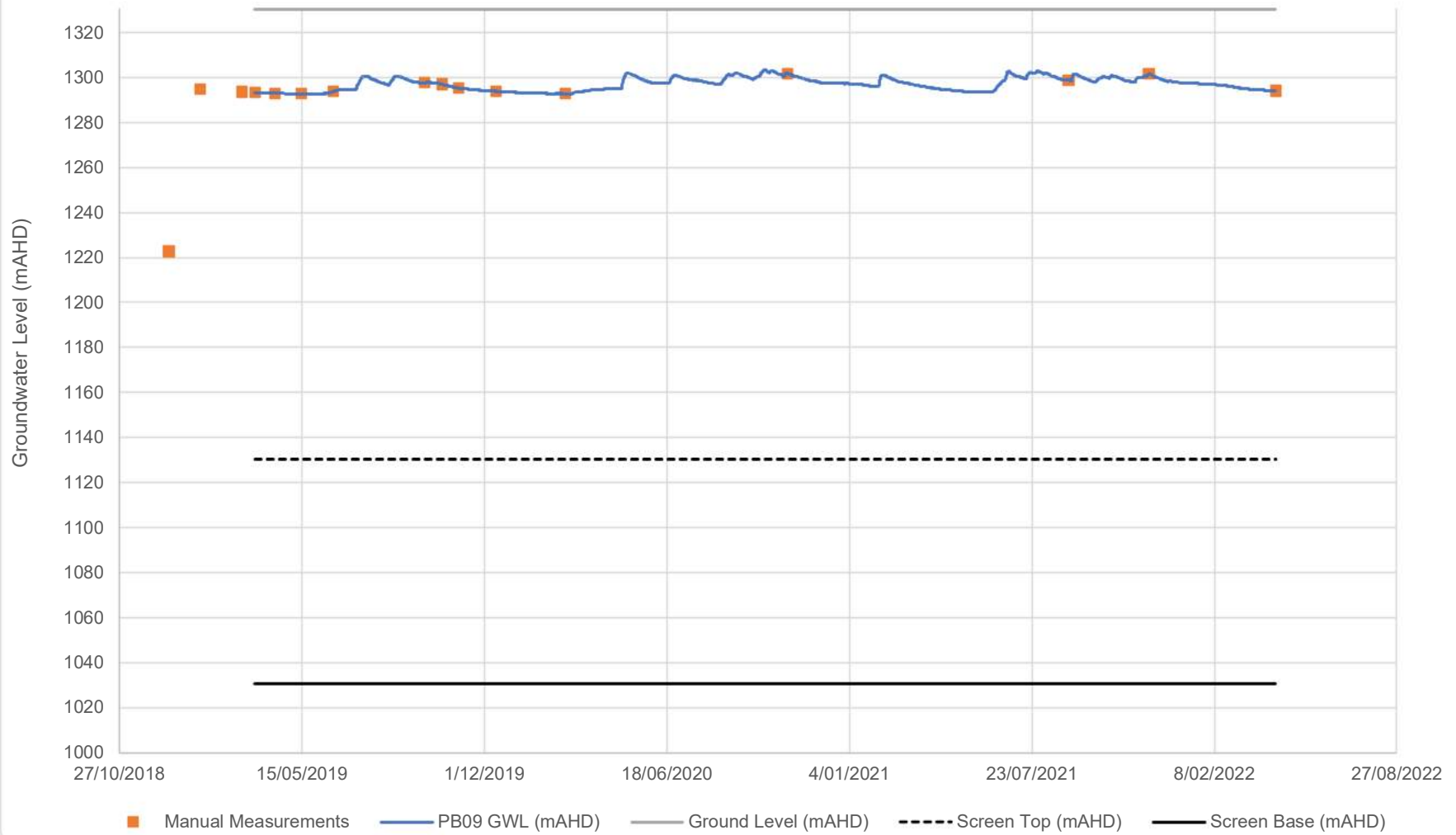
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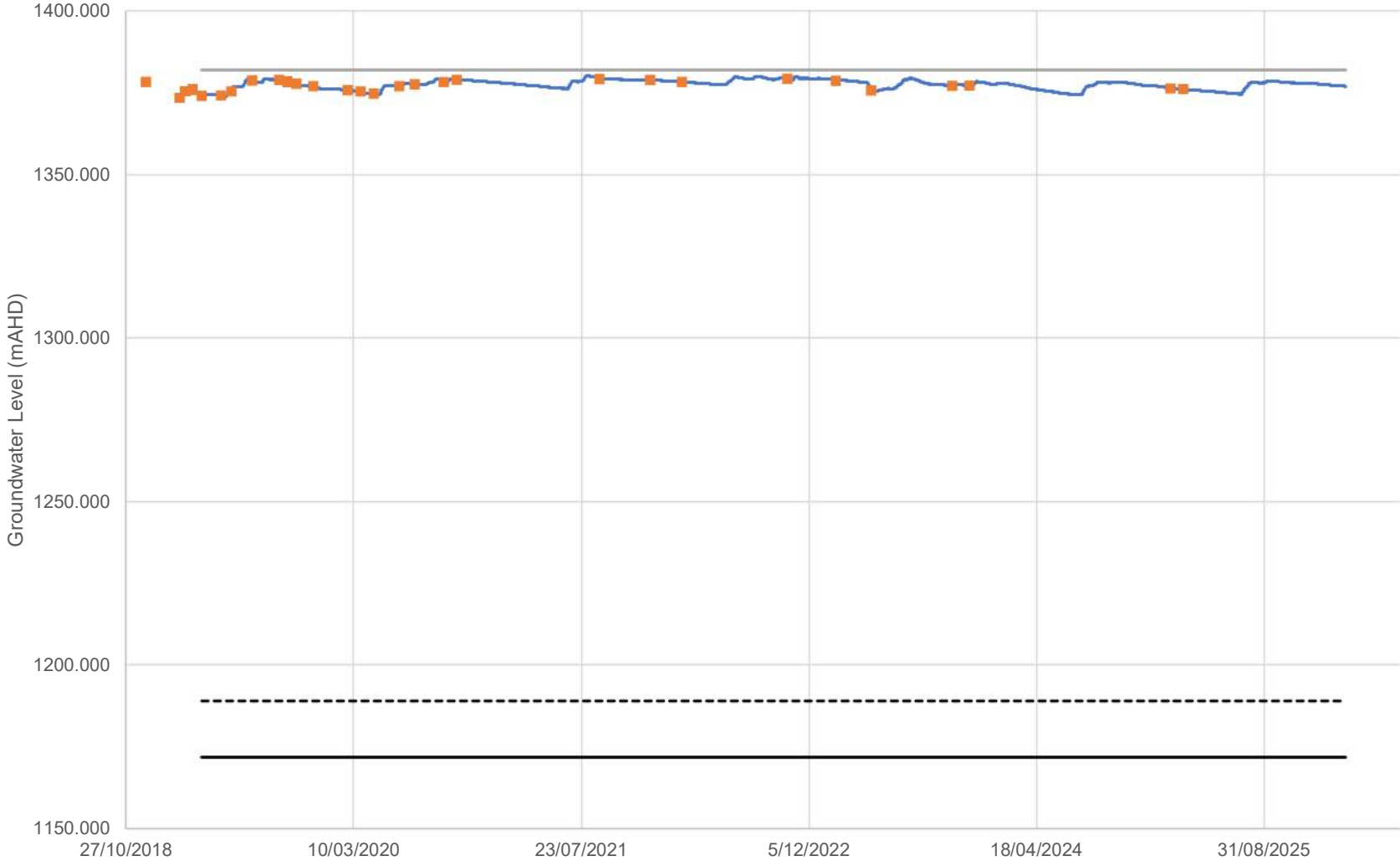
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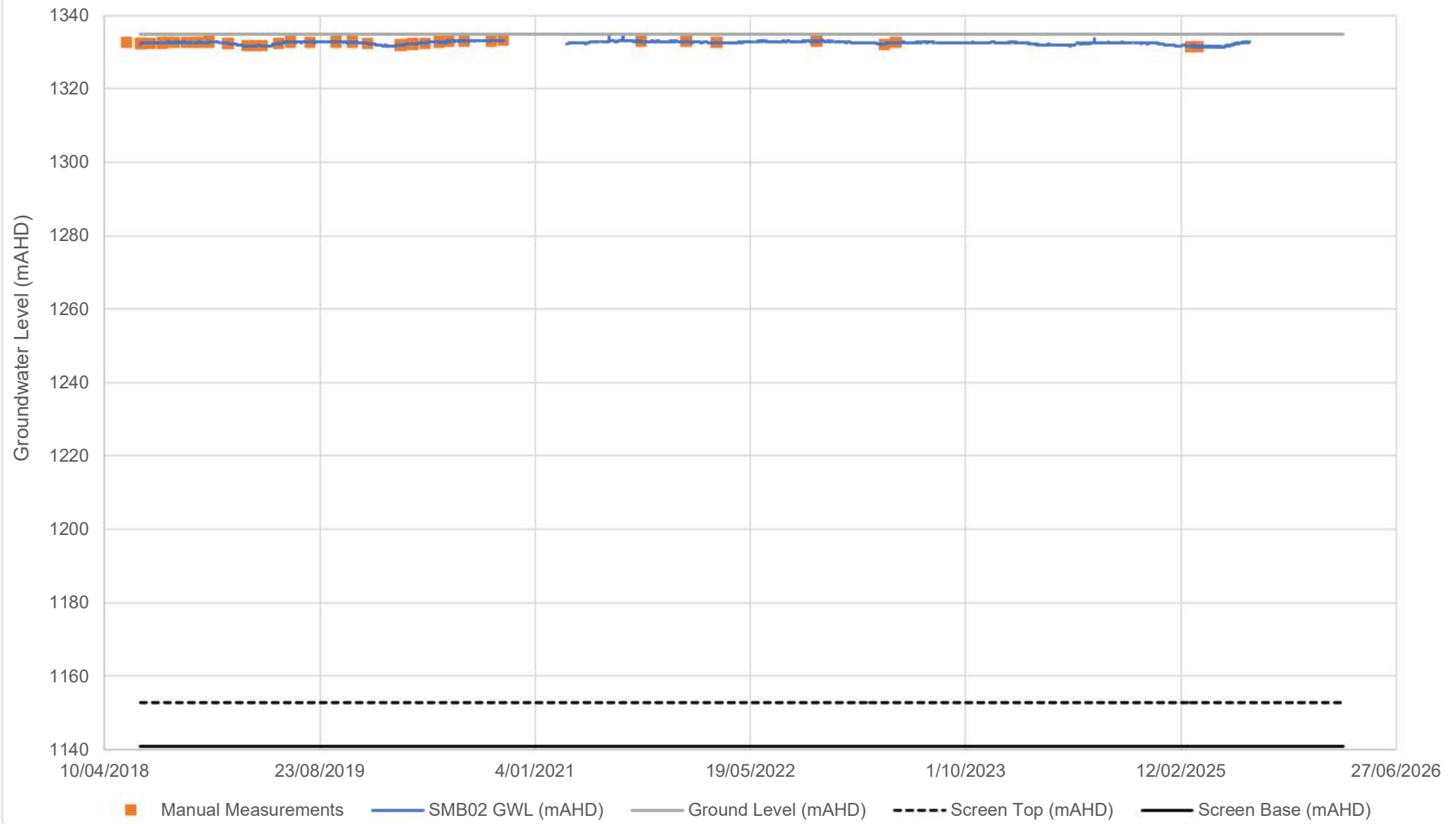


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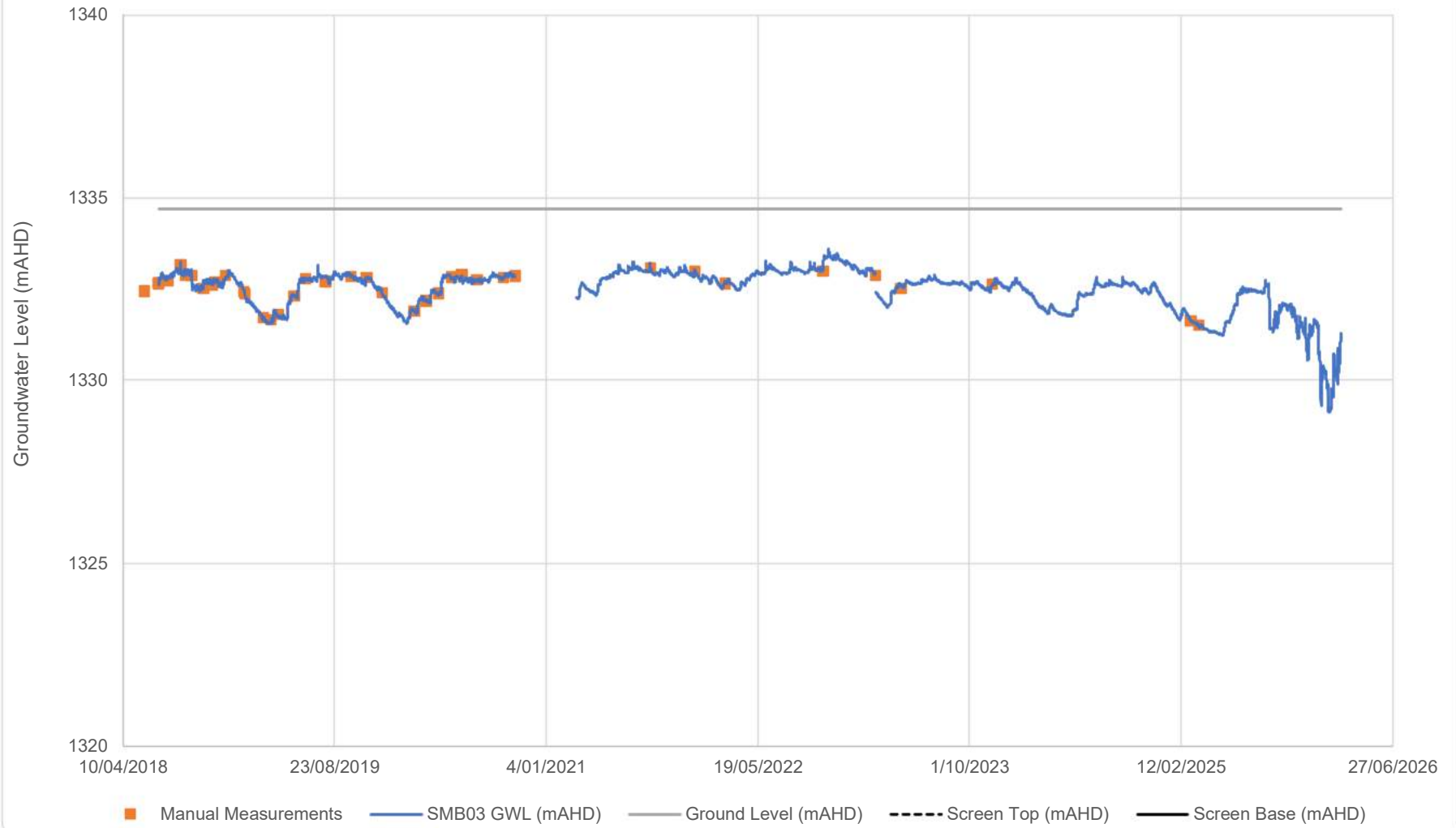


— PB10 GWL (mAHD)    ■ Manual Measurements    — Ground Level (mAHD)    - - - Screen Top (mAHD)    — Screen Base (mAHD)

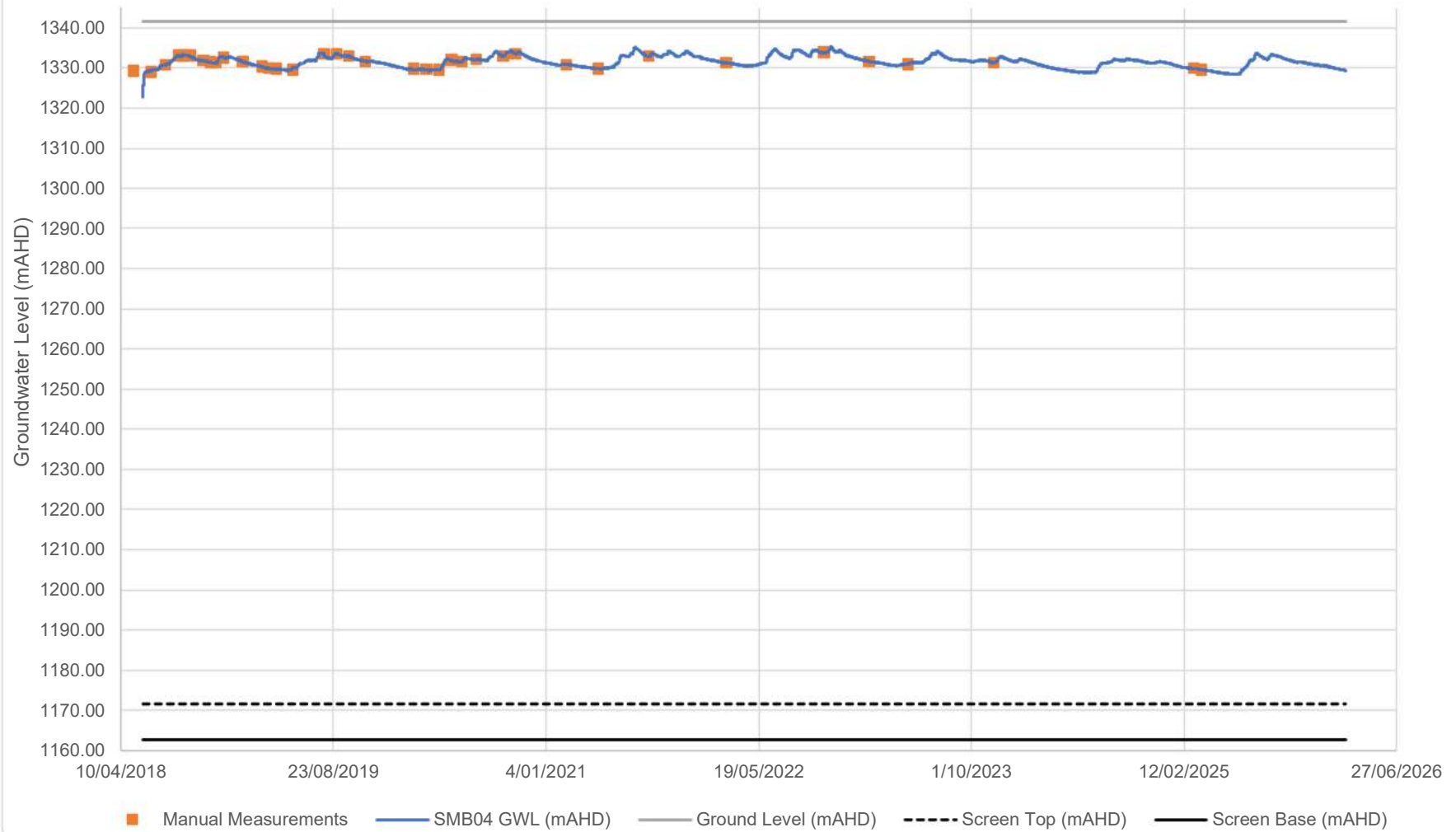
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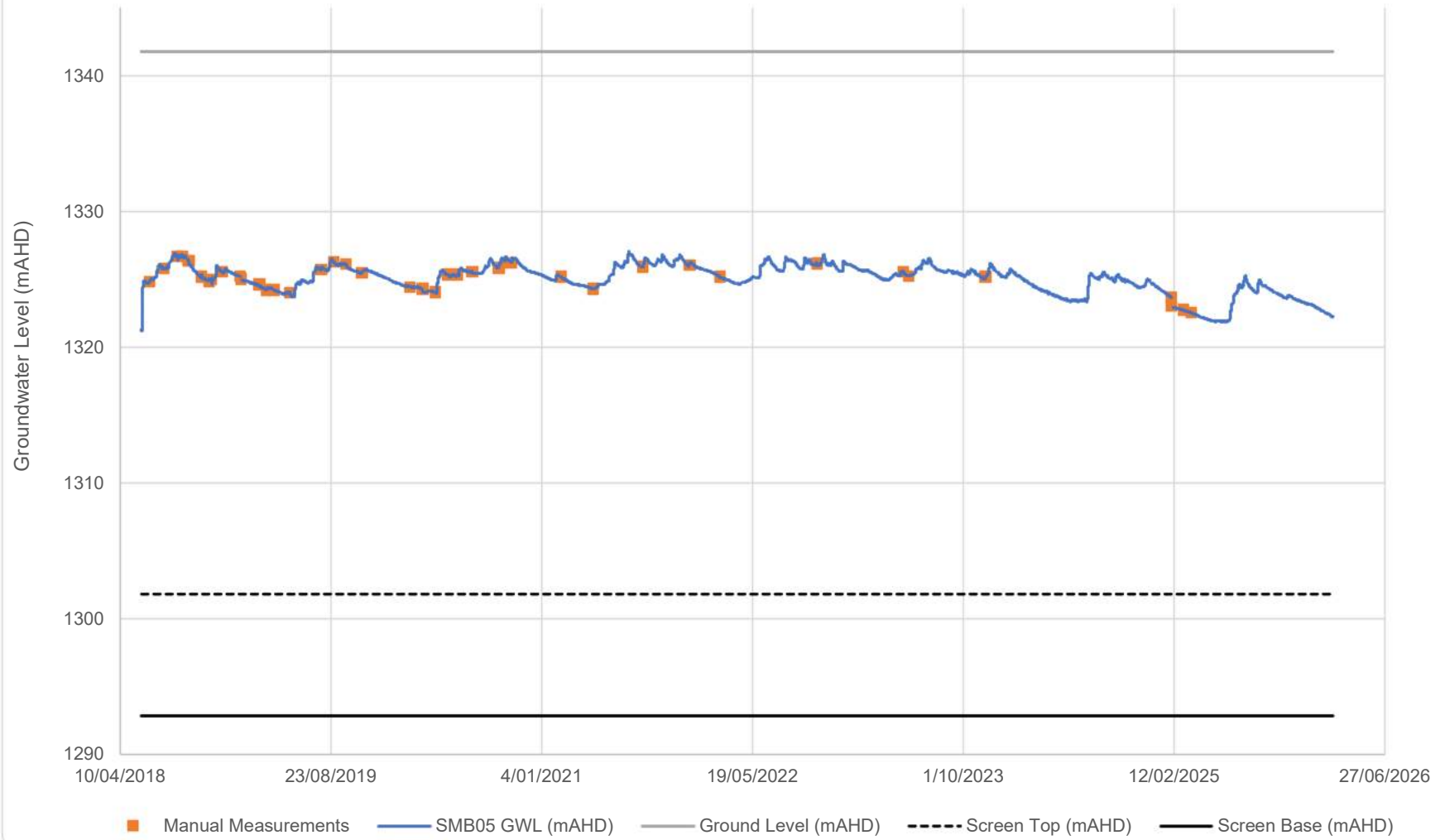
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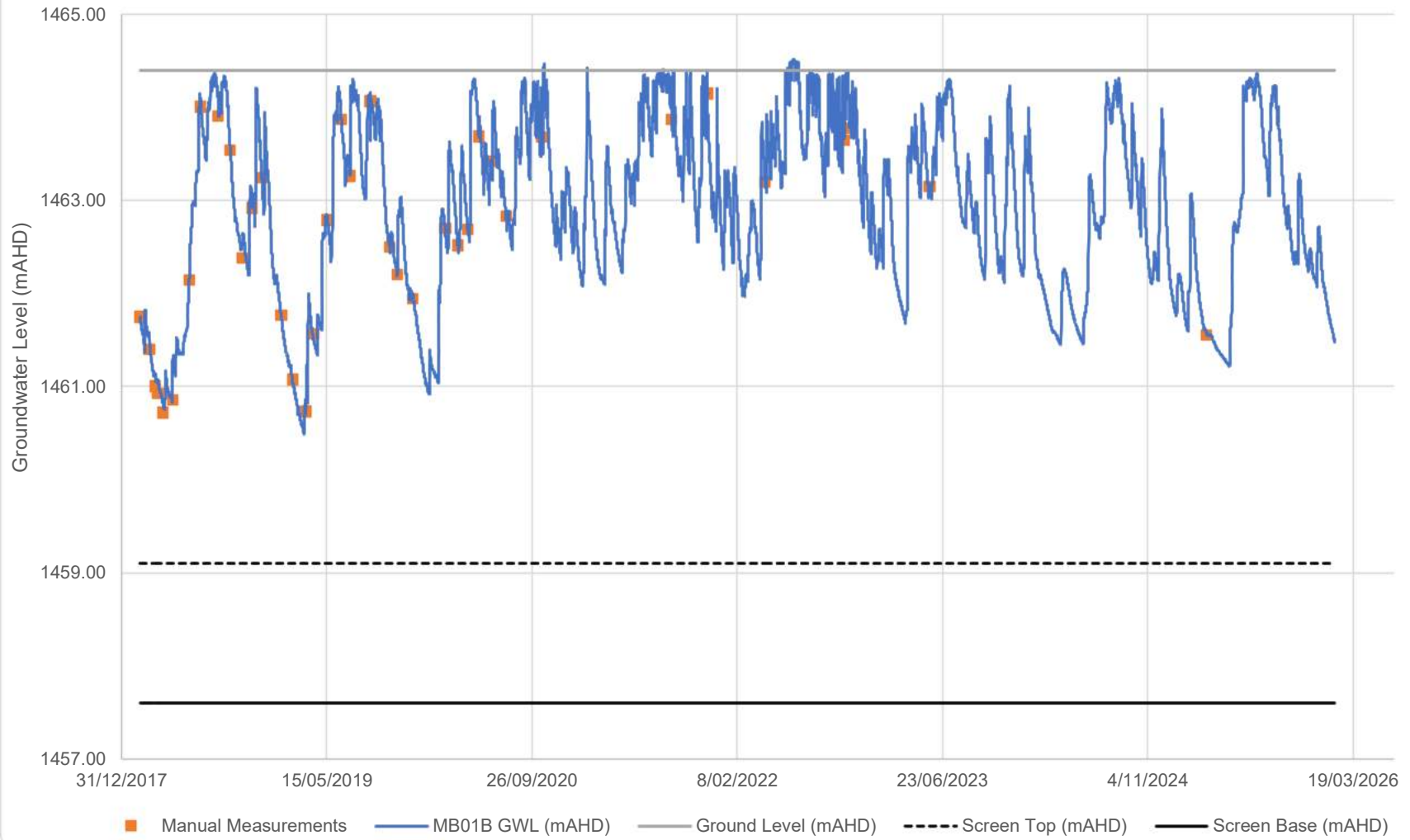
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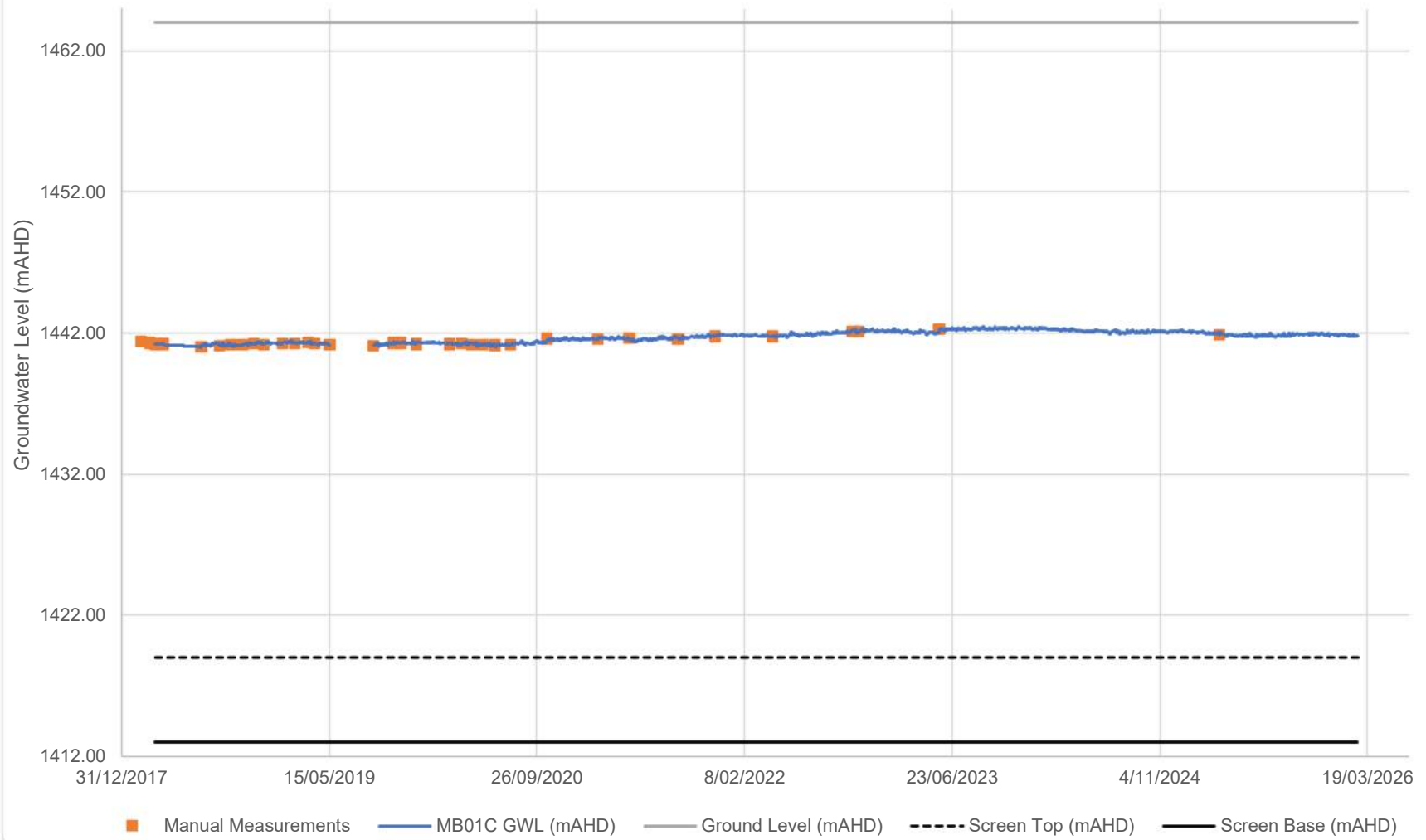
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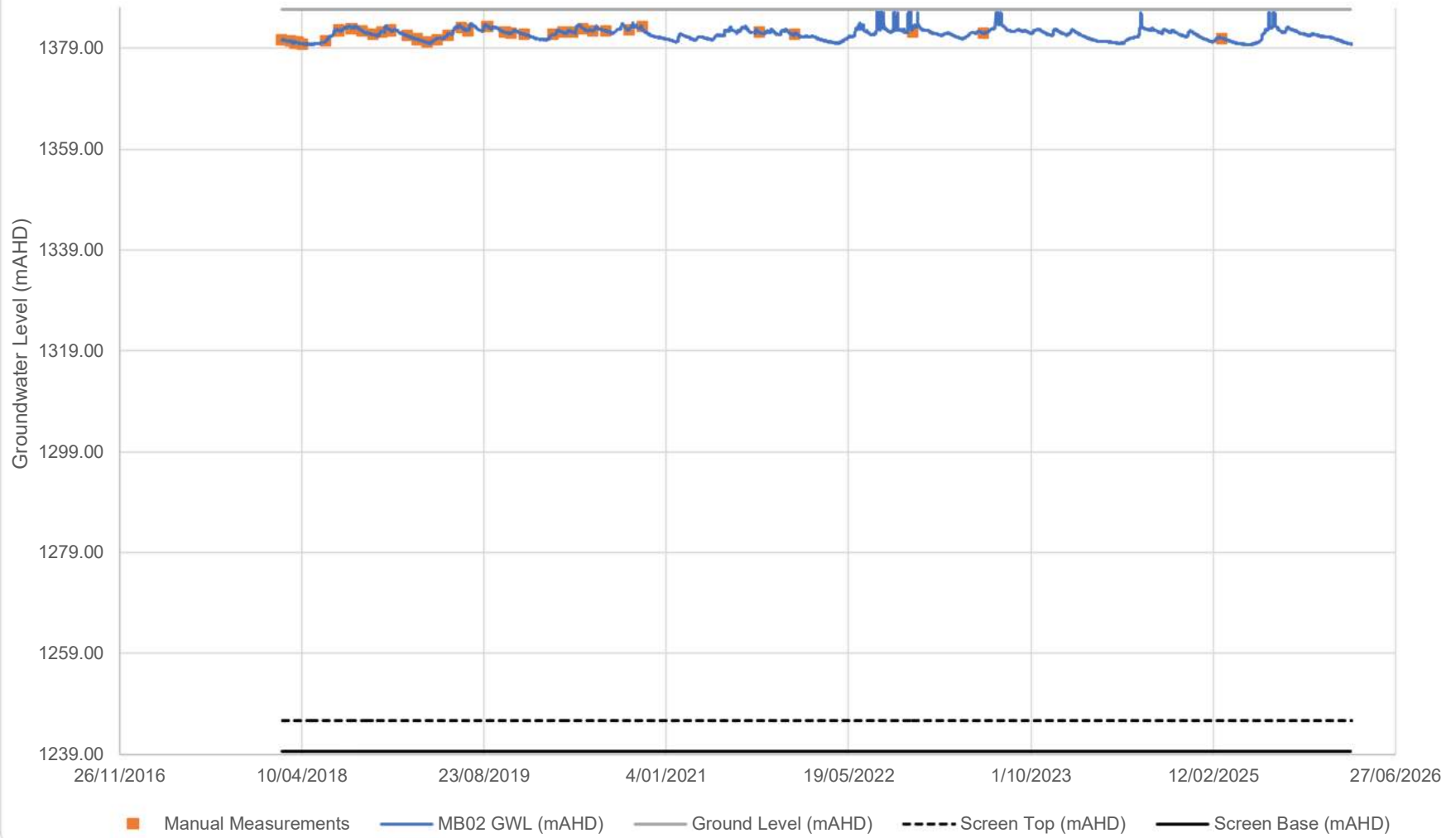
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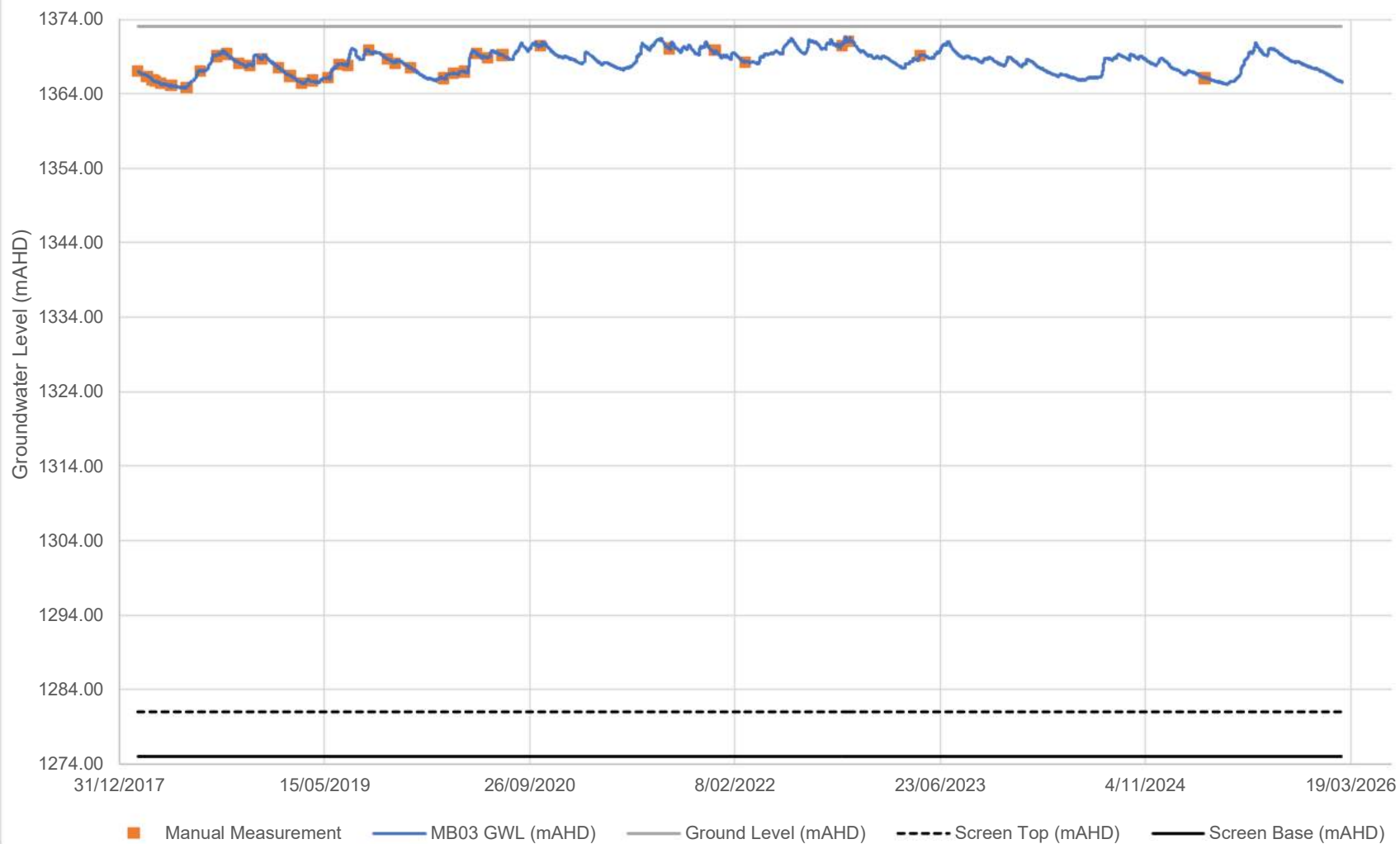
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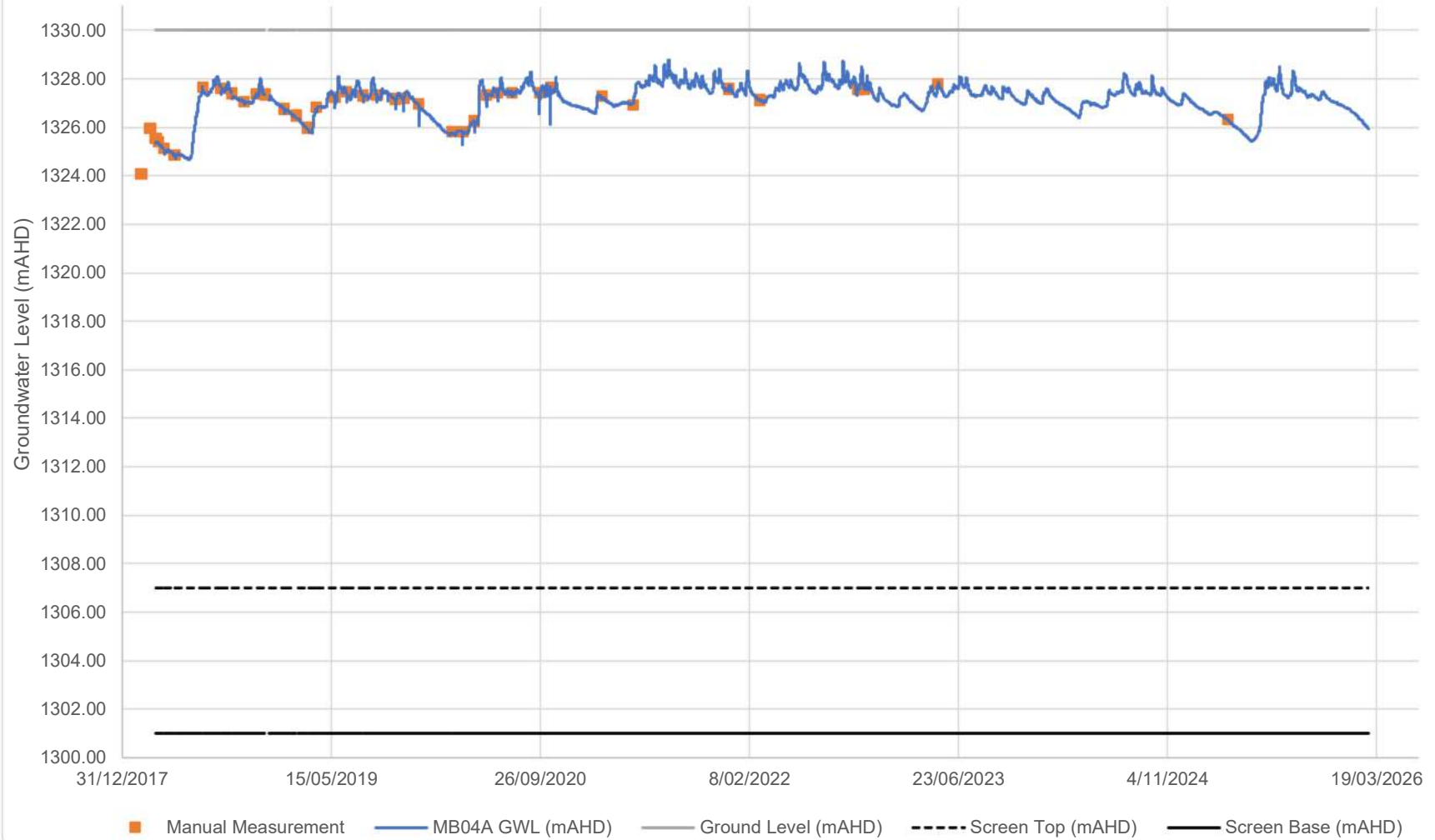
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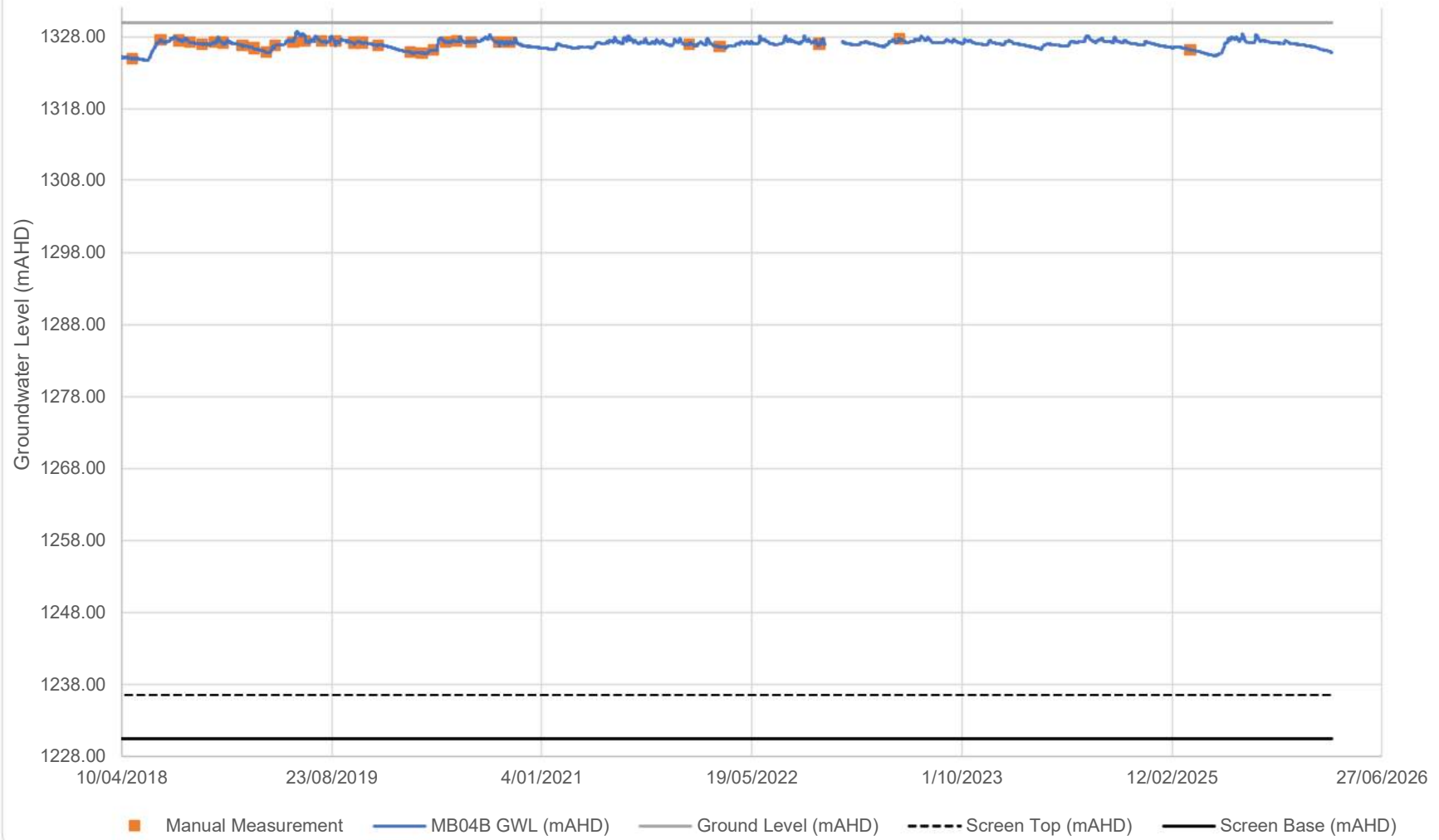
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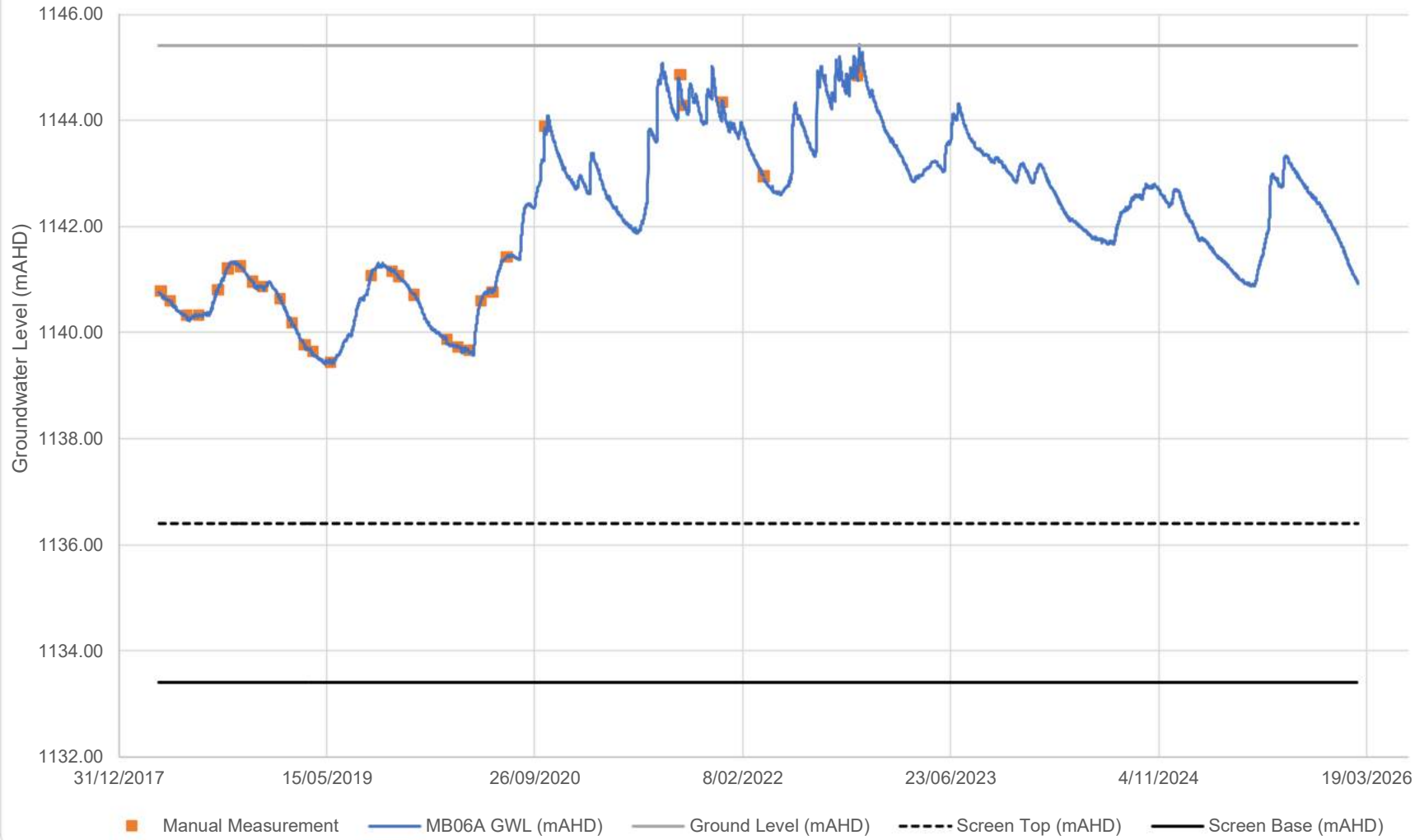
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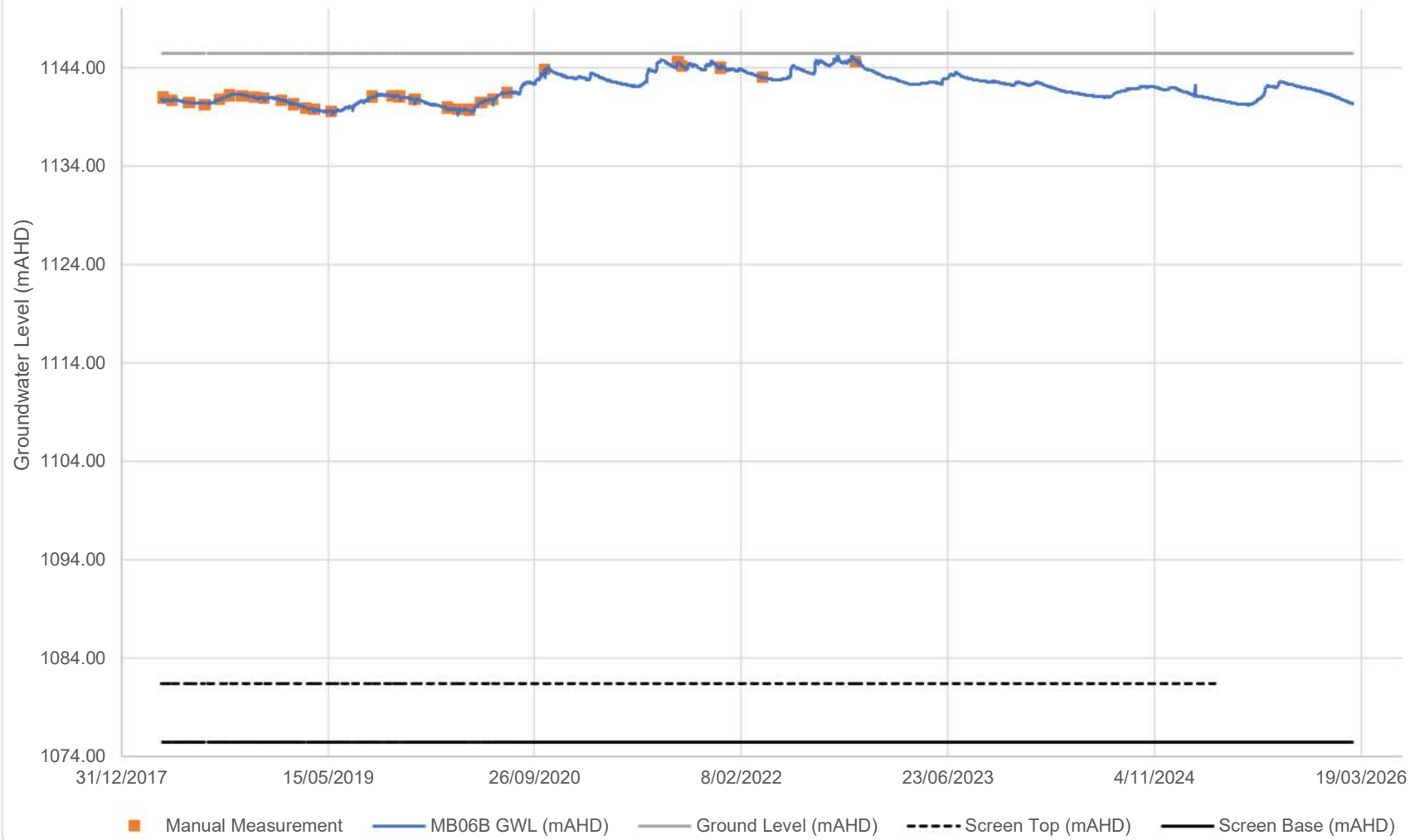
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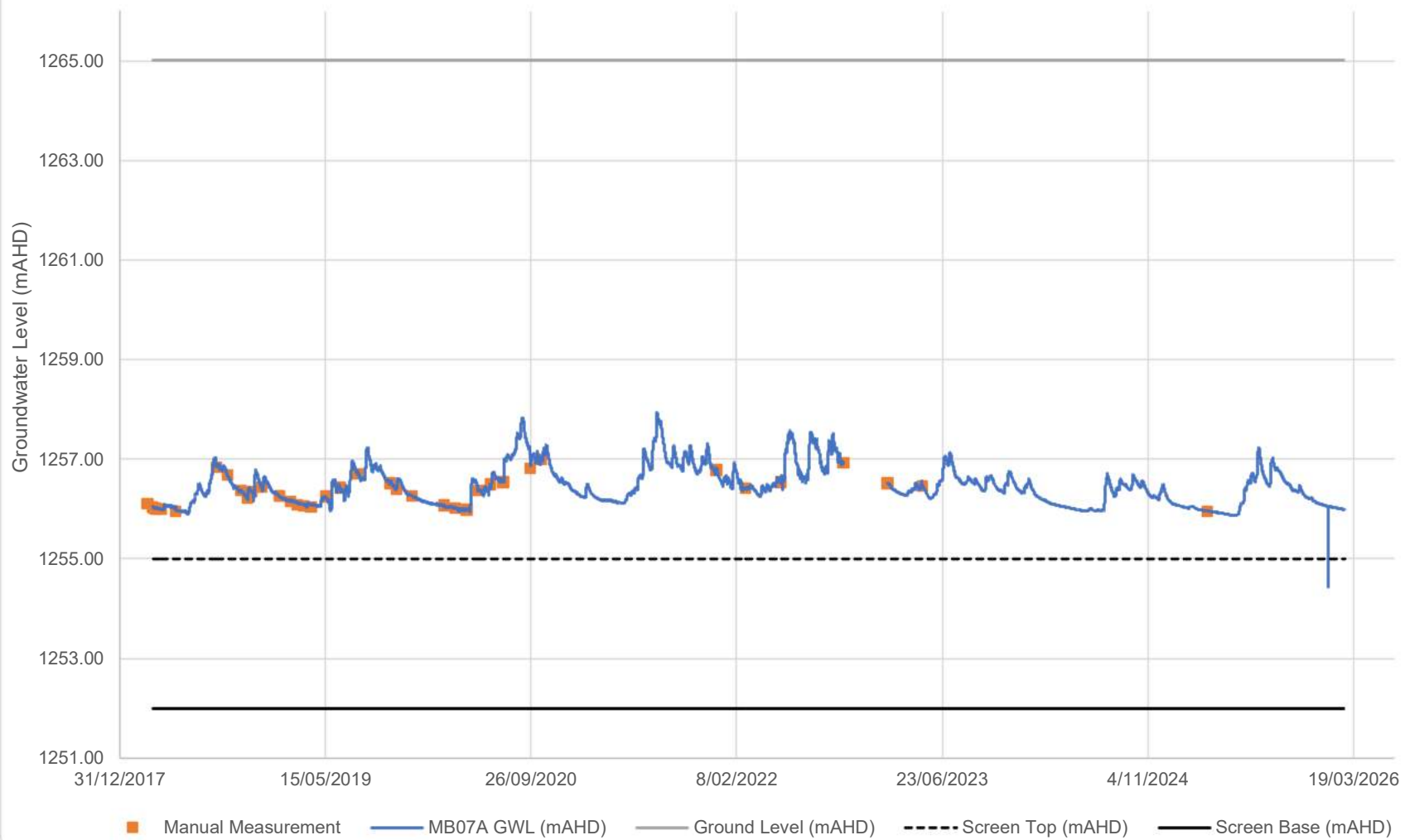
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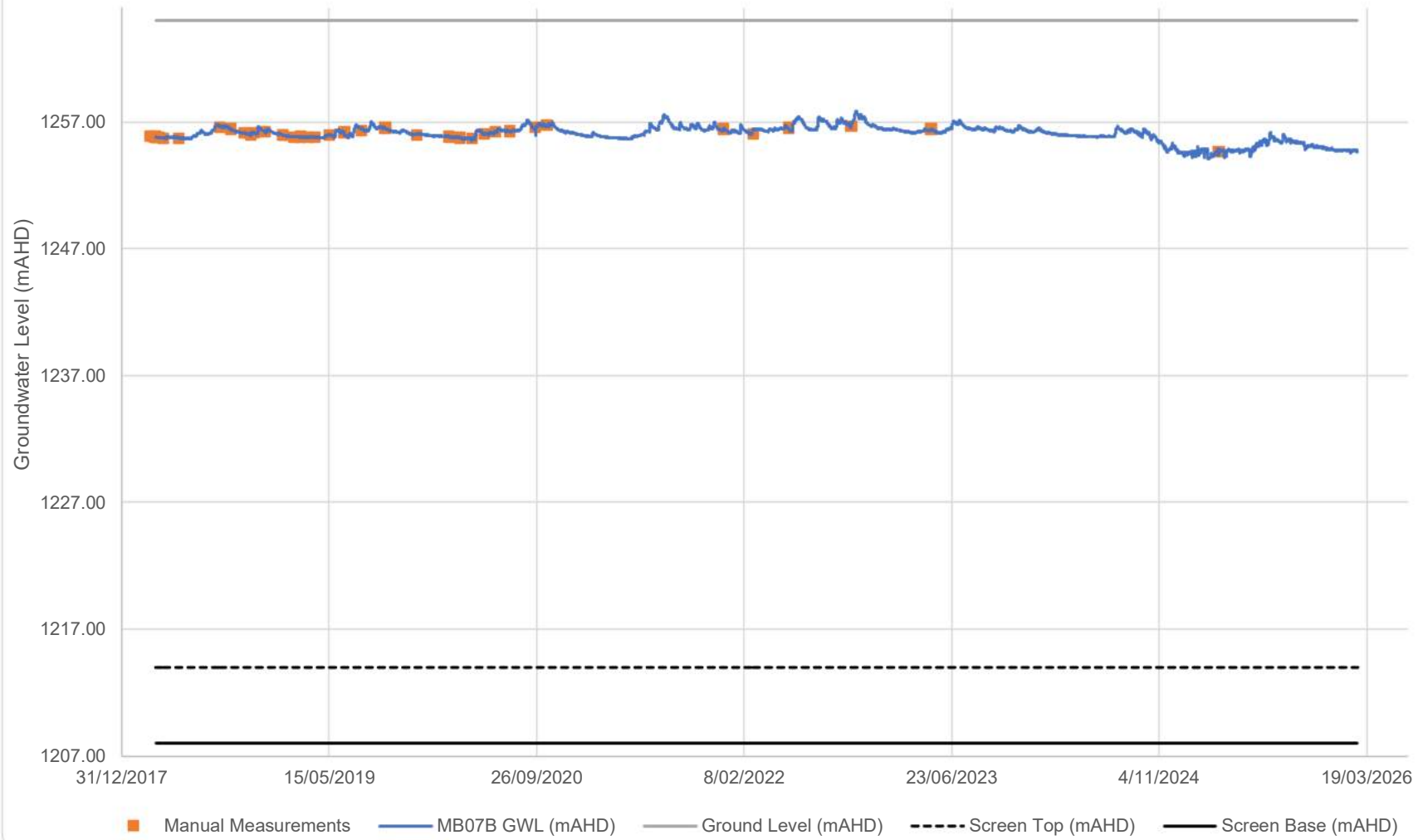
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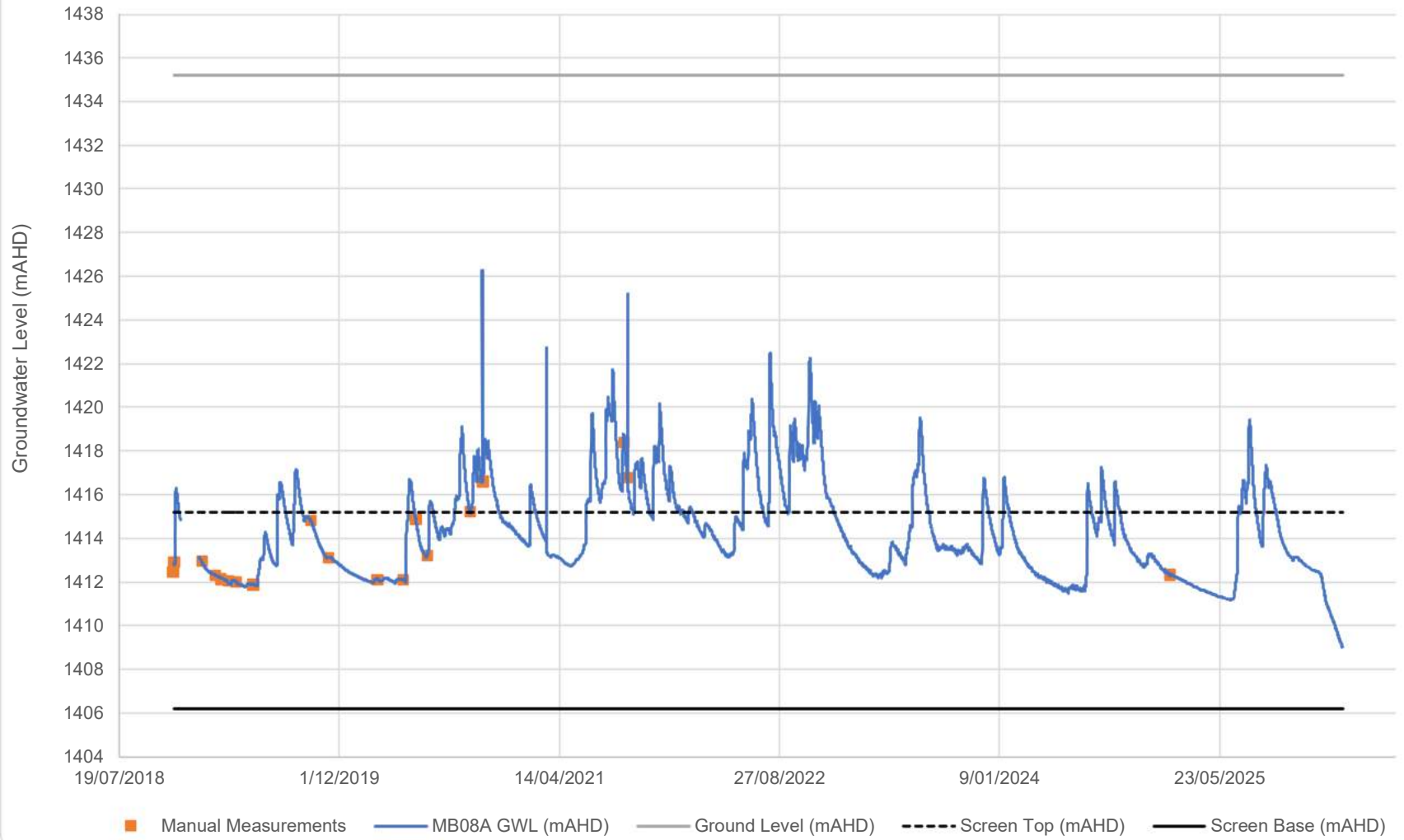
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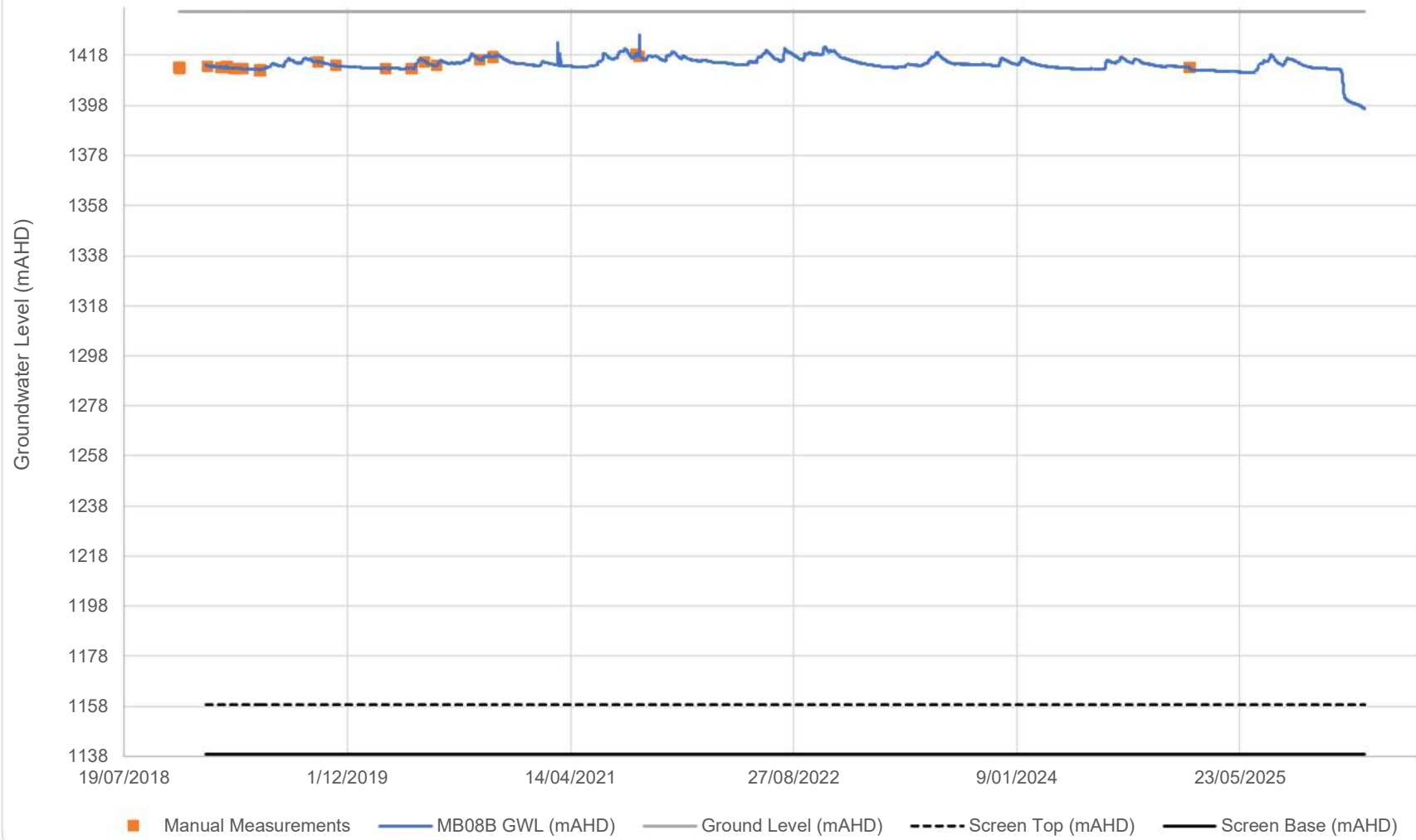
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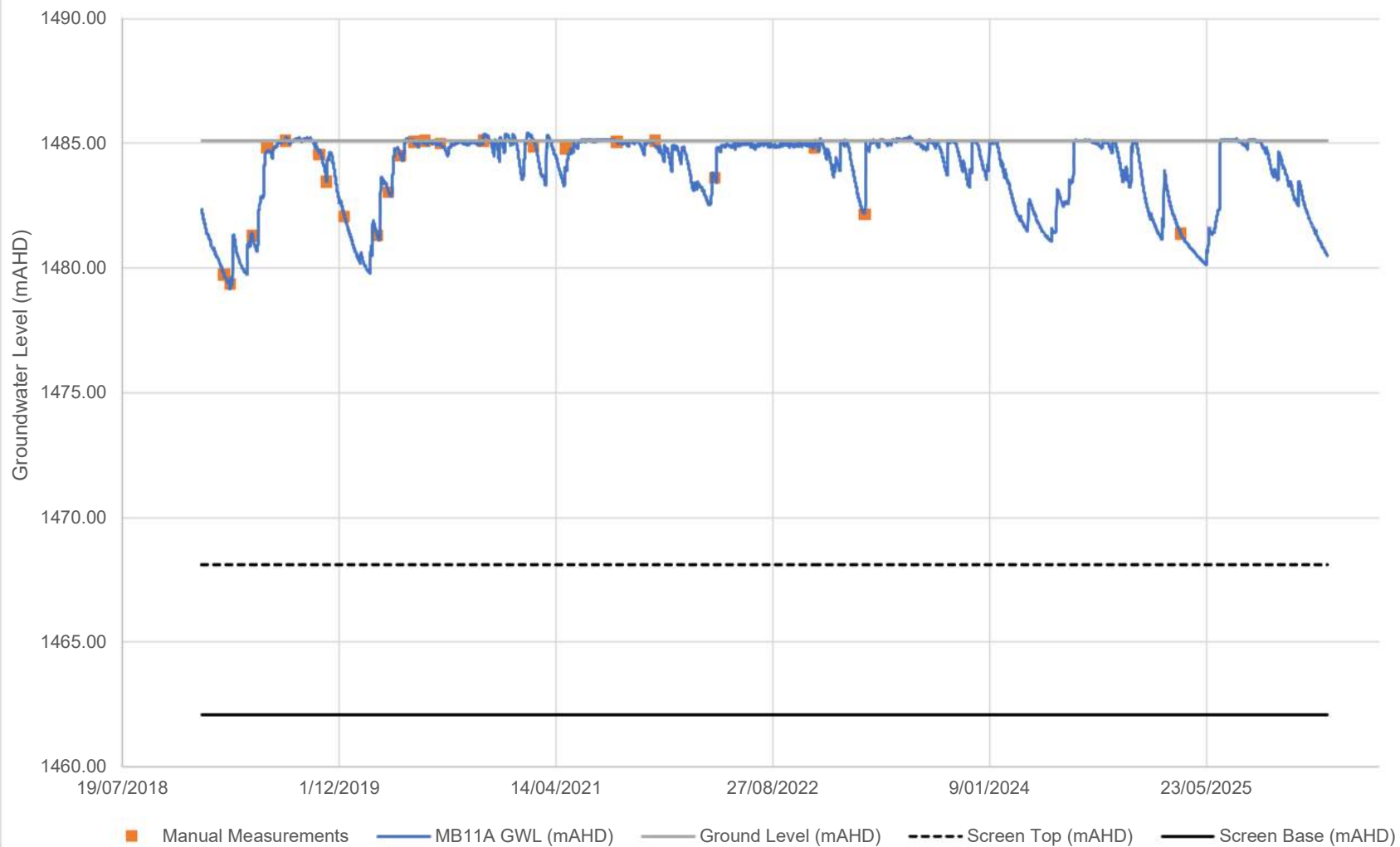
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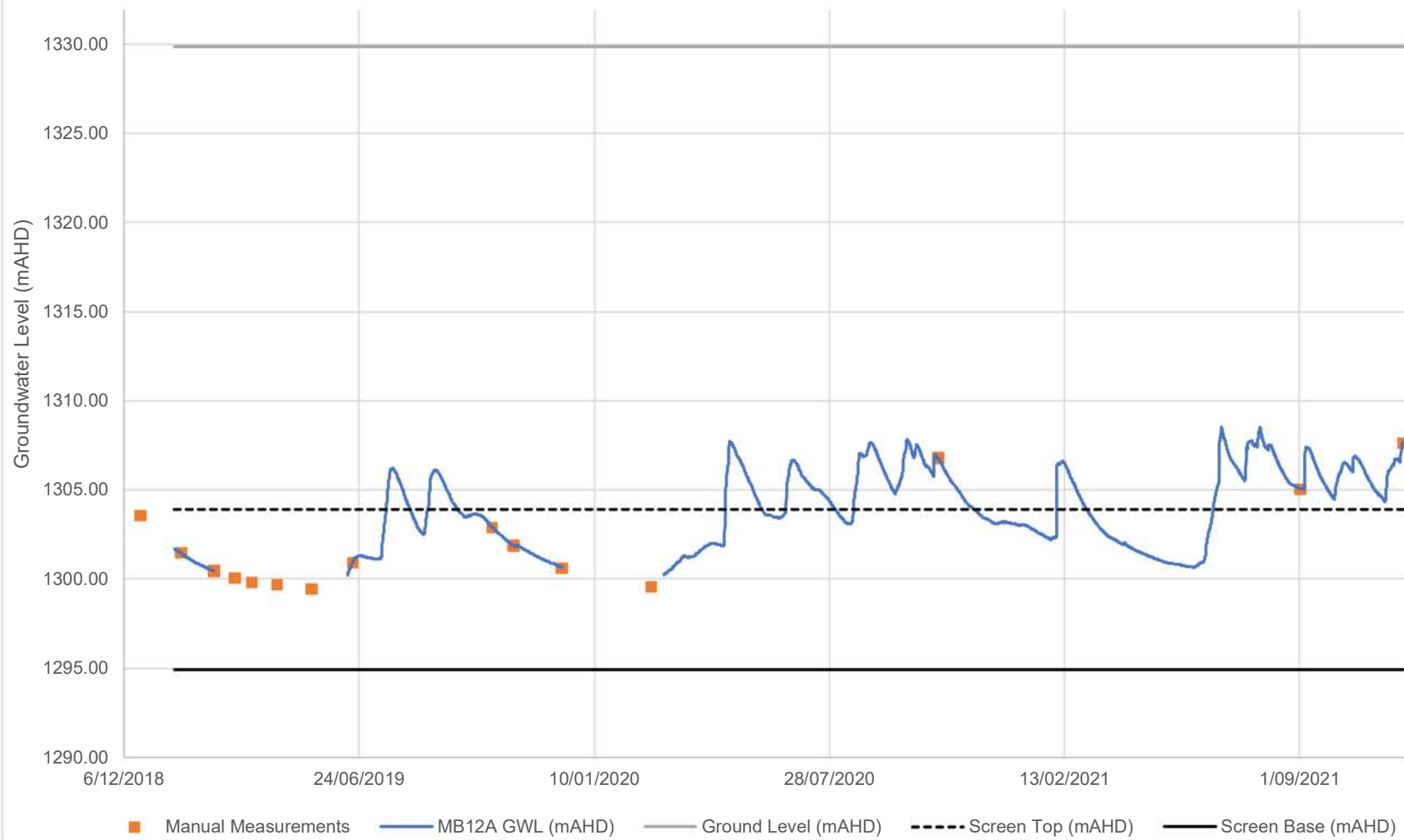
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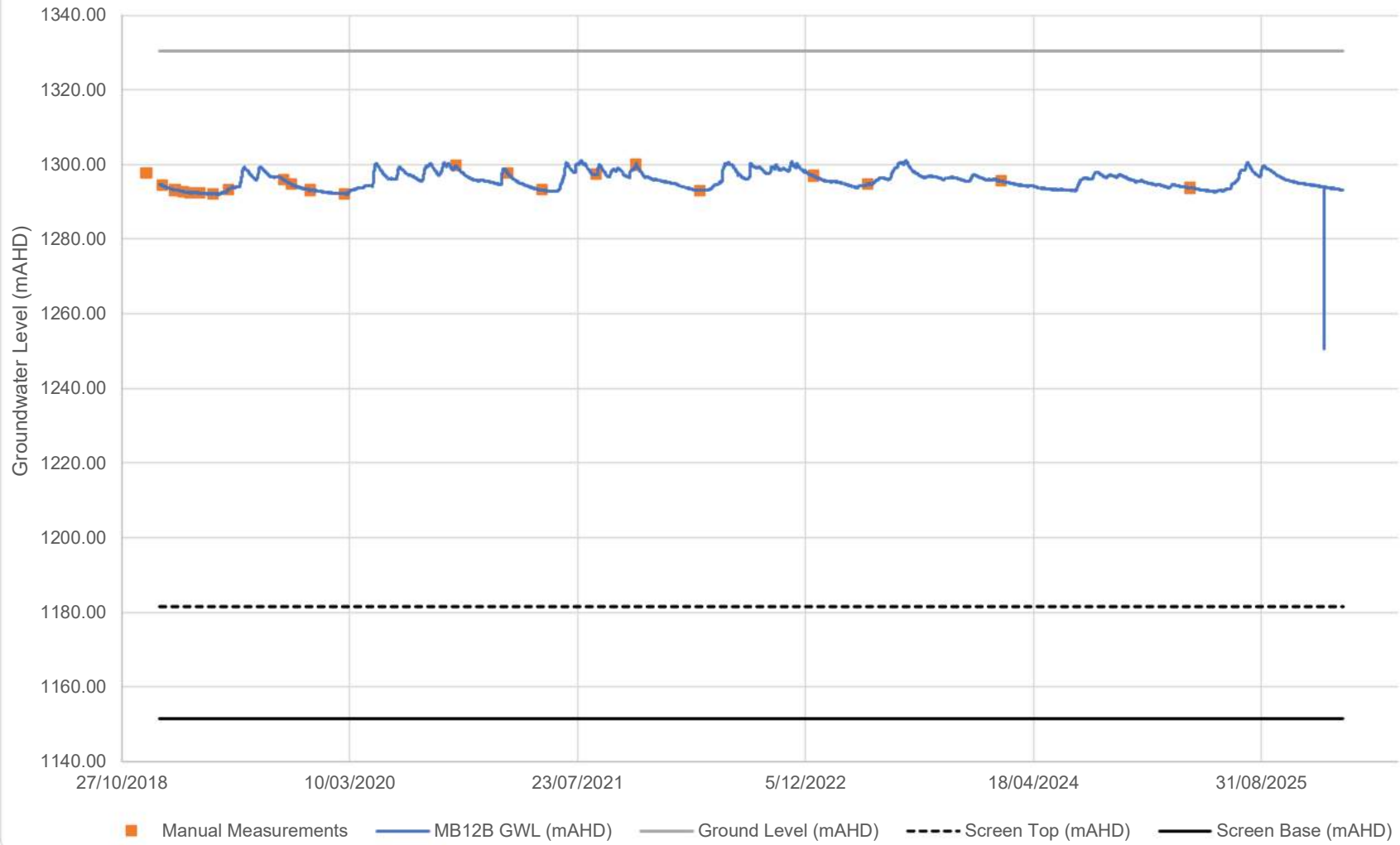
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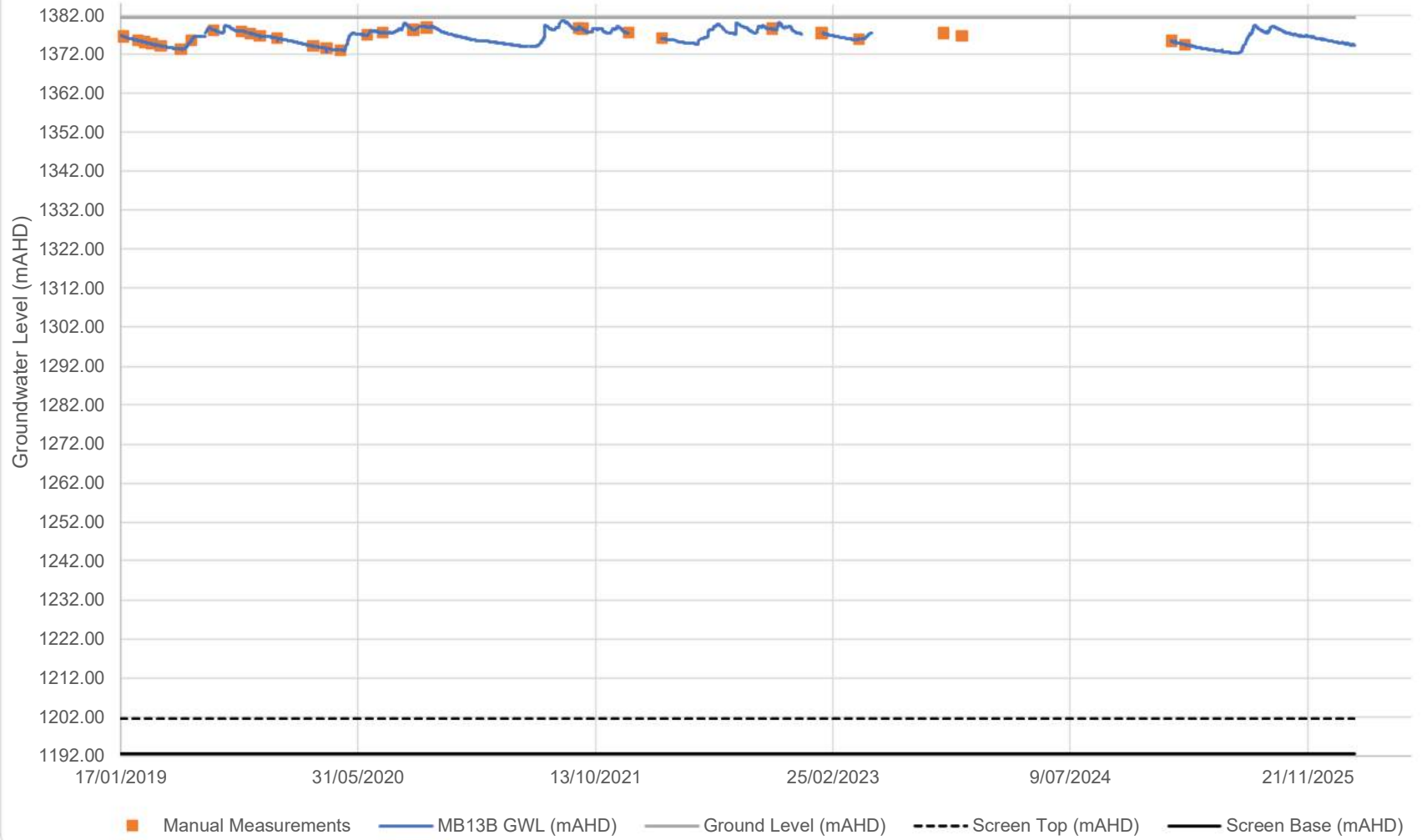
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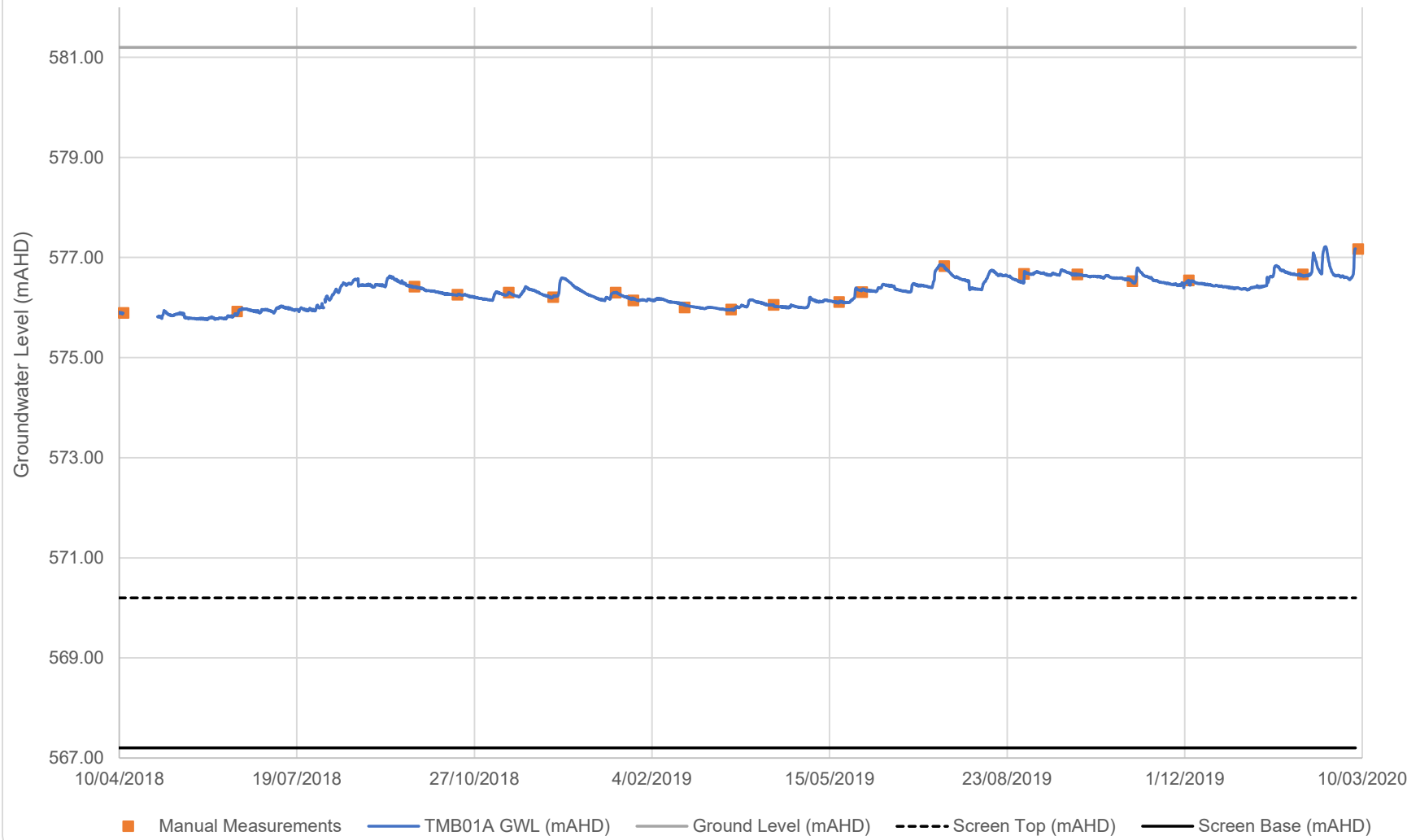
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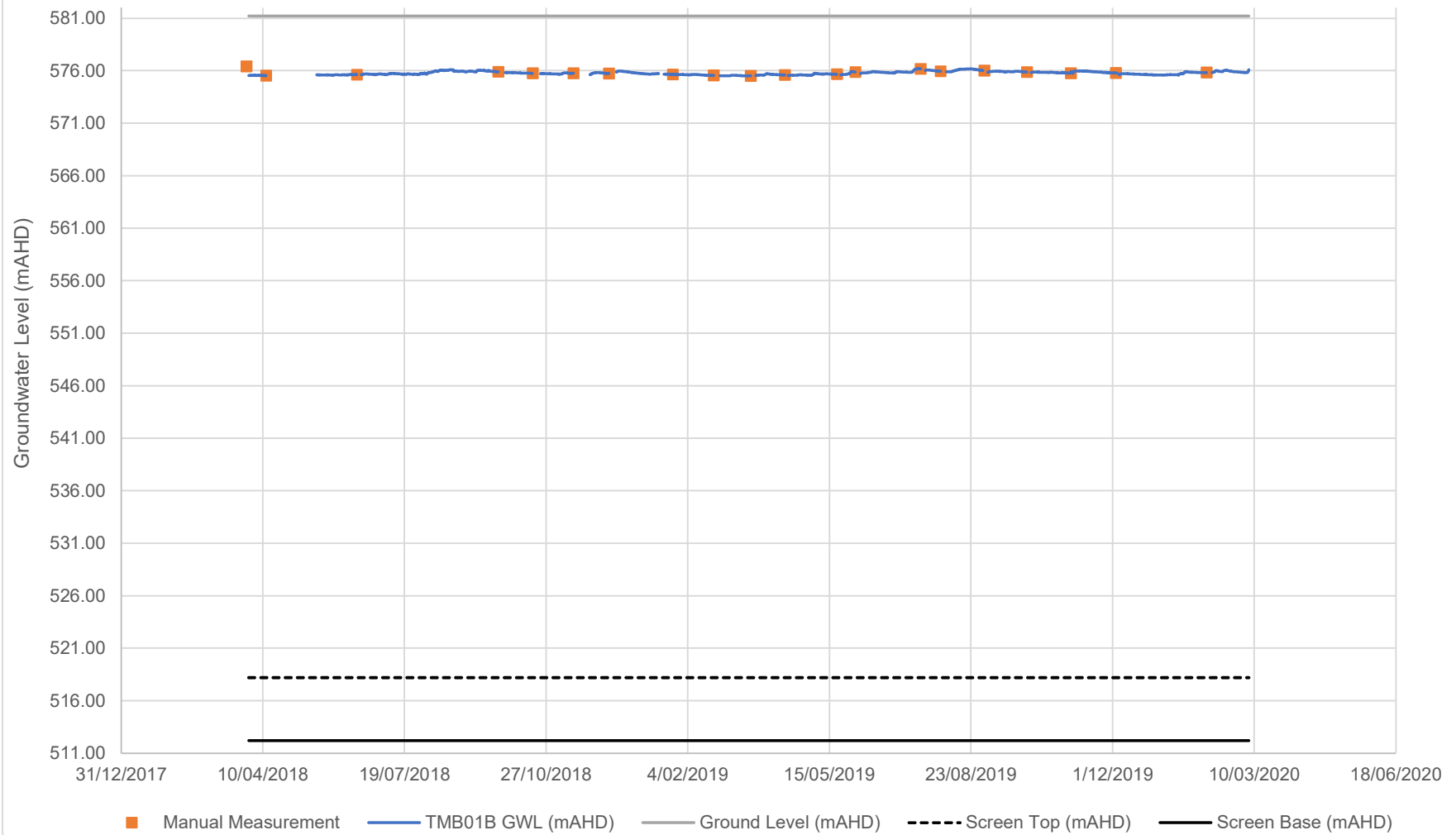
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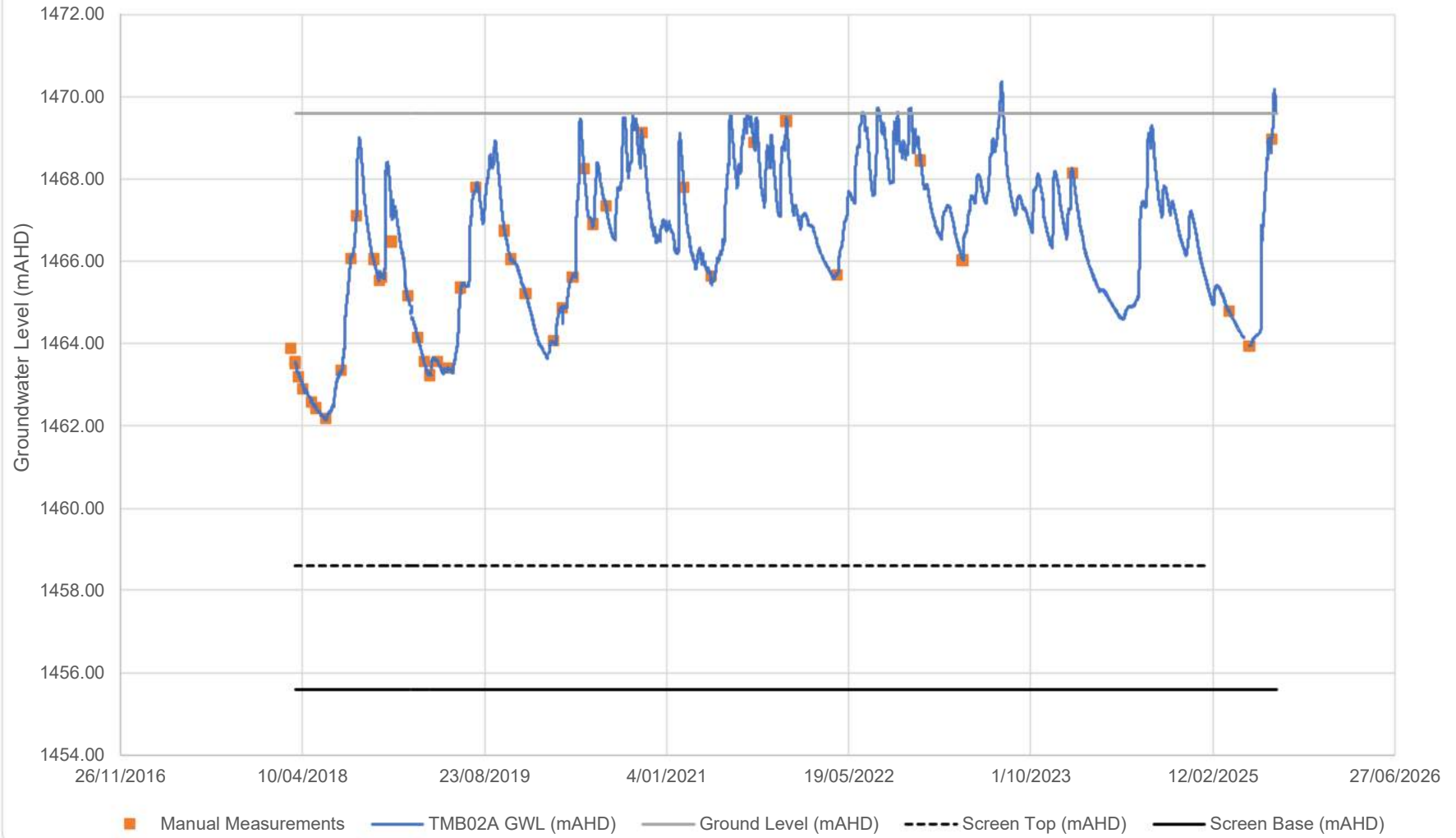
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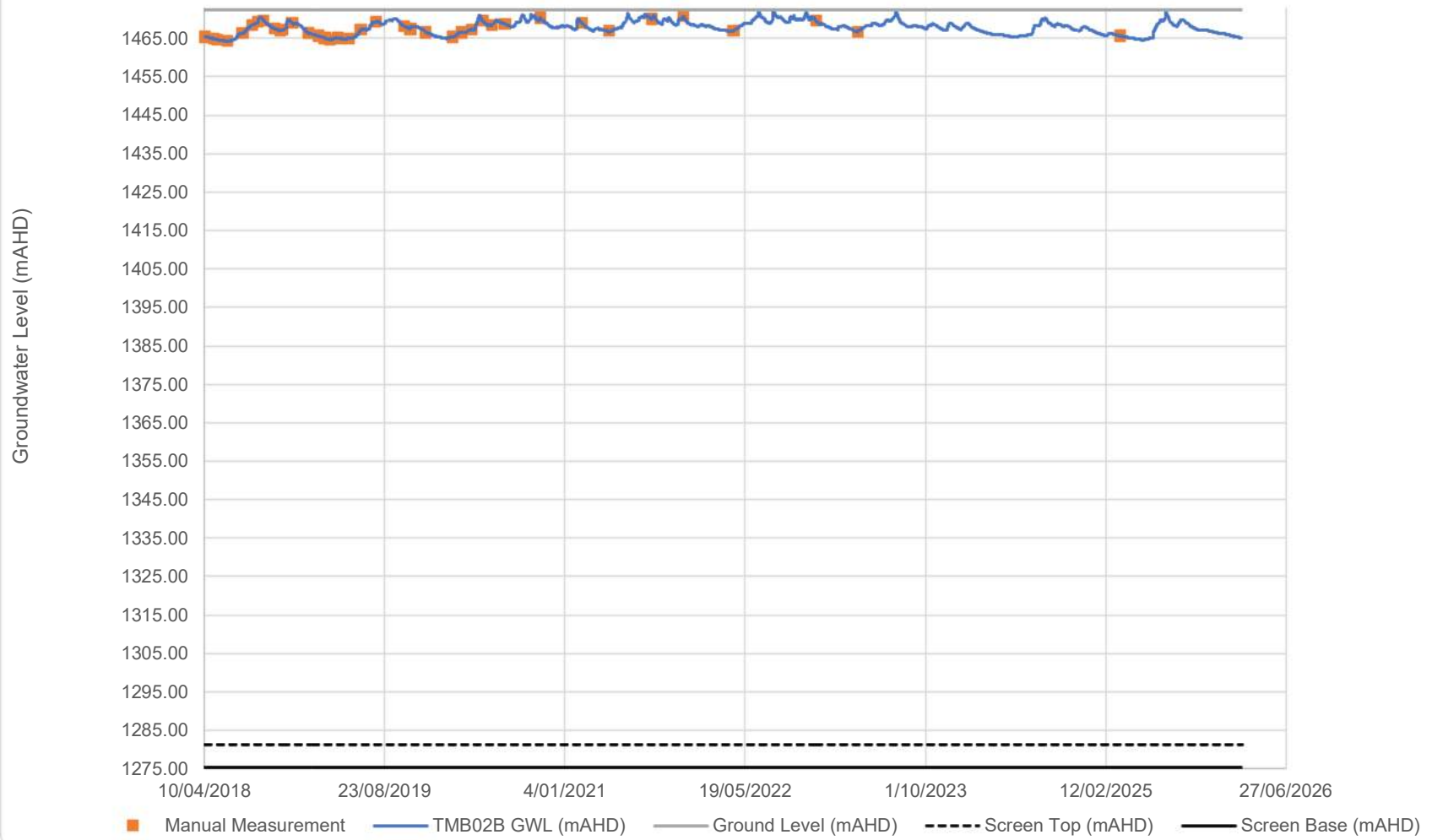
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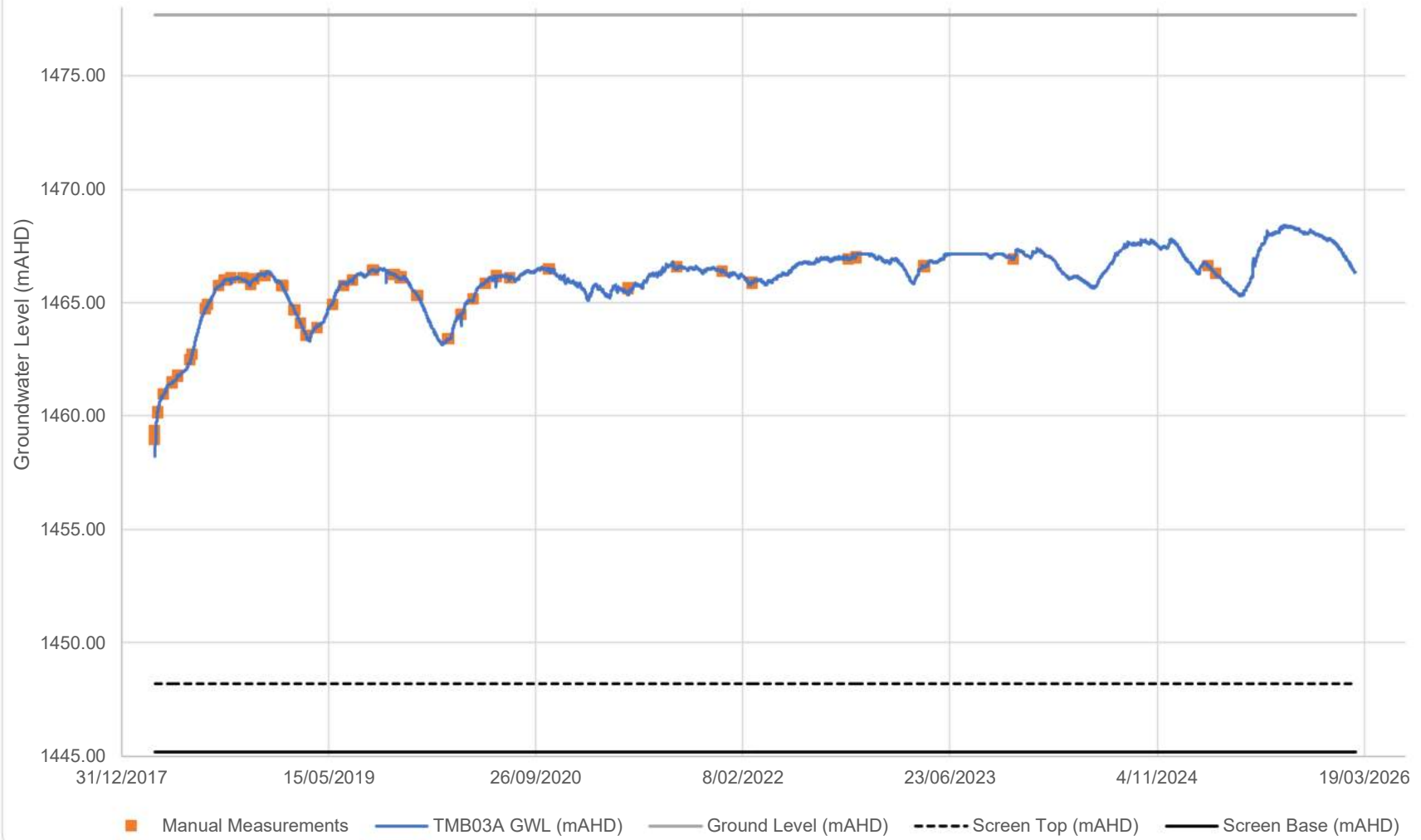
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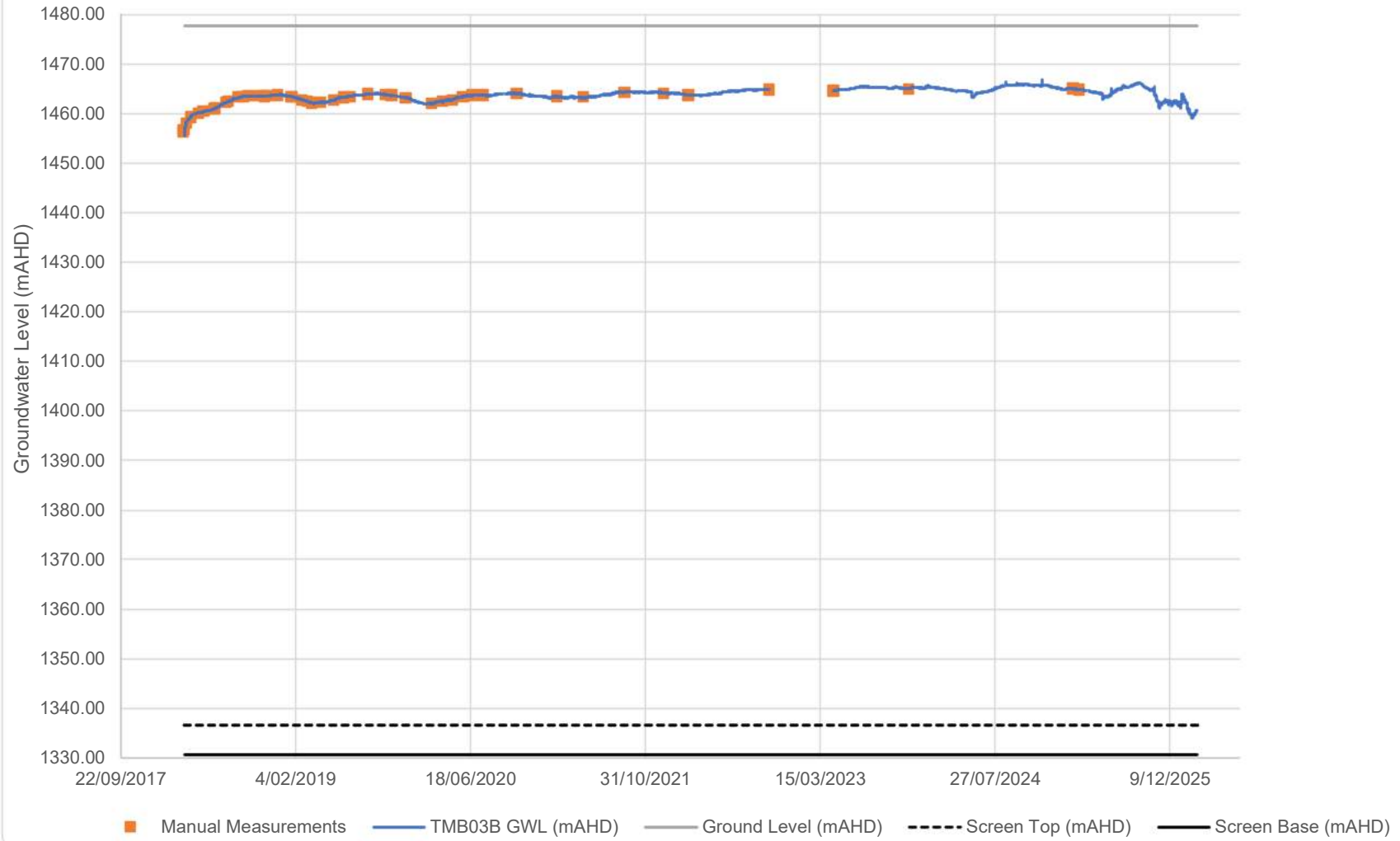
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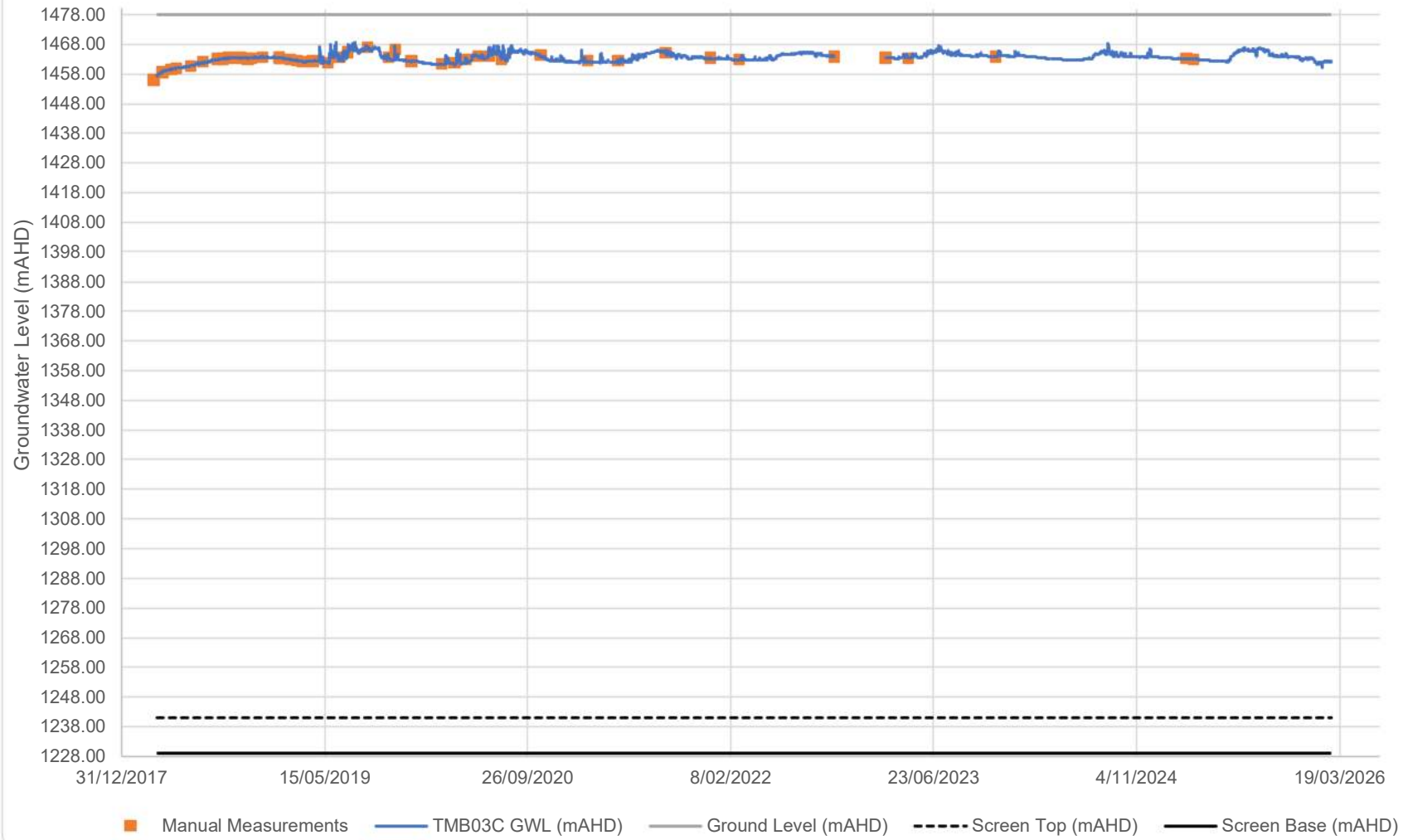
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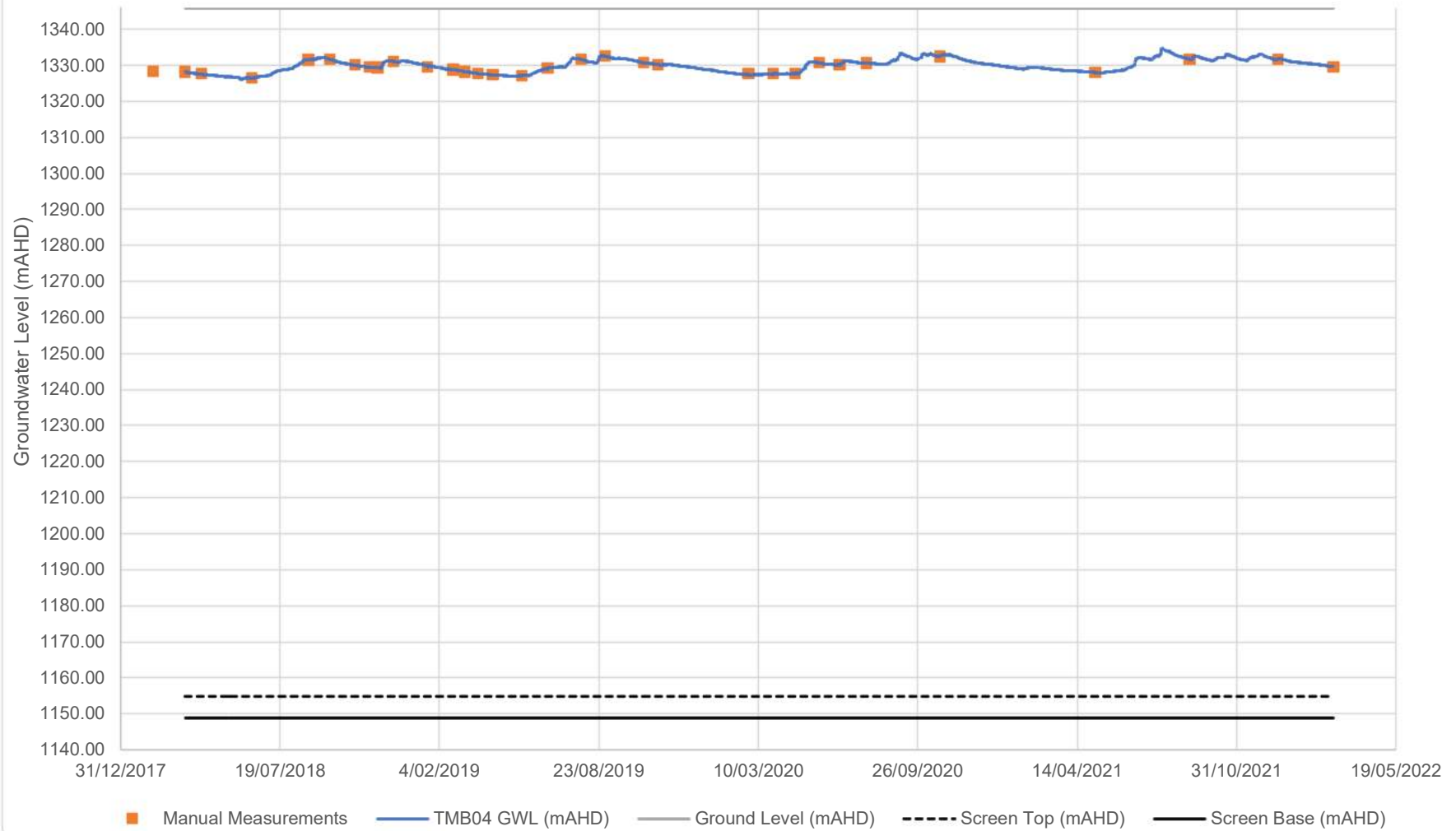
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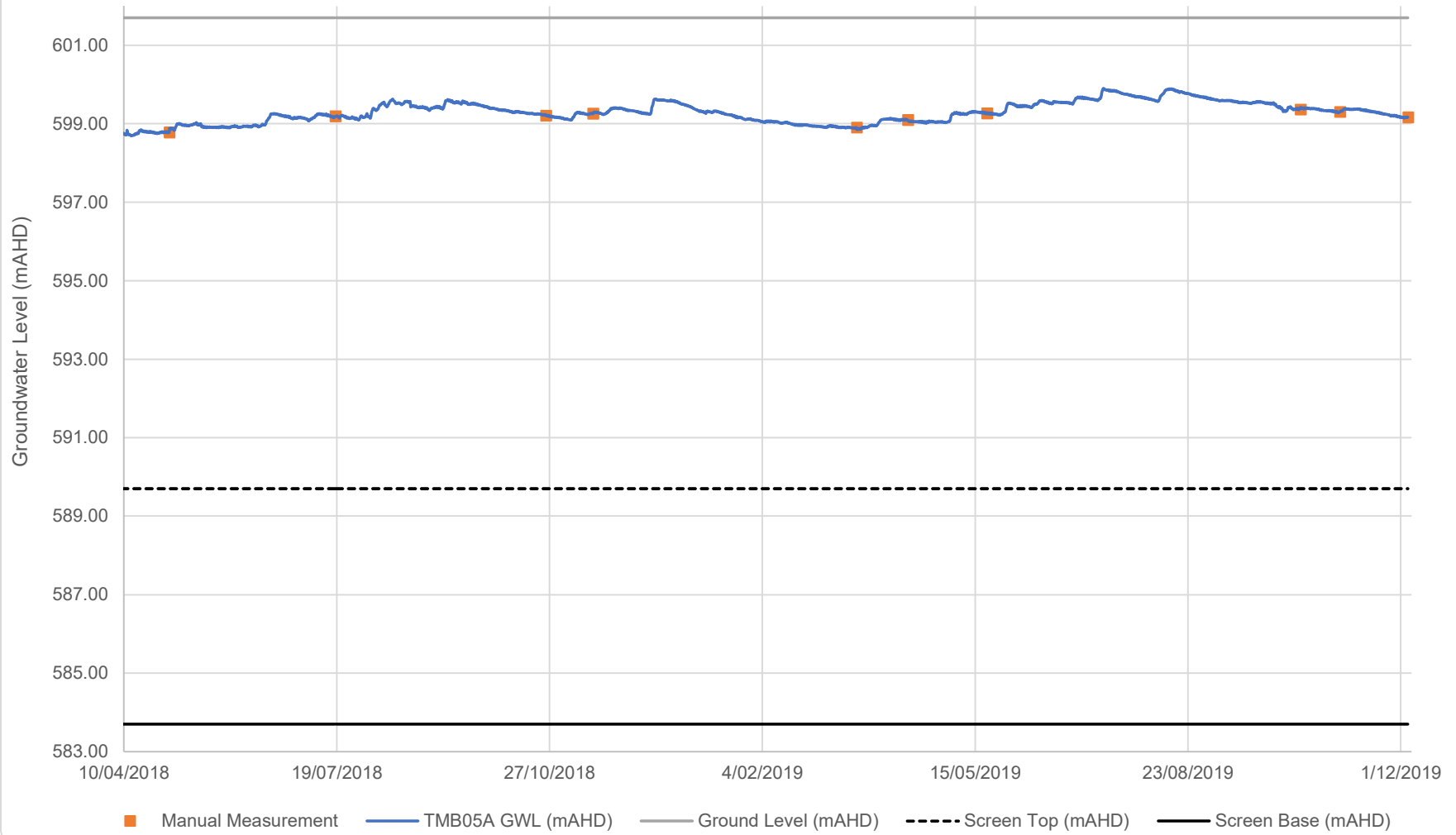
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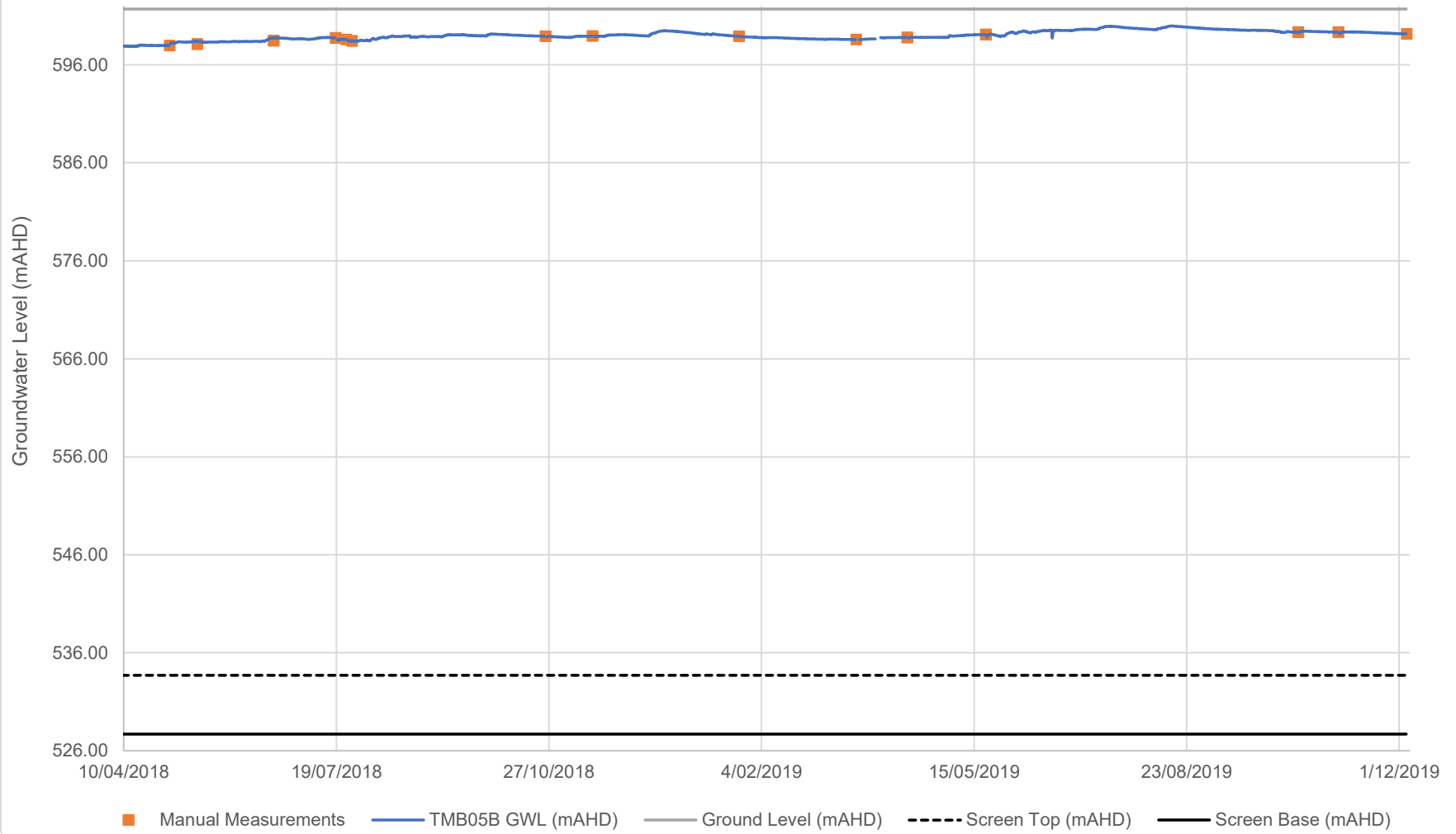
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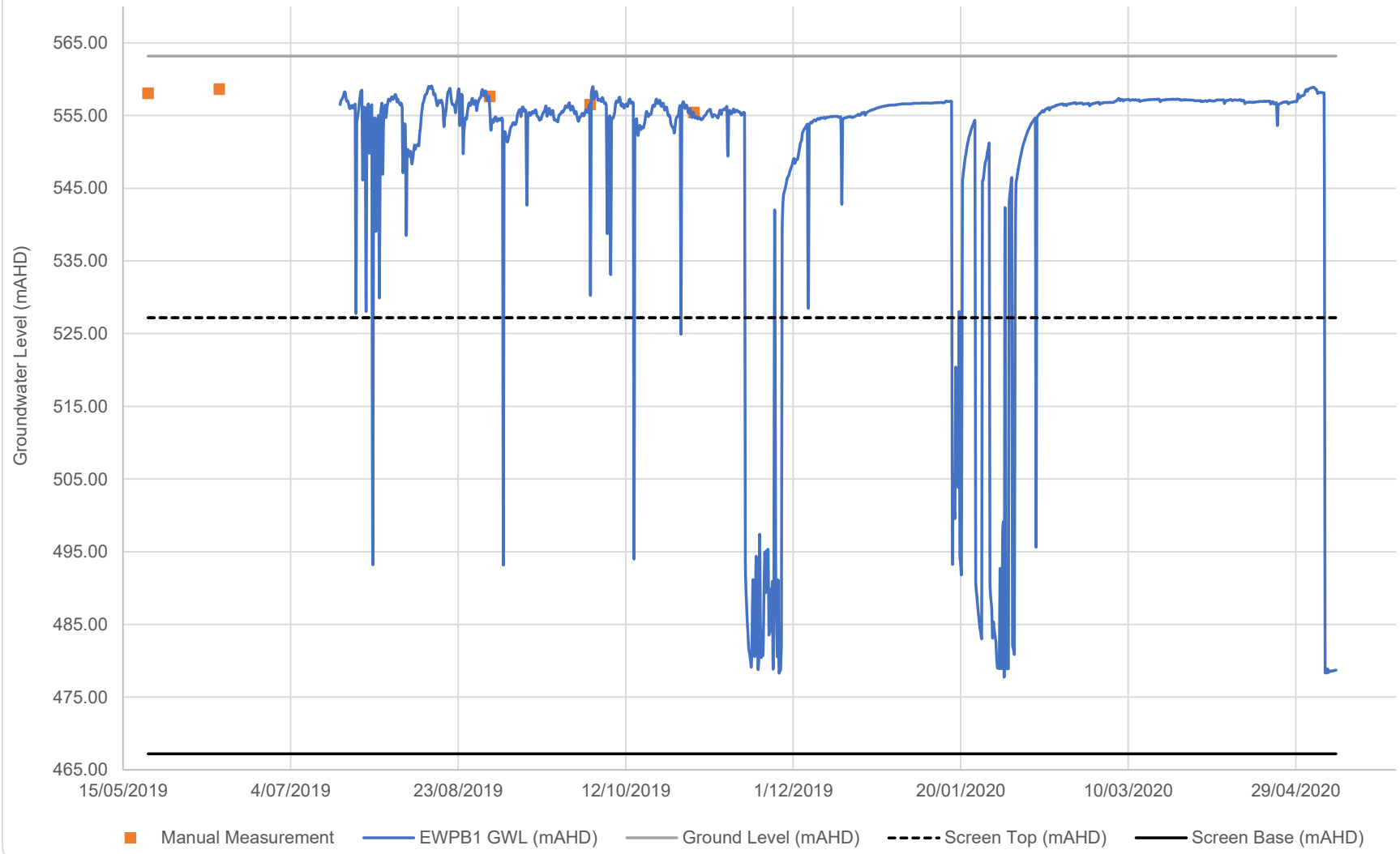
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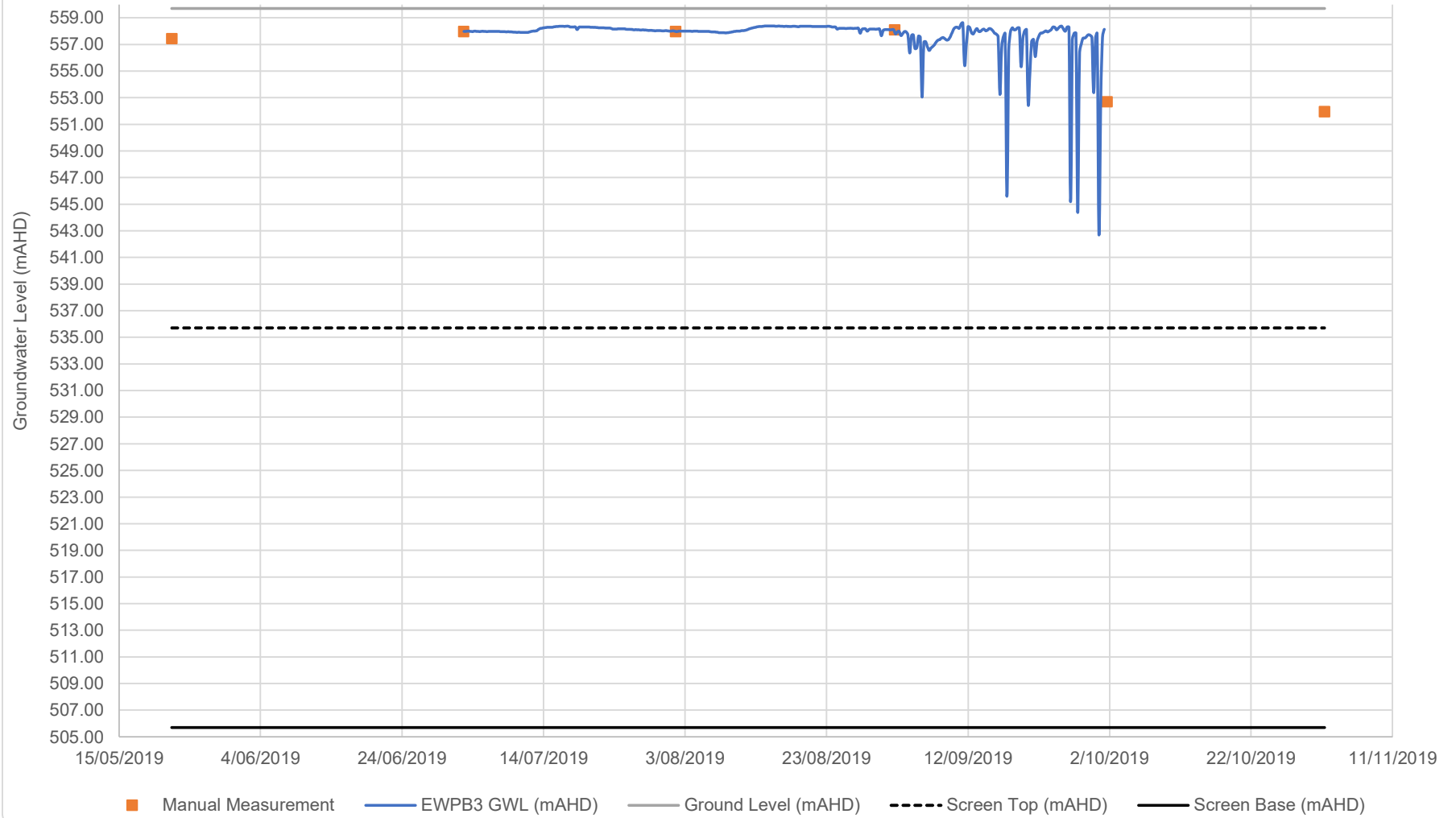
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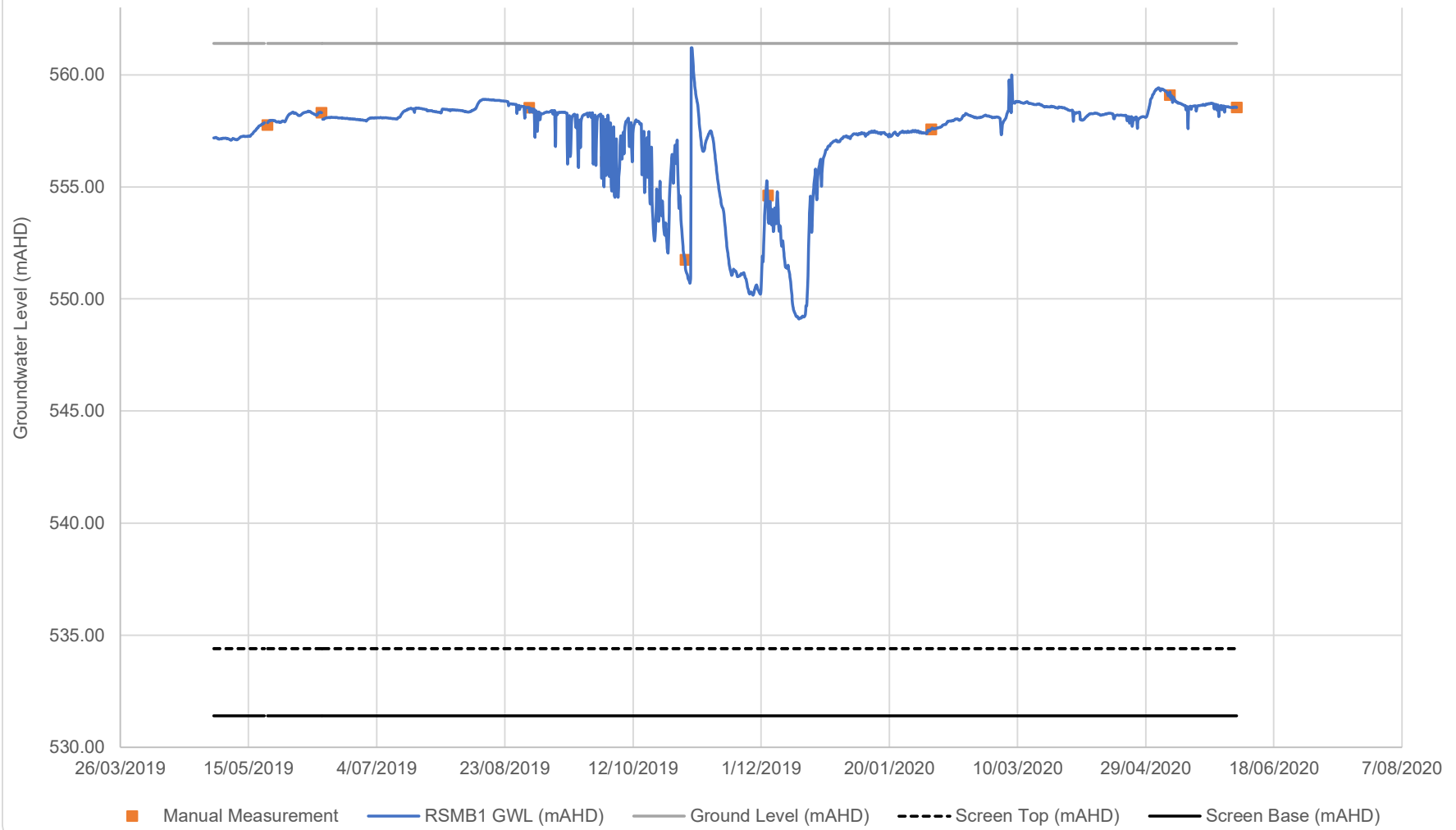
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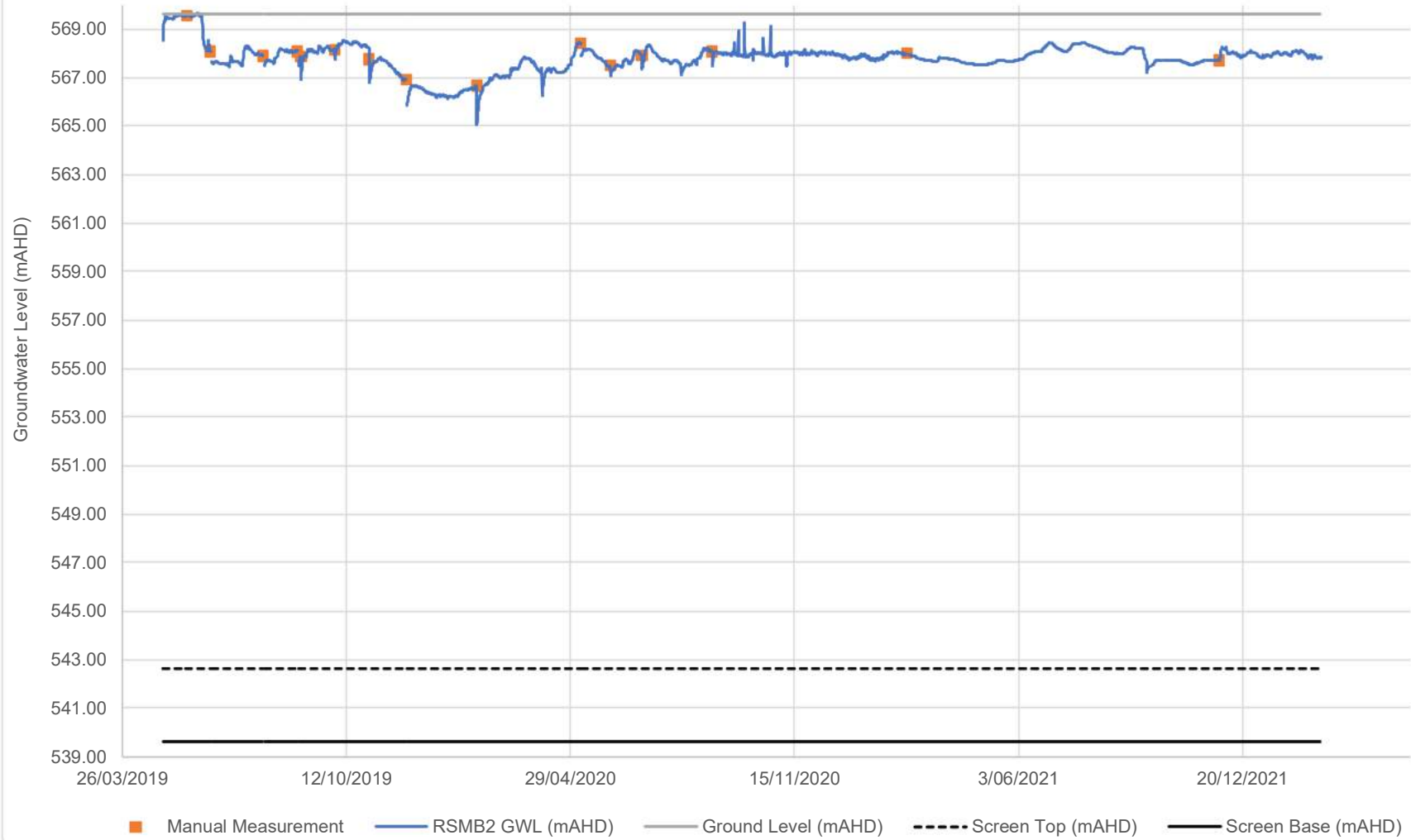
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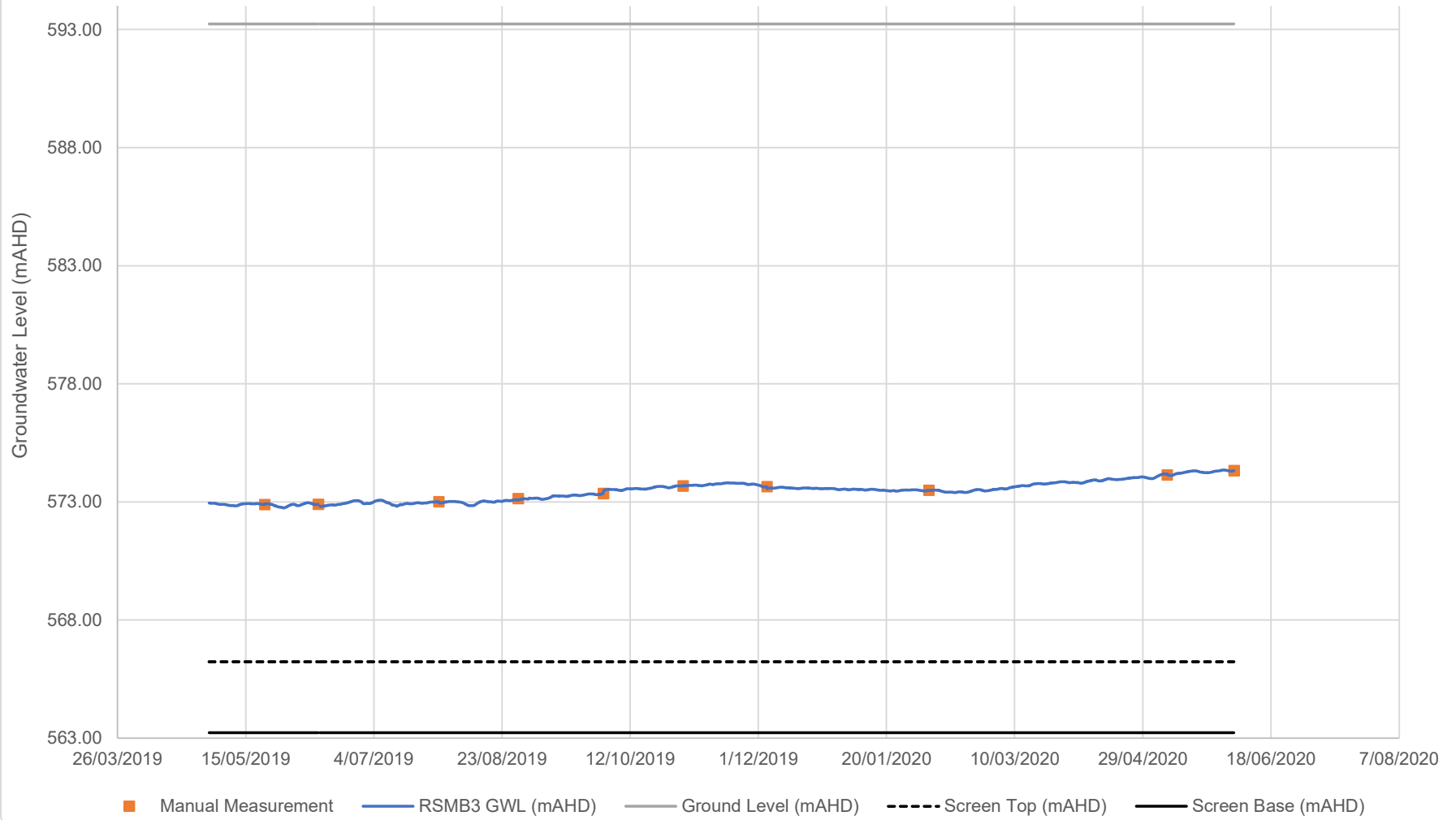
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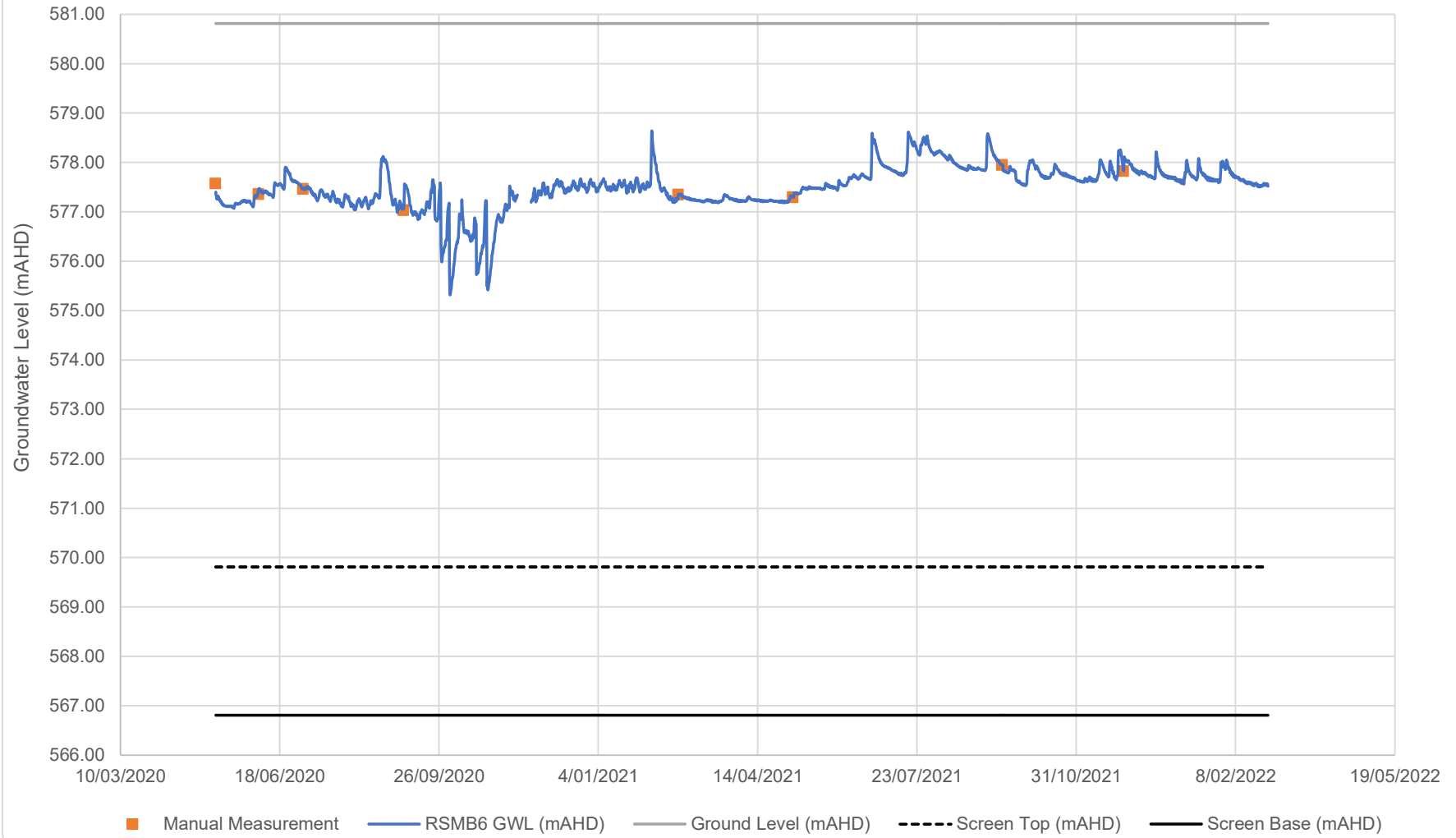
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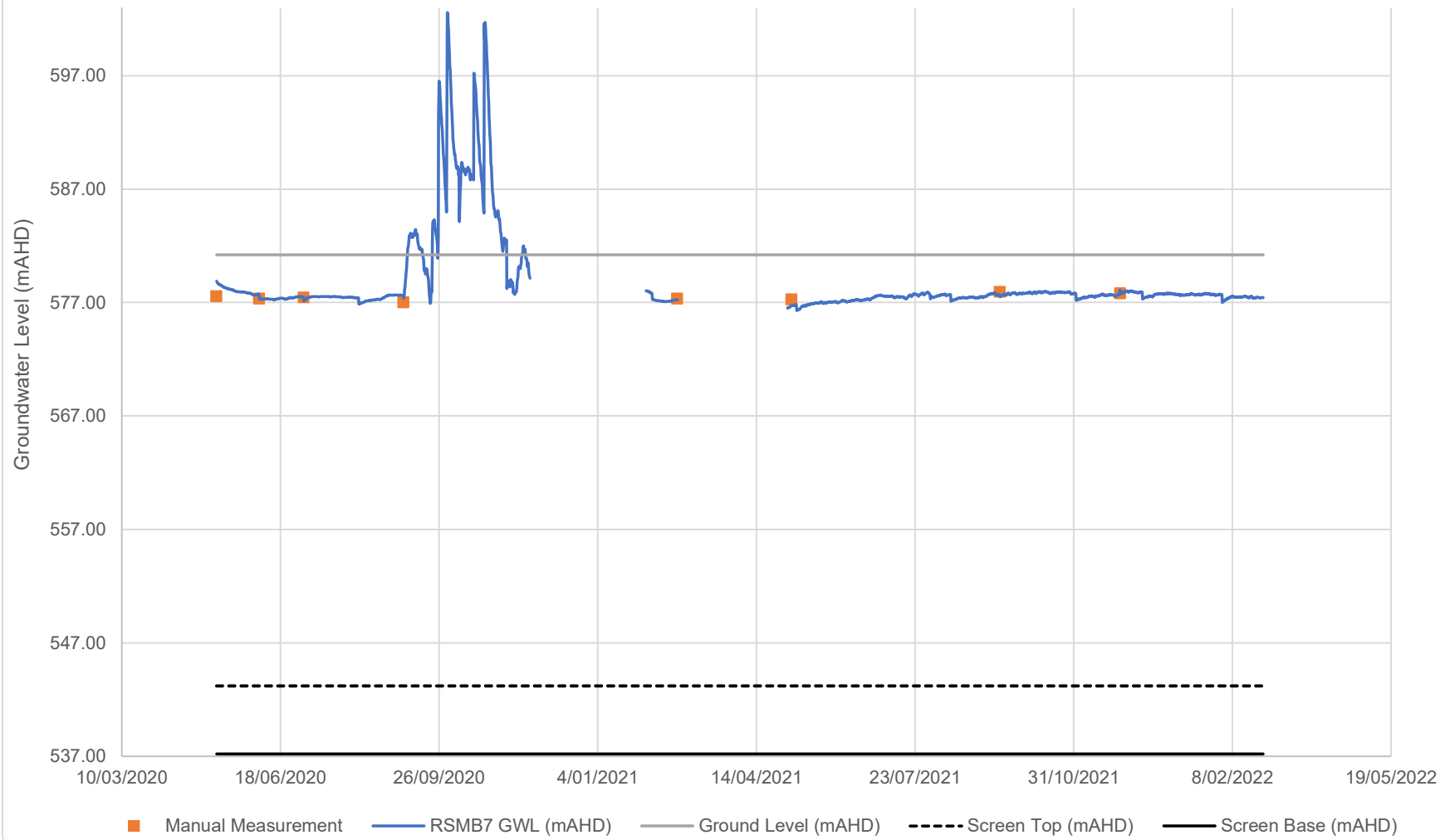
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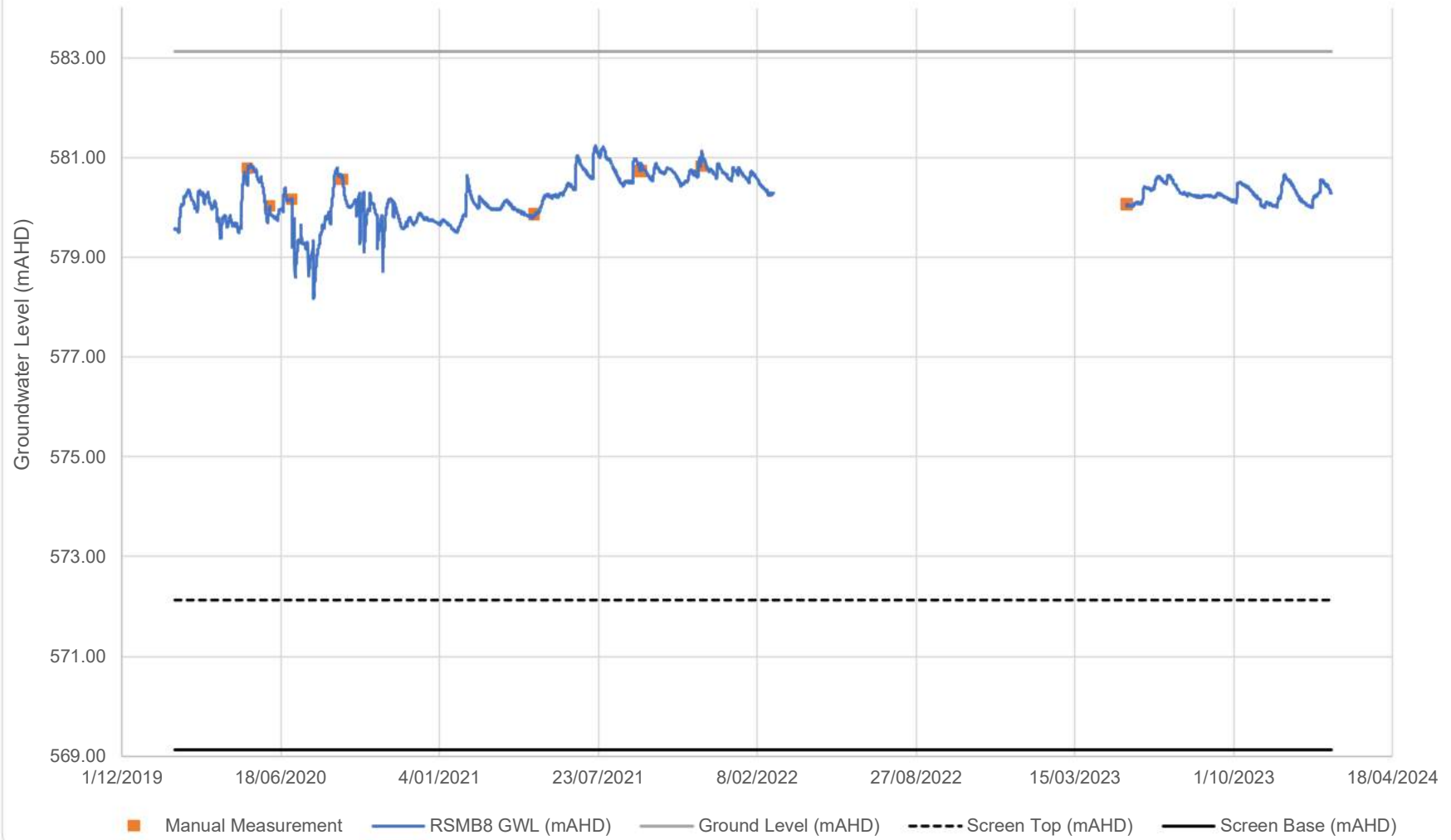
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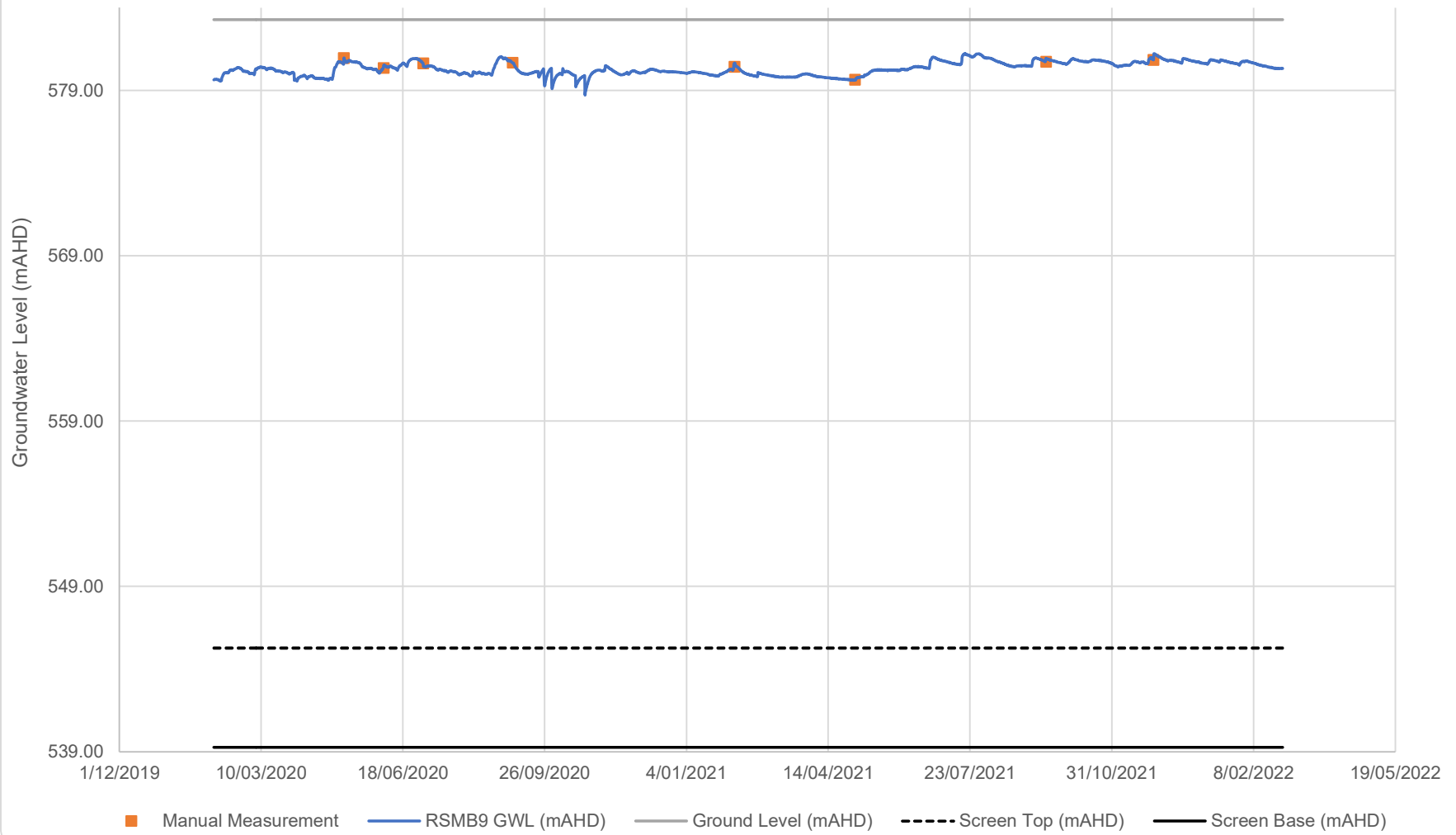
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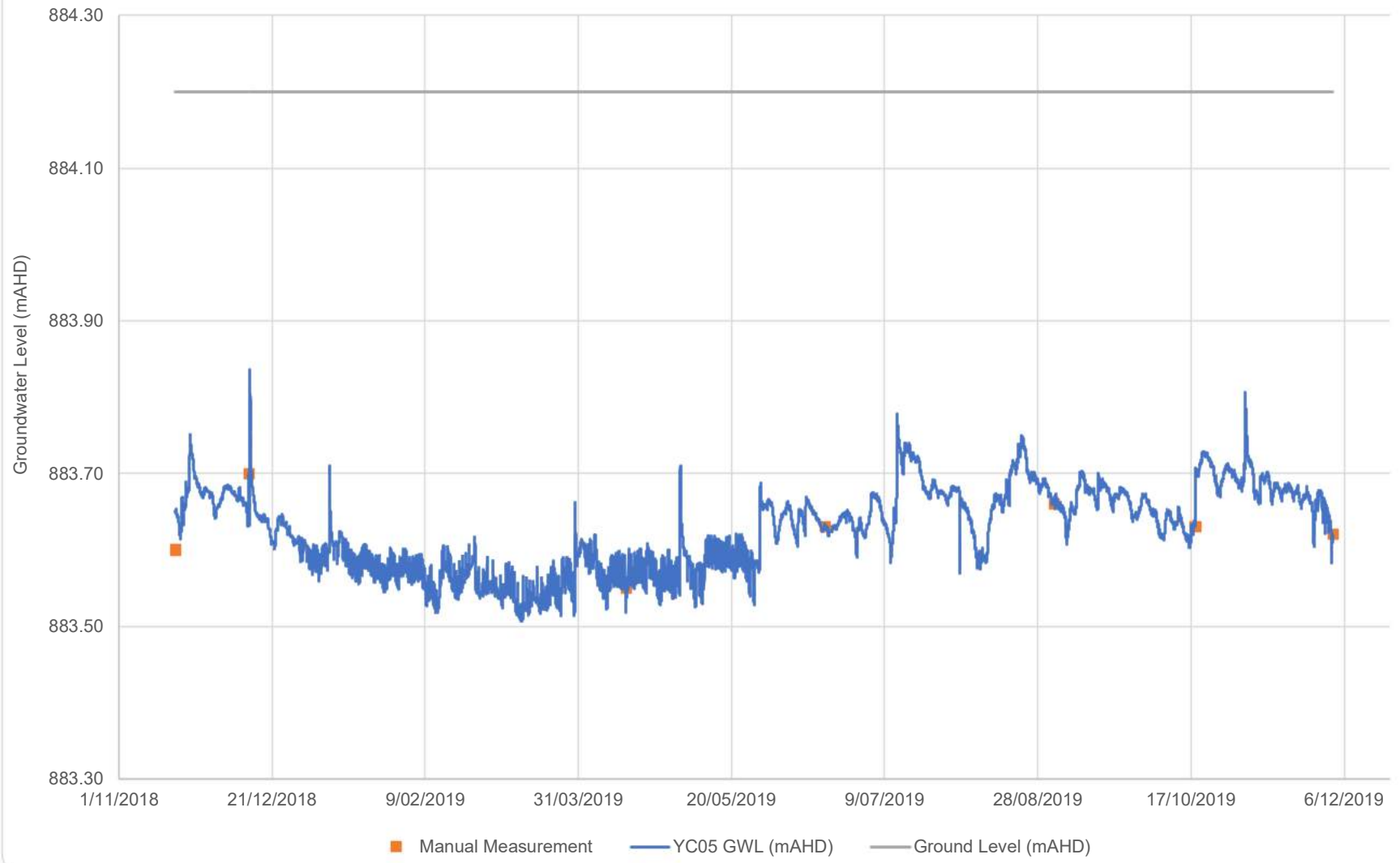
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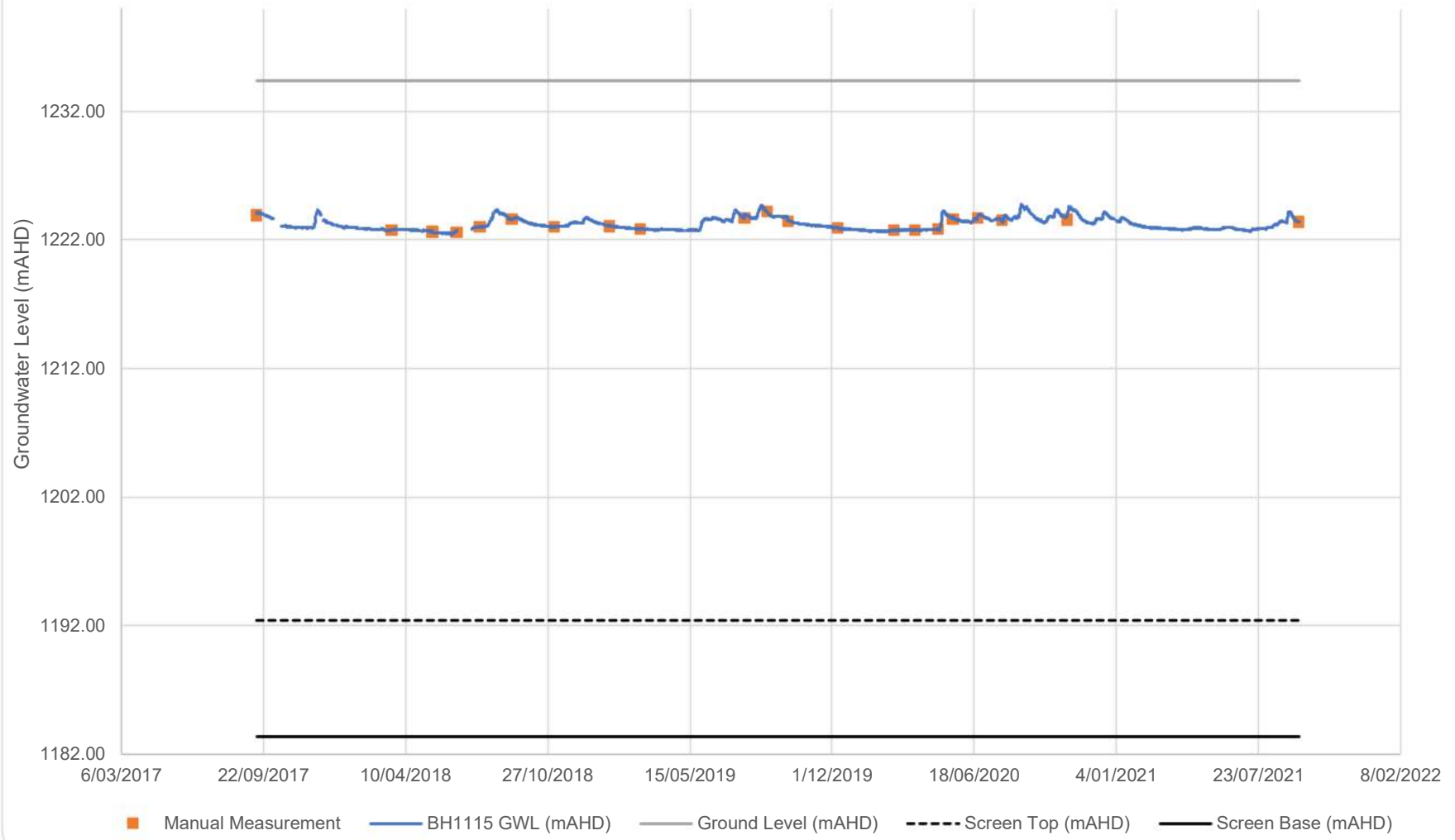
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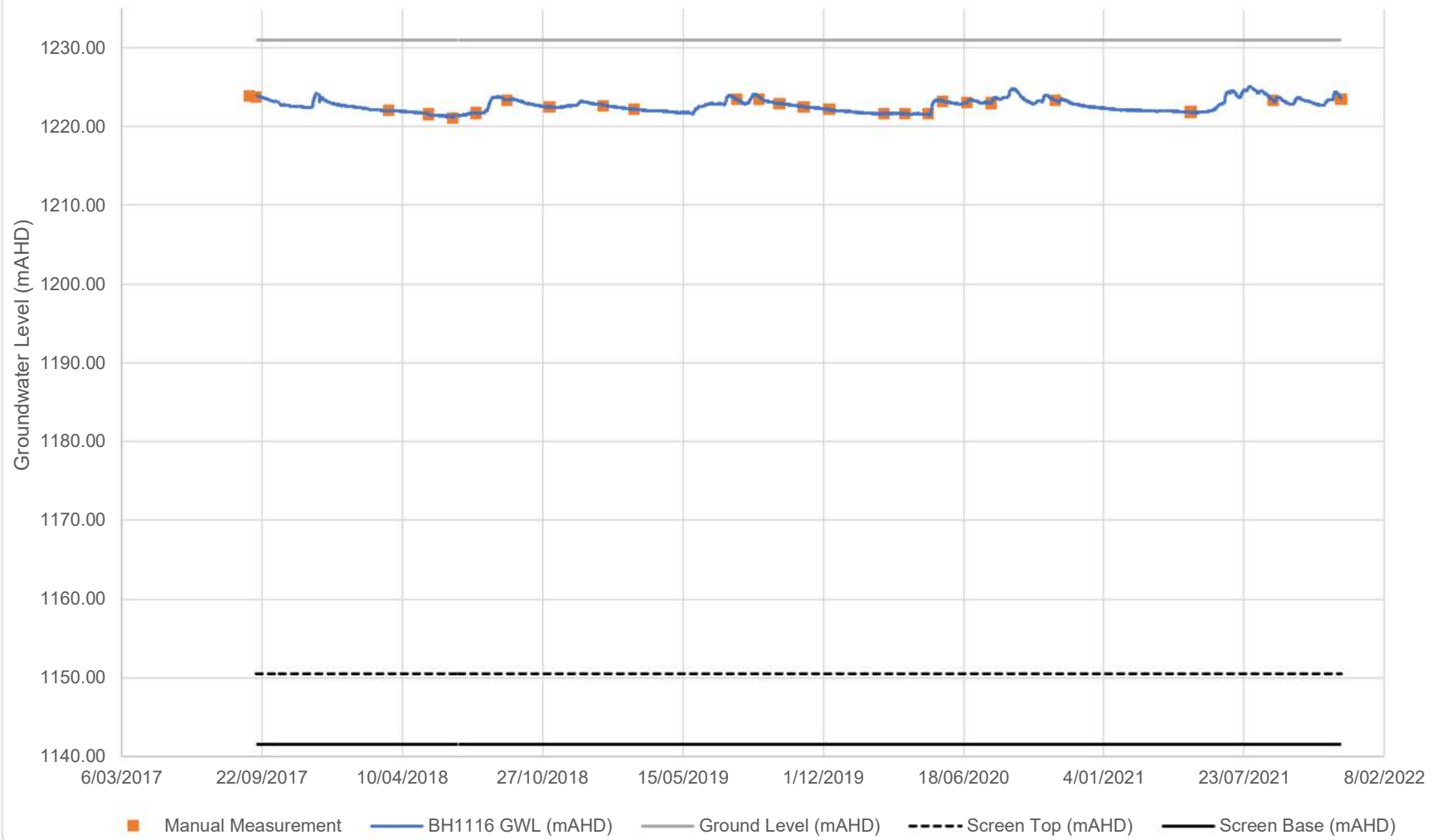
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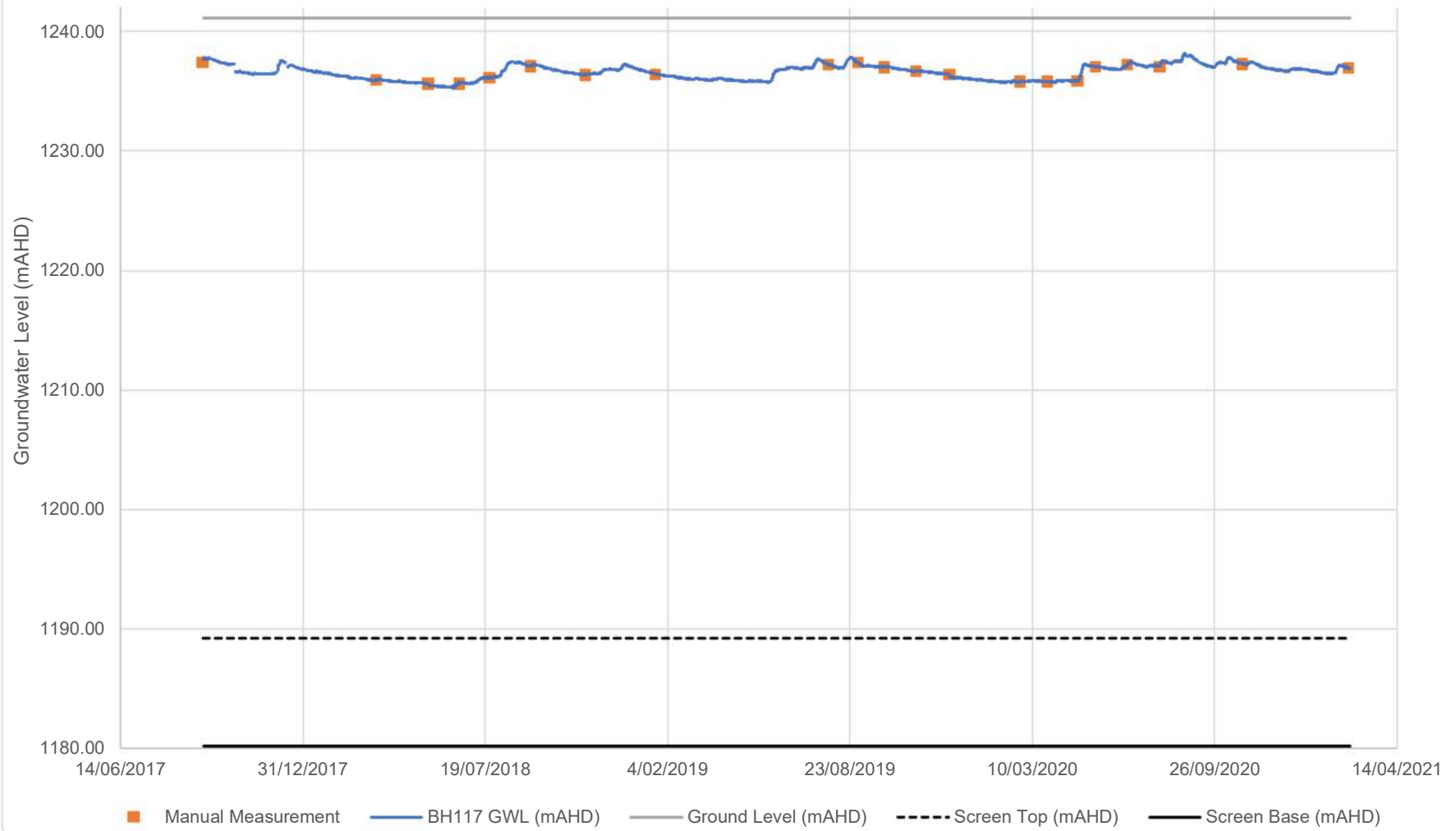
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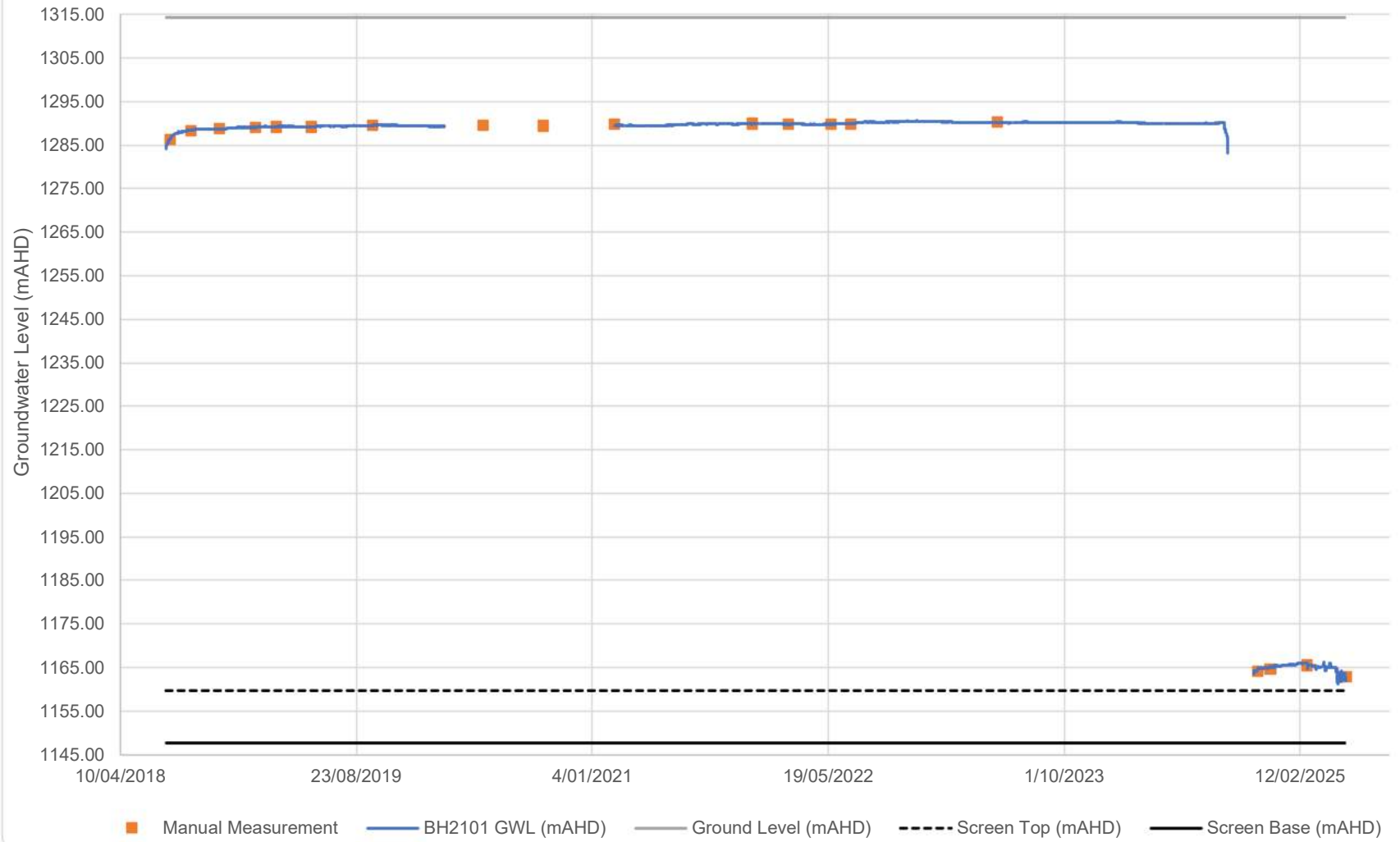
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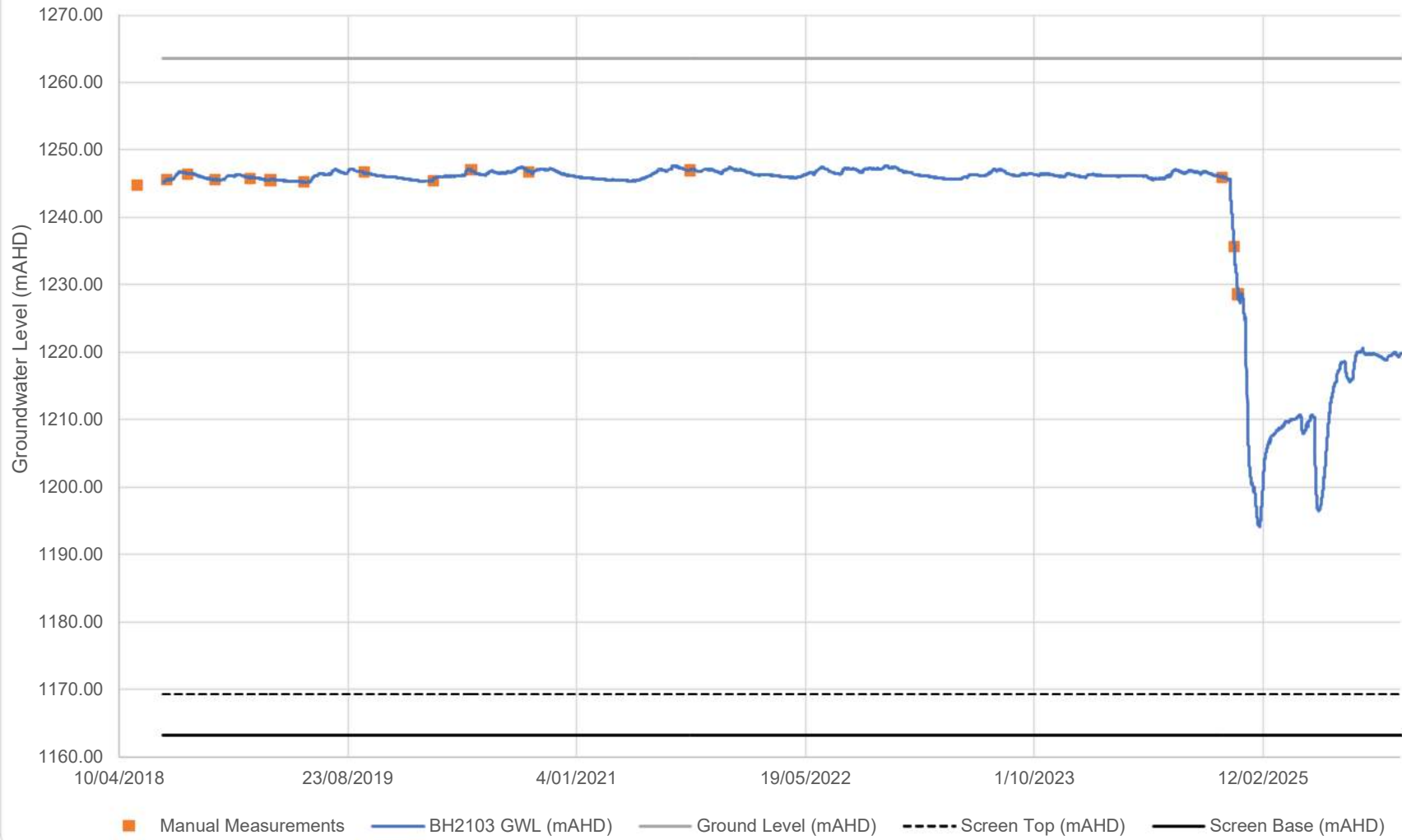
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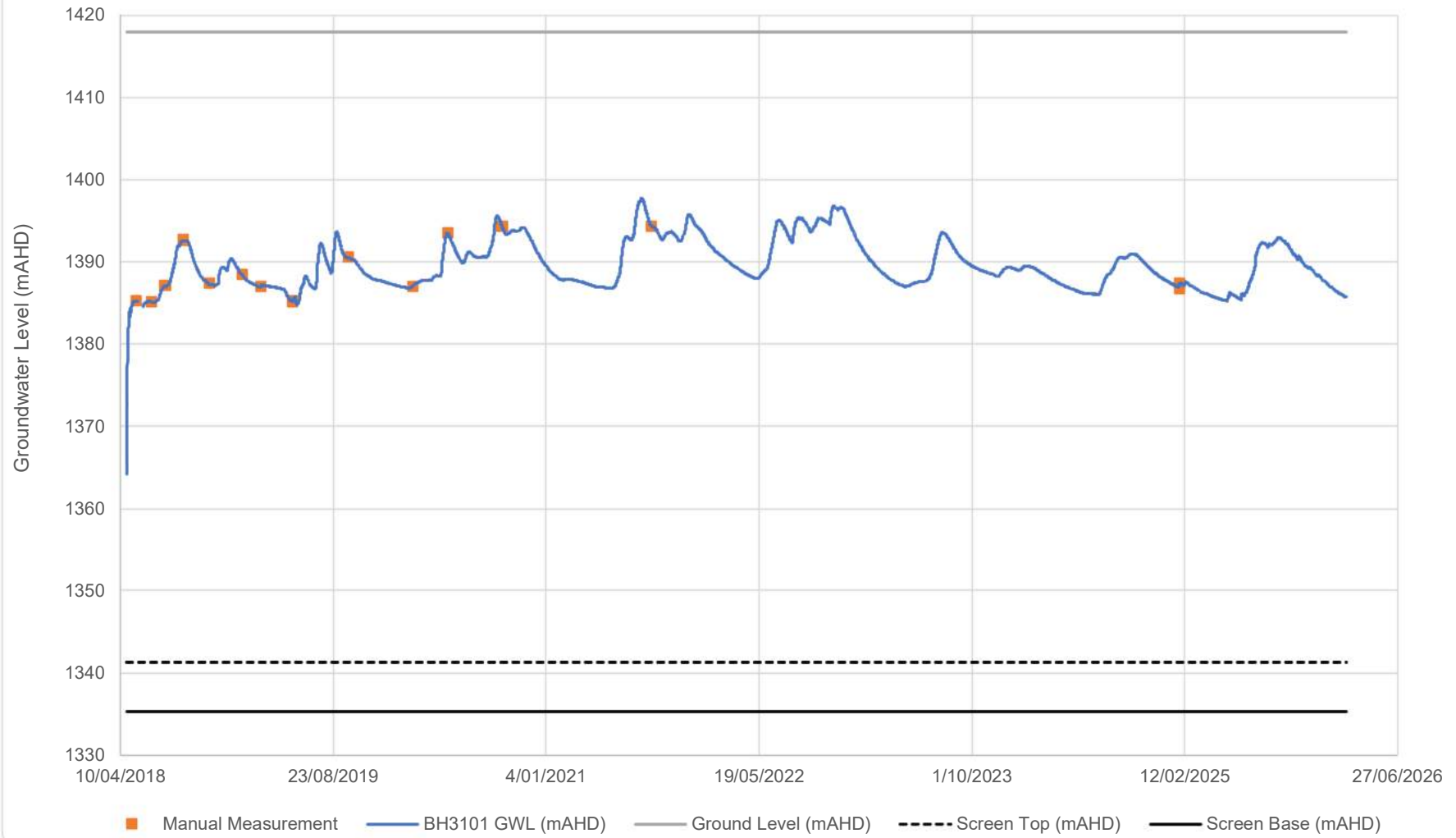
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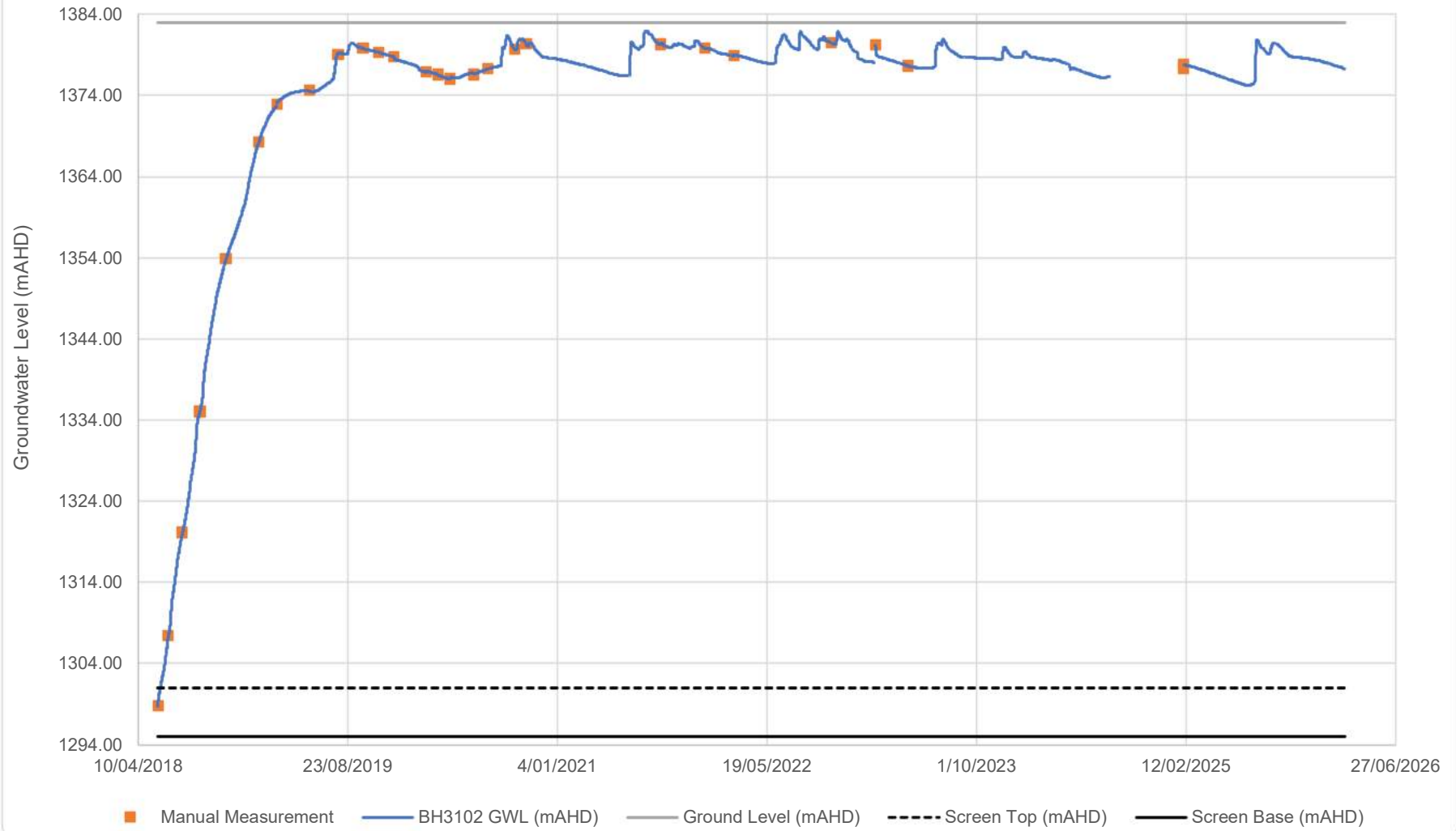
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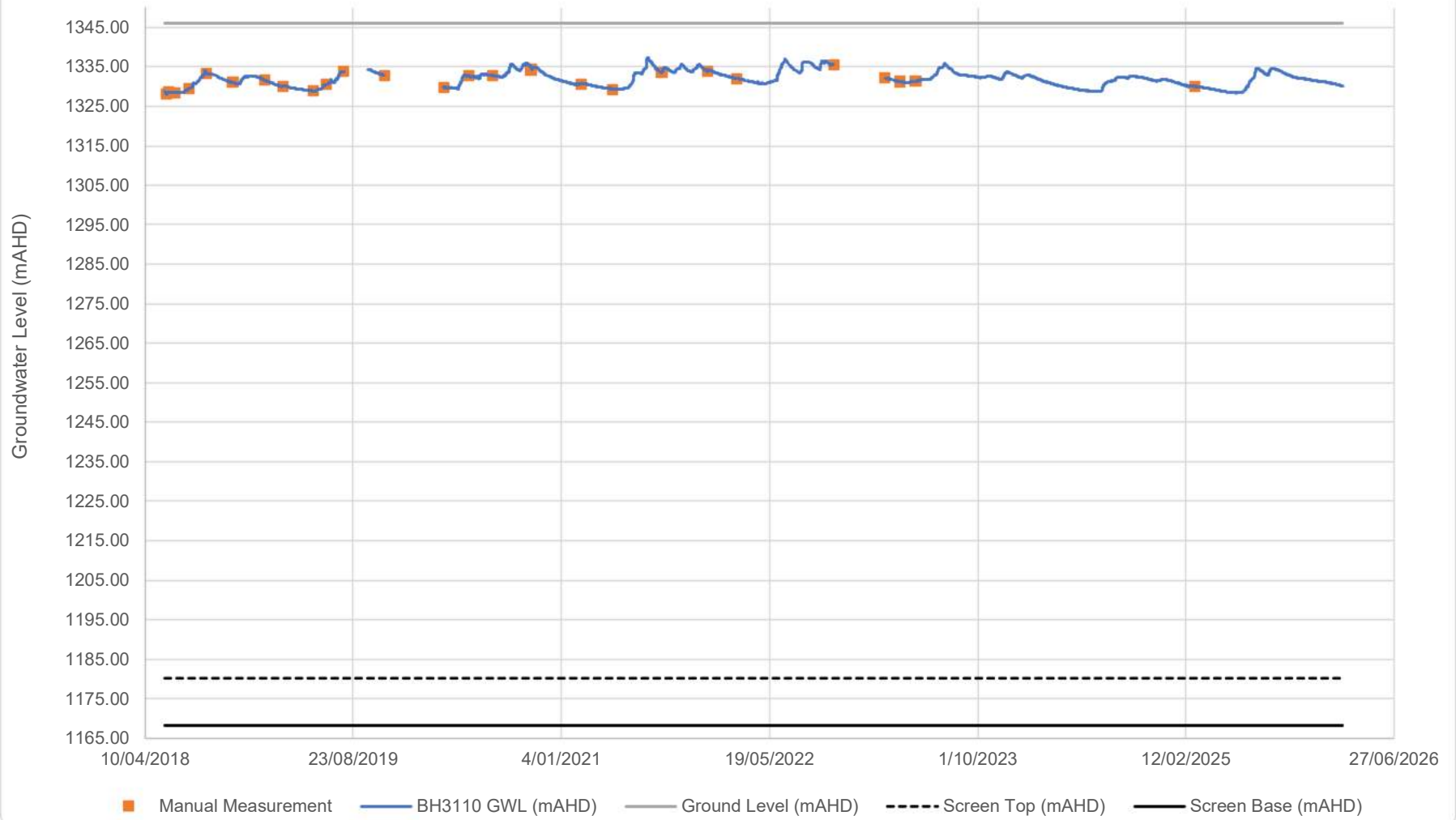
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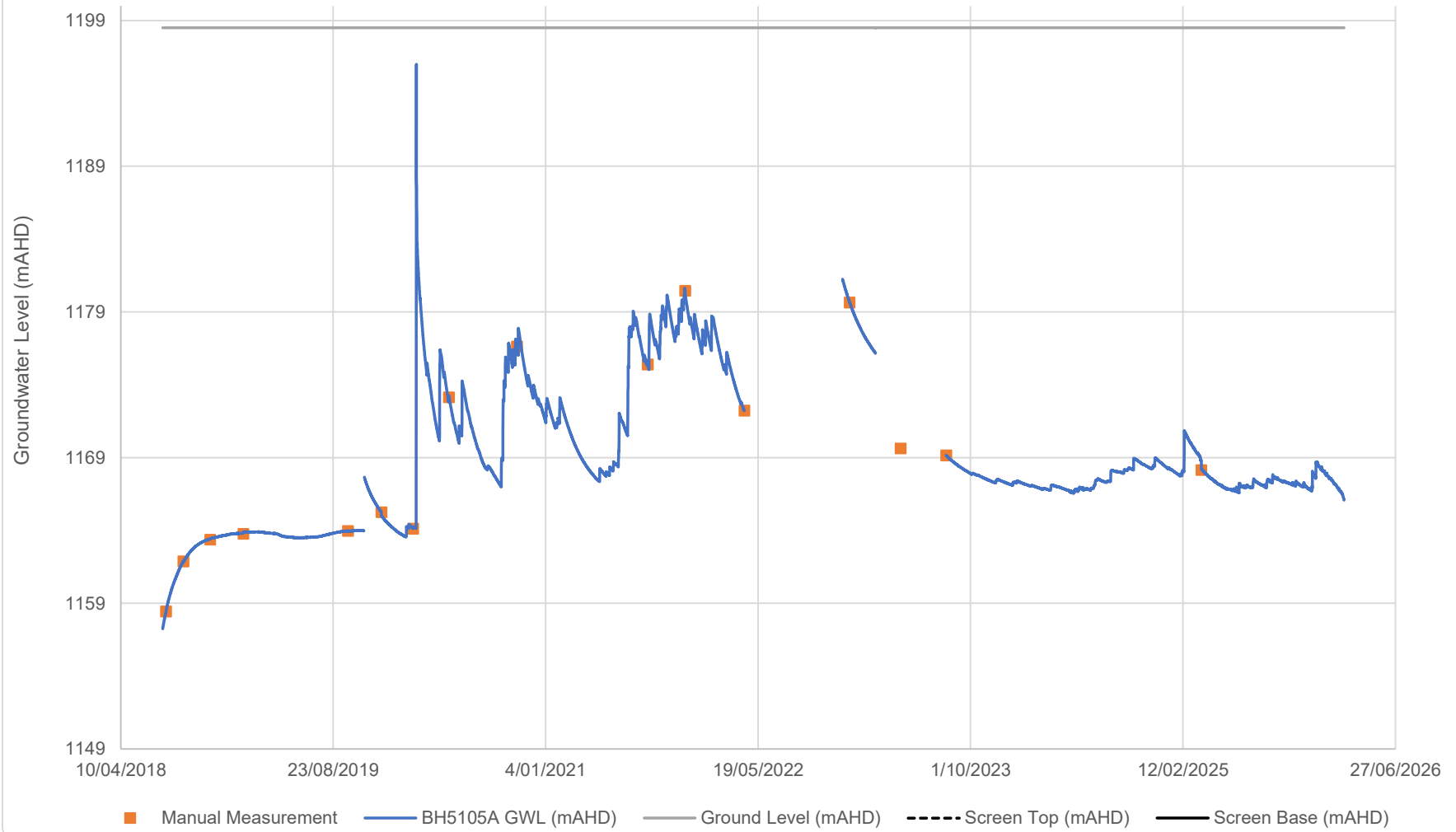
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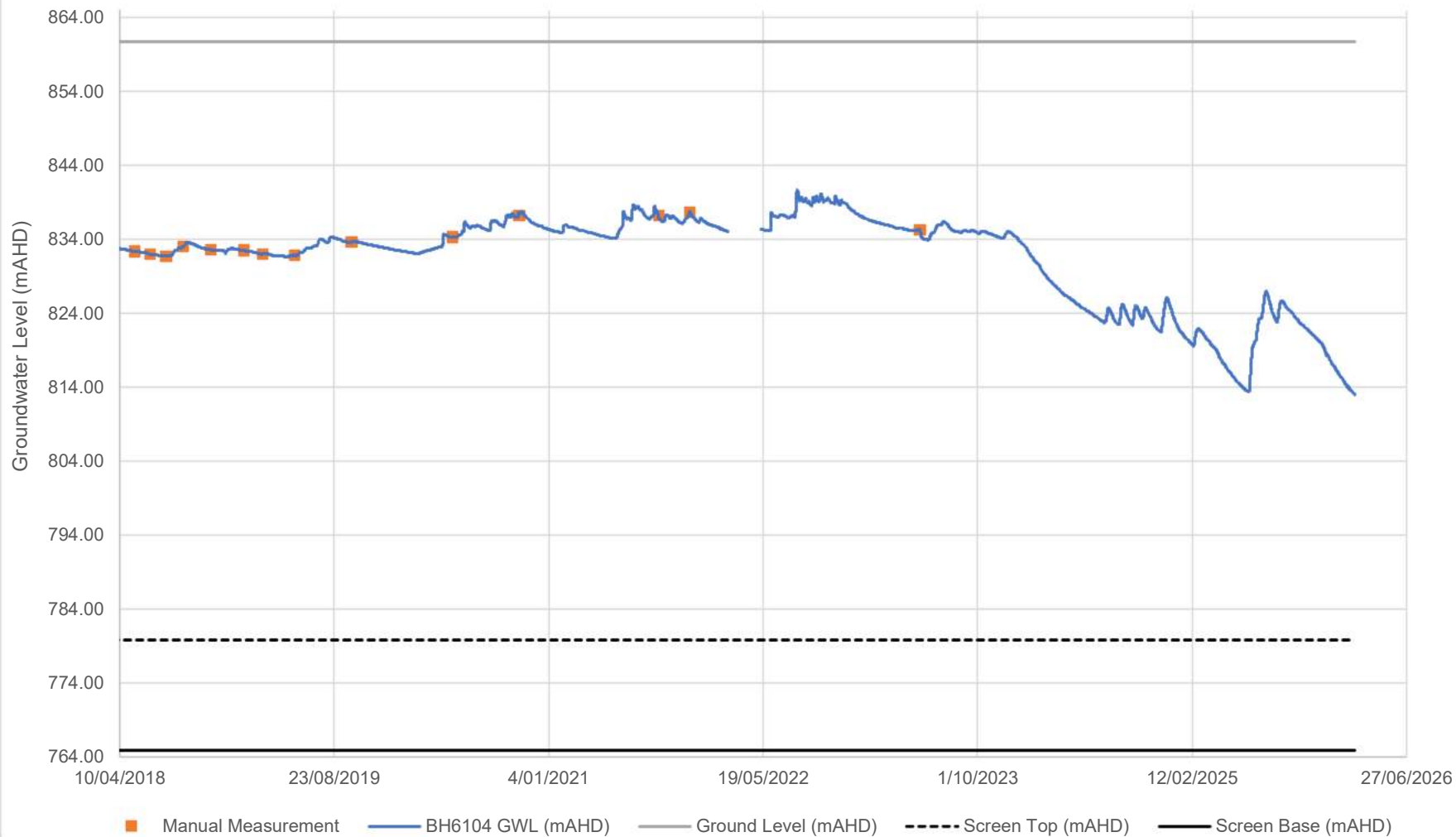
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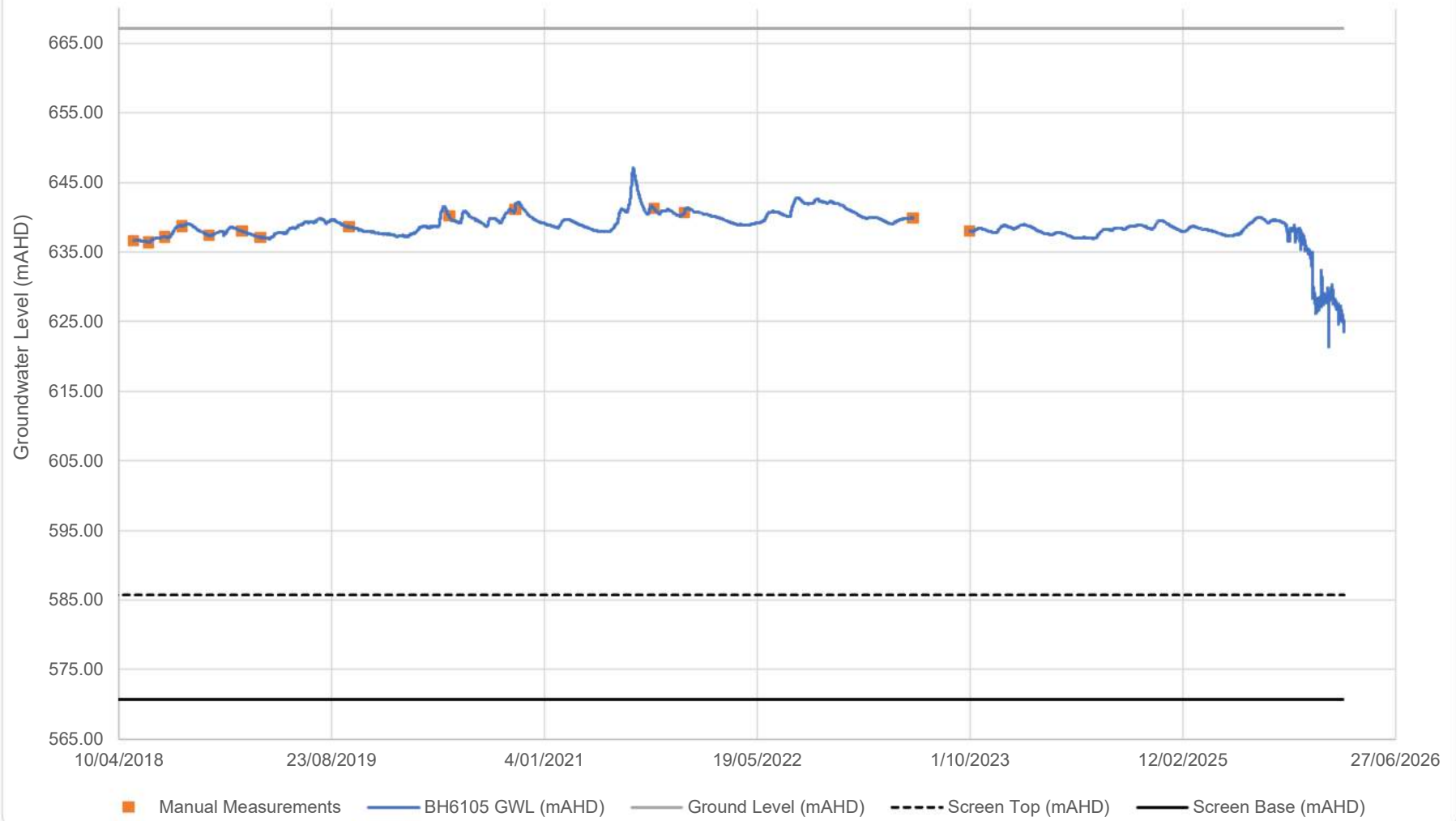
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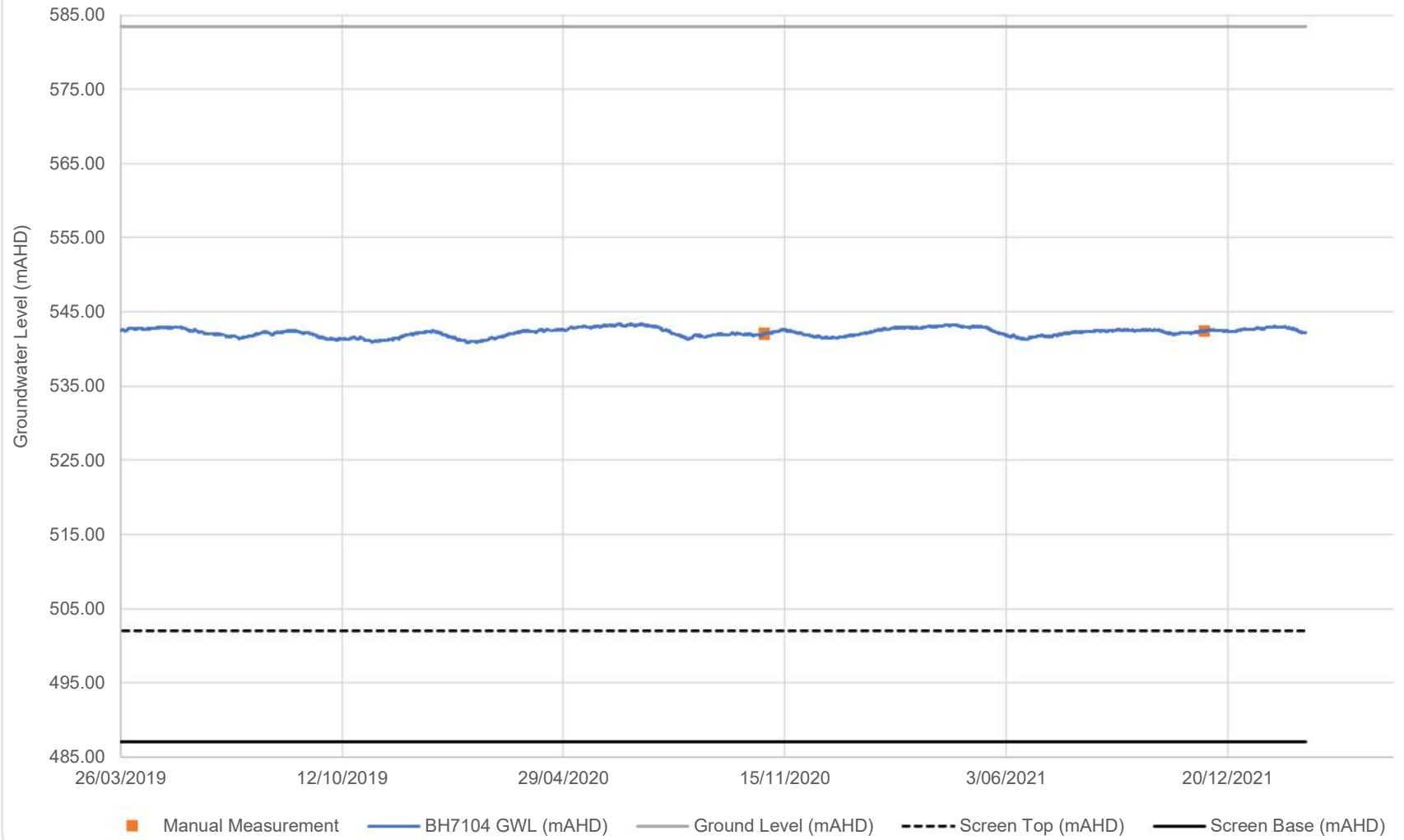
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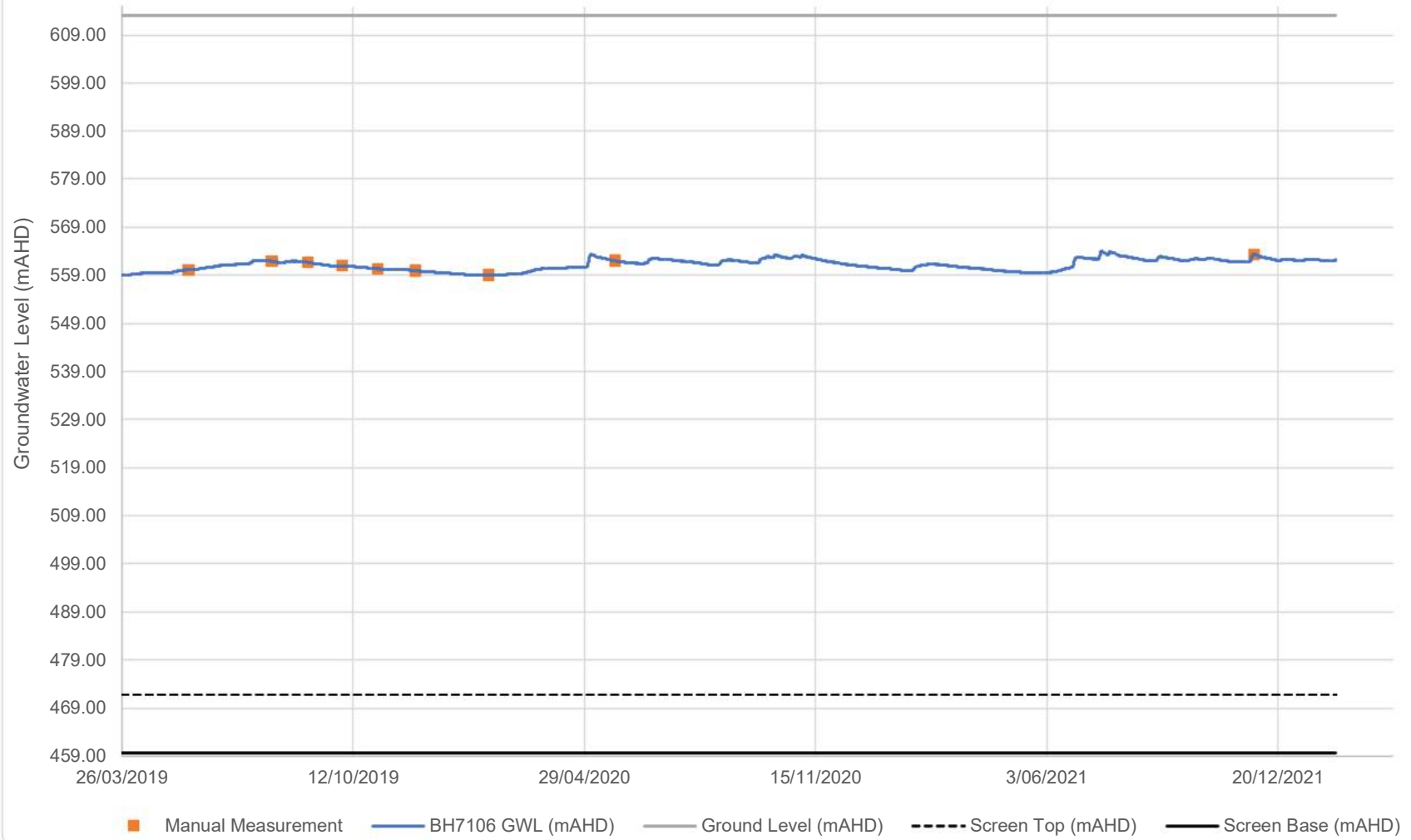
# BH6105



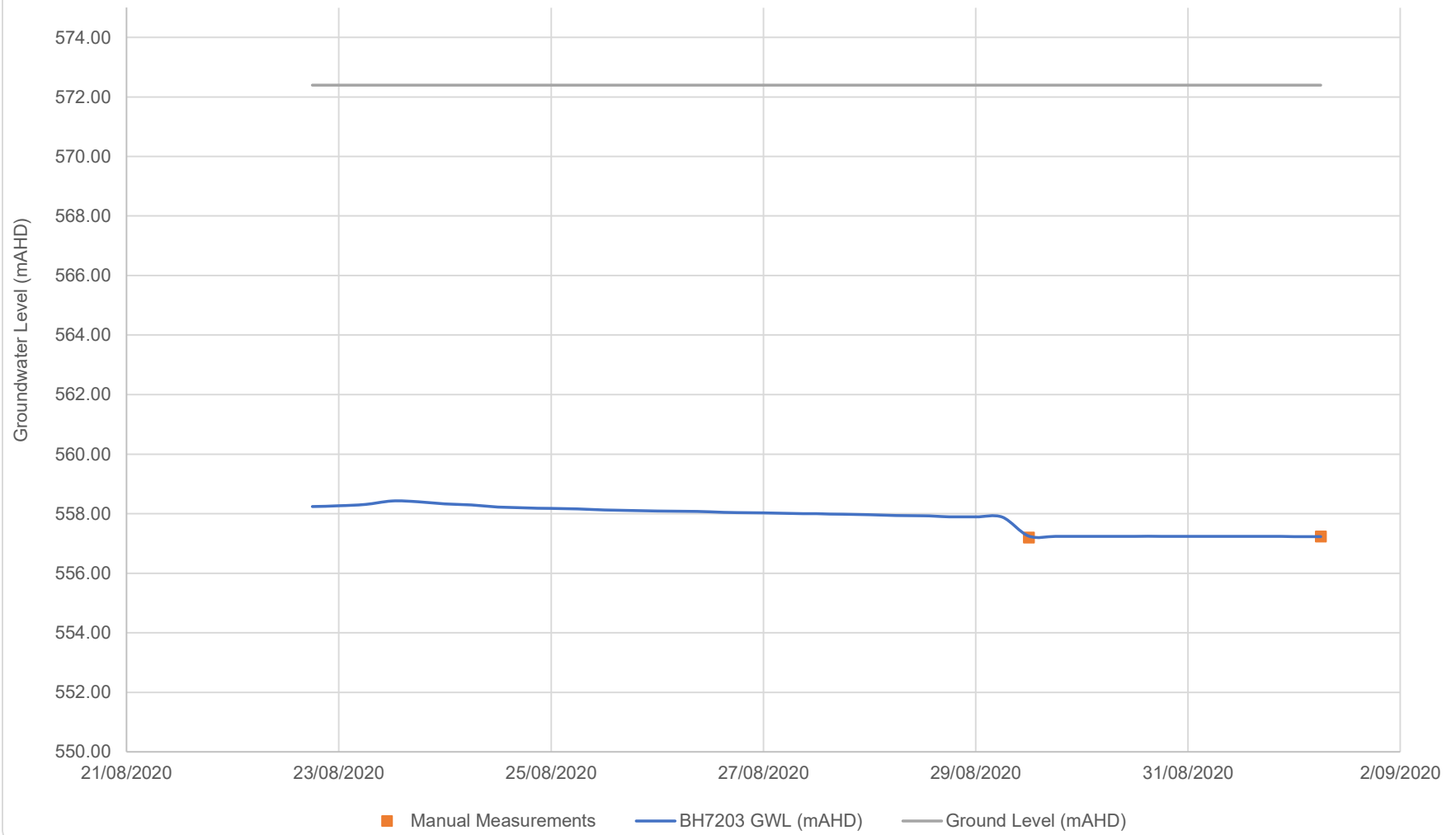
# BH7104



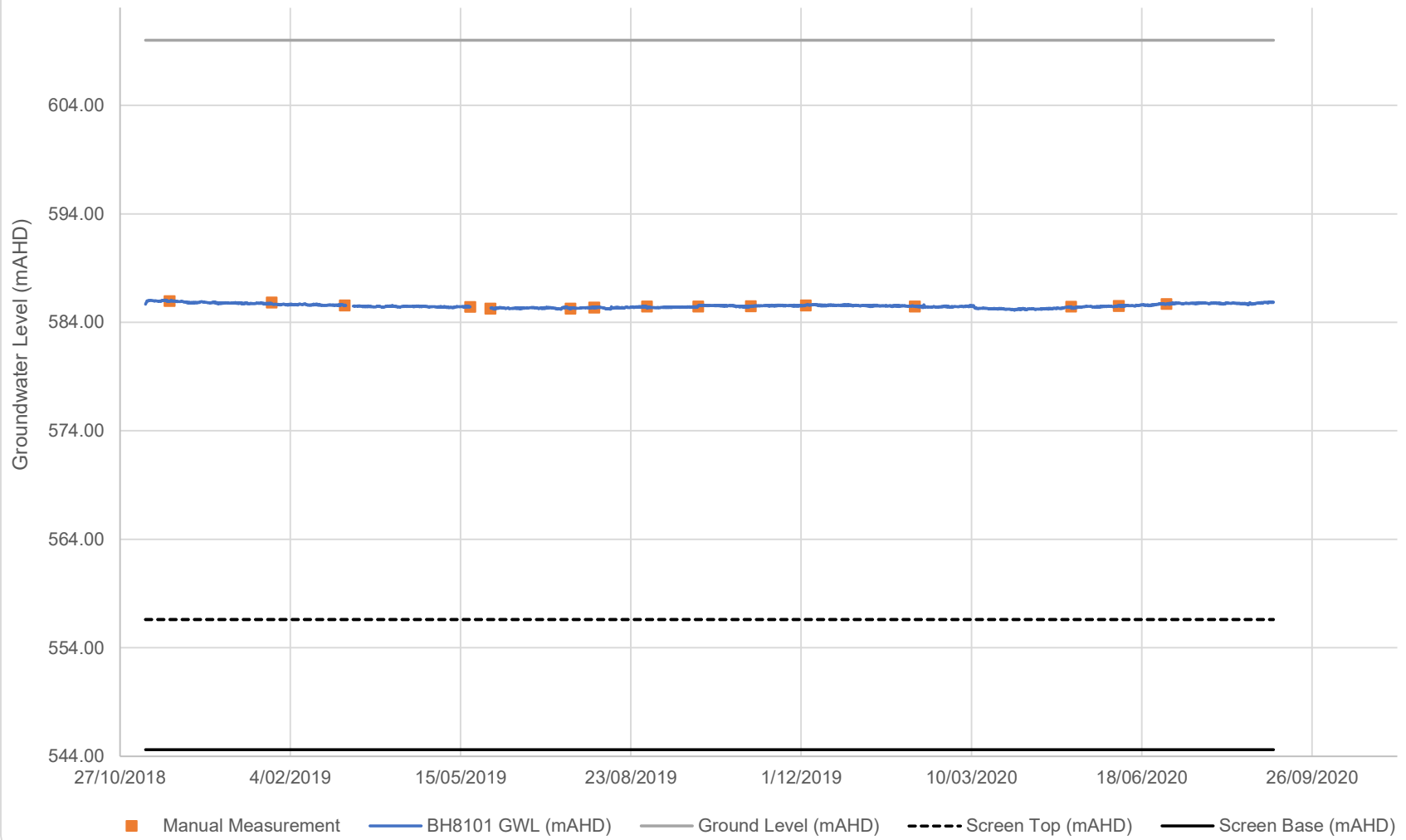
# BH7106



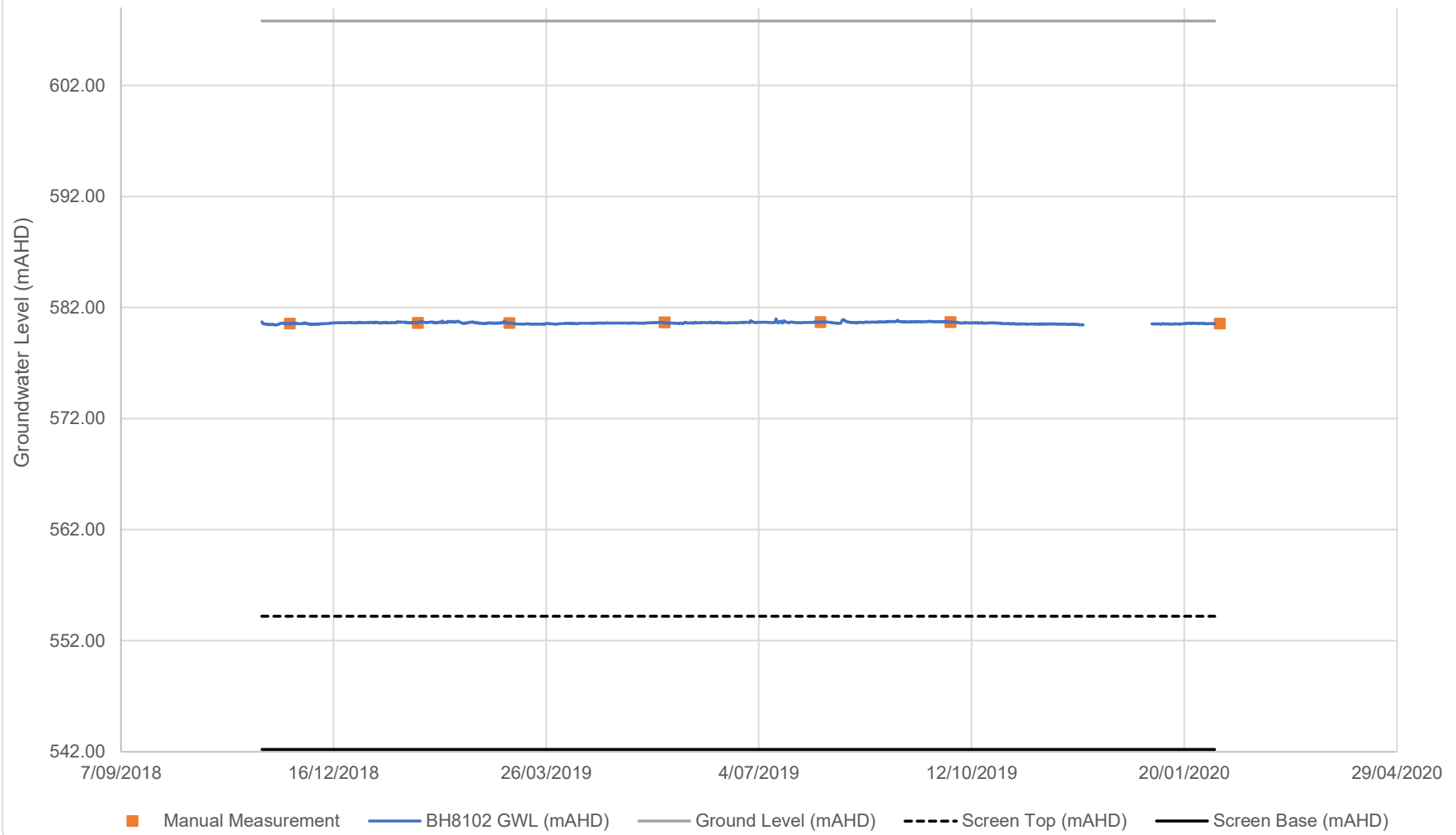
### BH7203



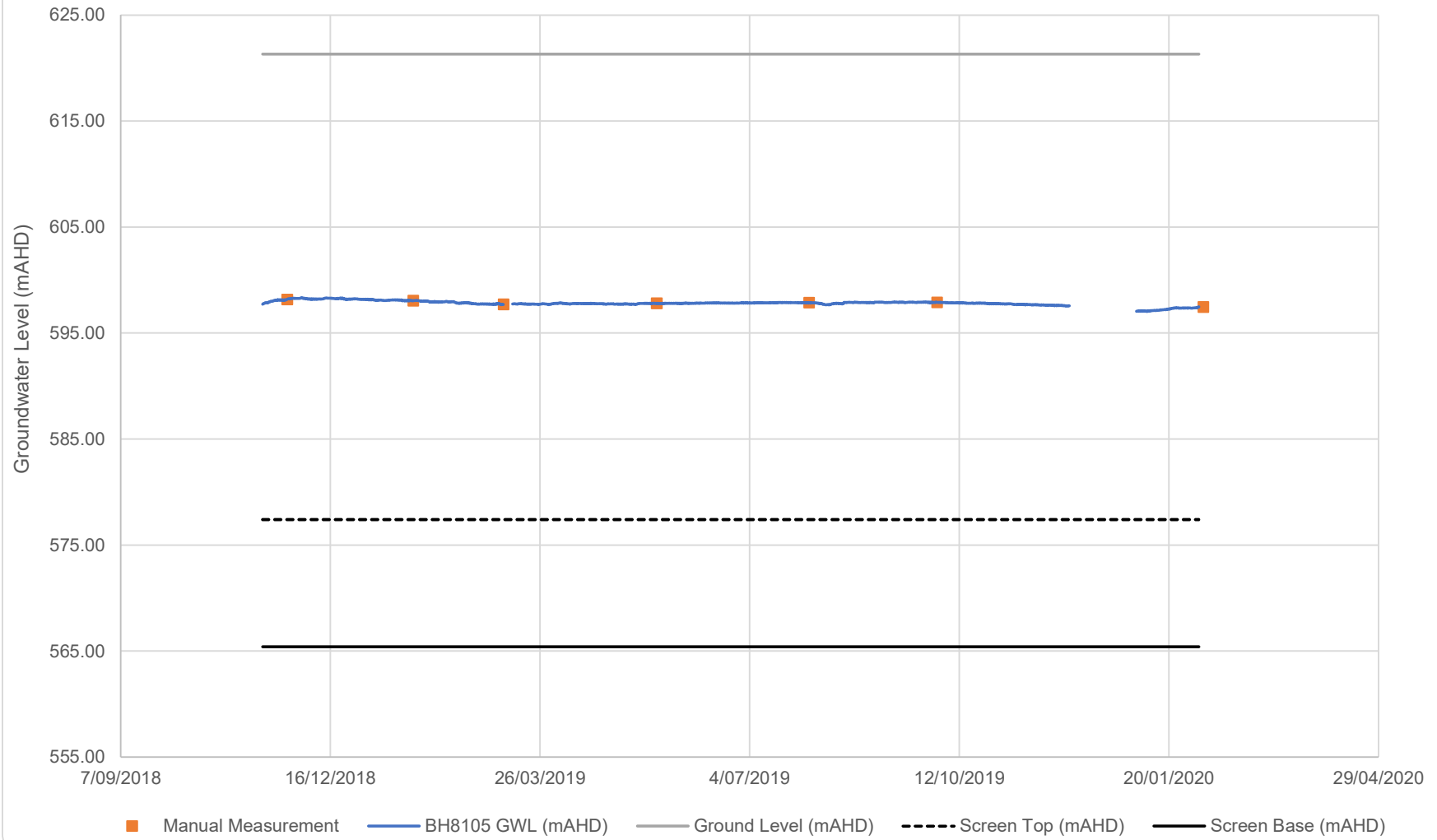
# BH8101



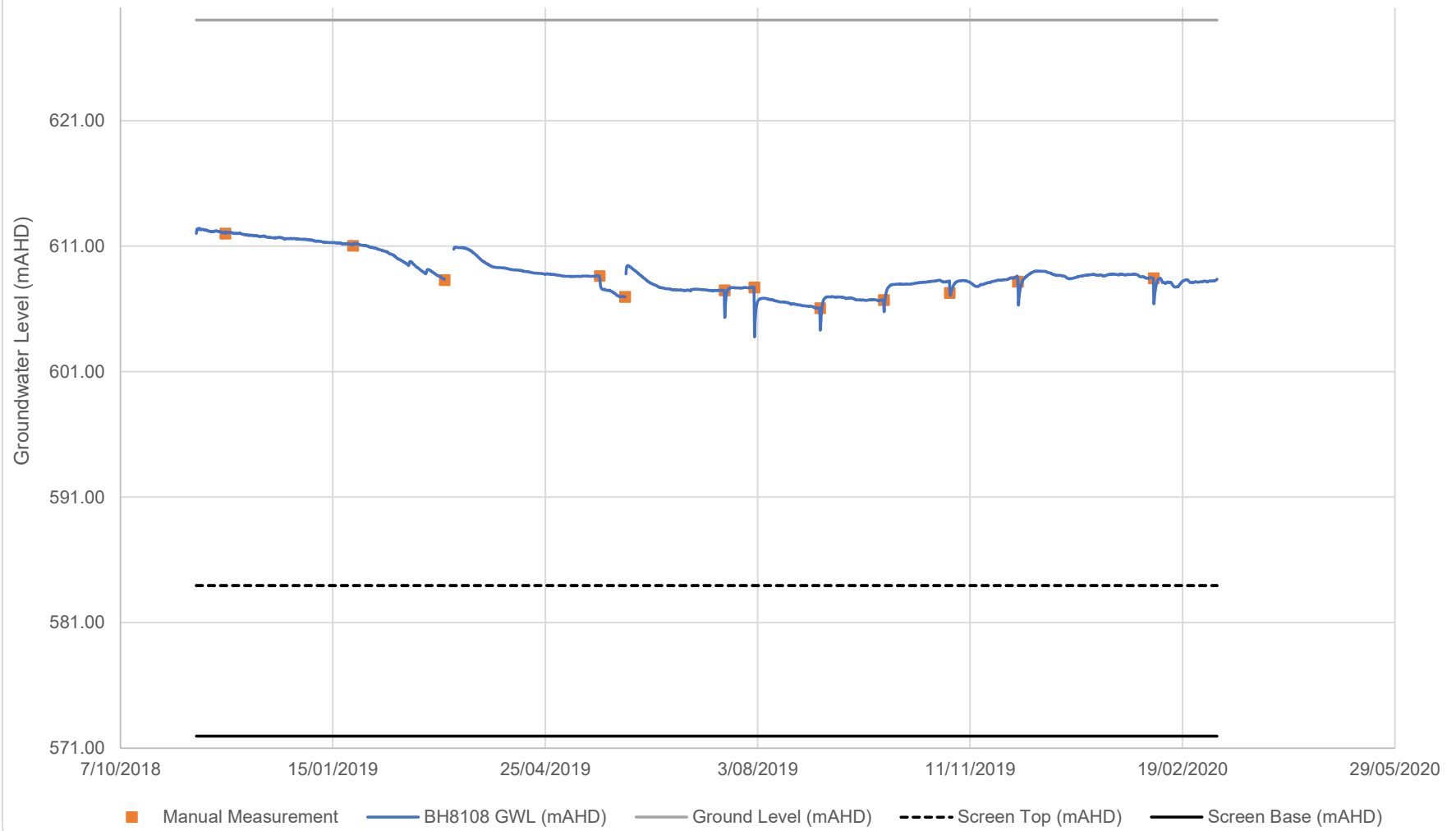
# BH8102



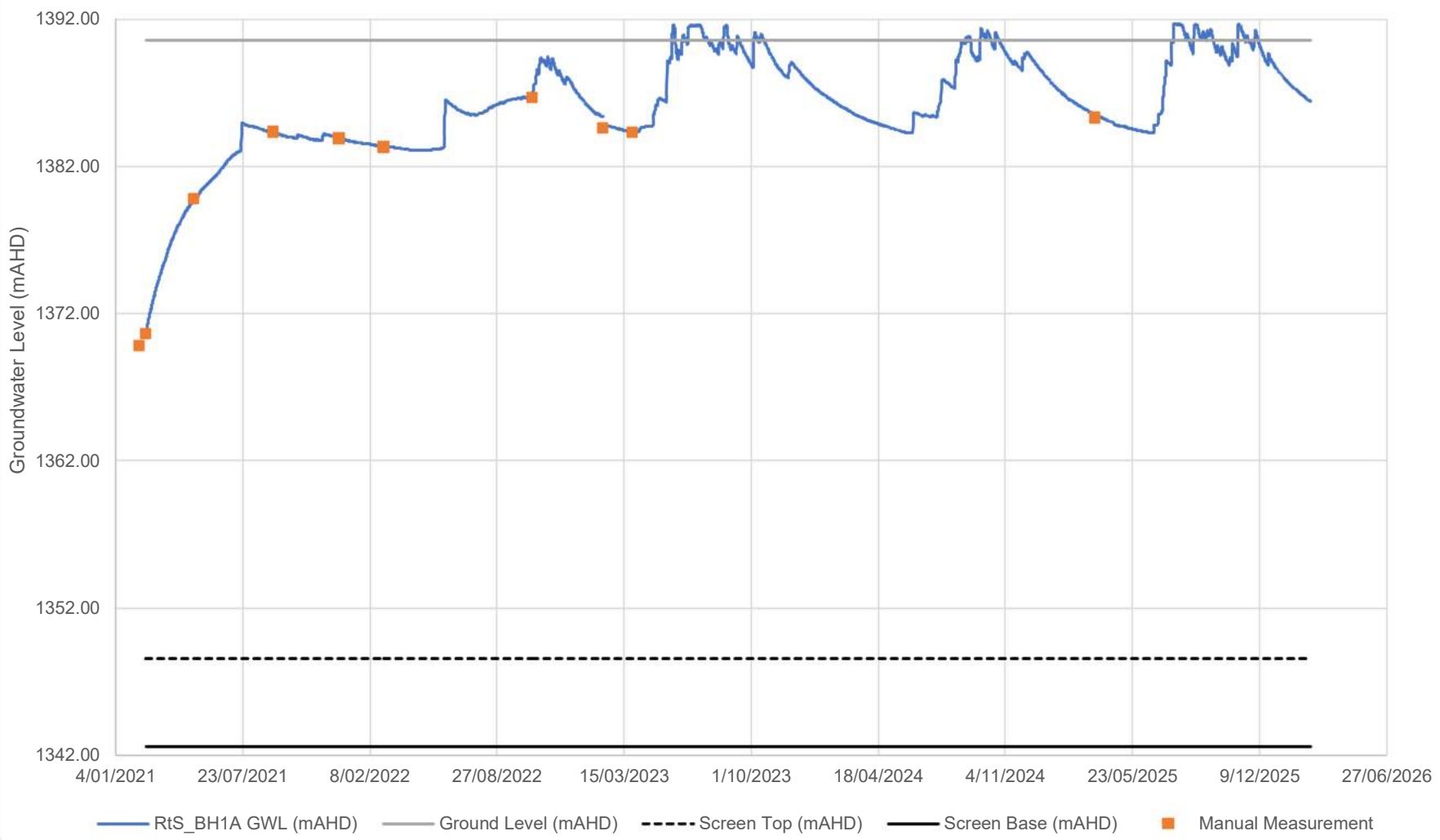
# BH8105



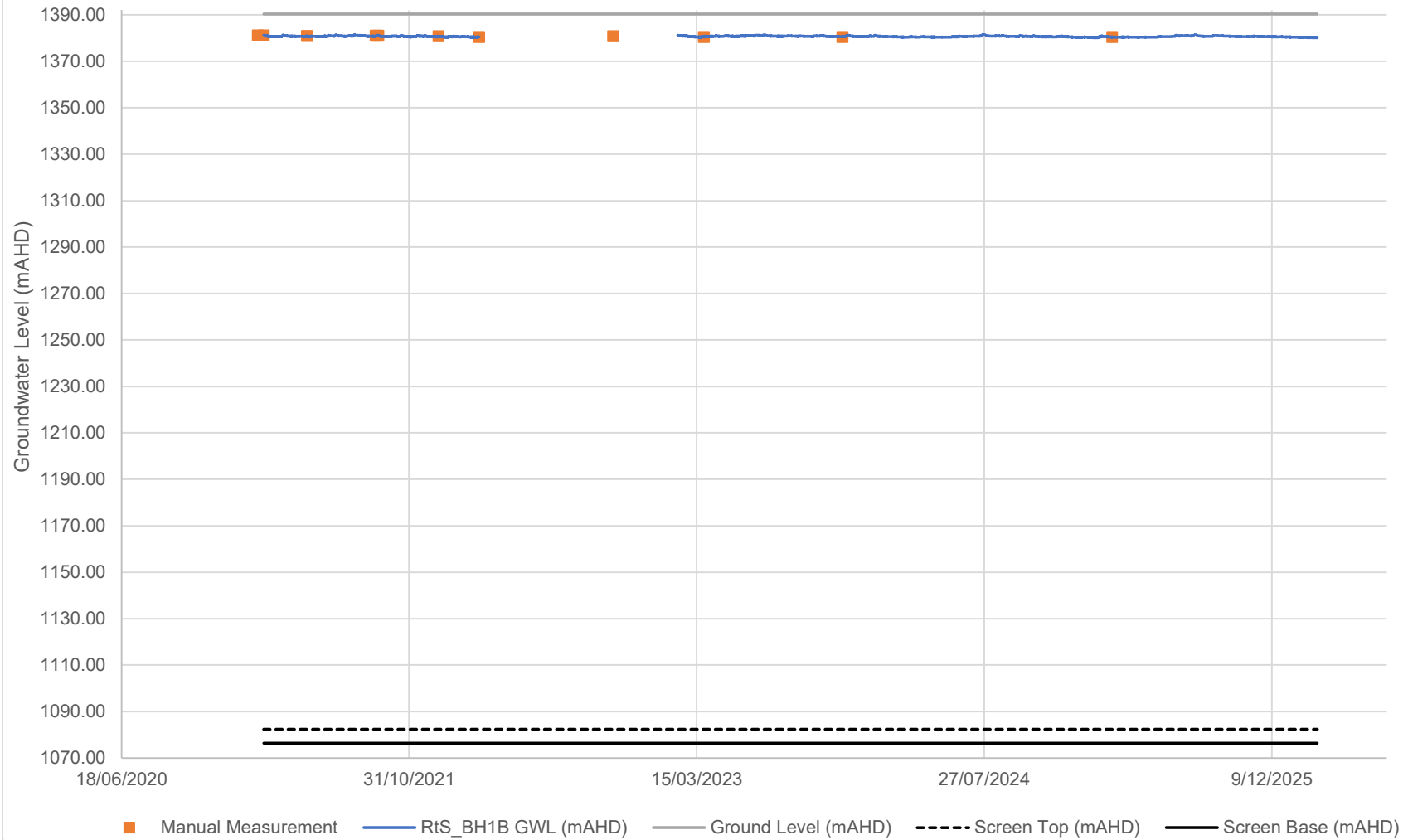
# BH8108



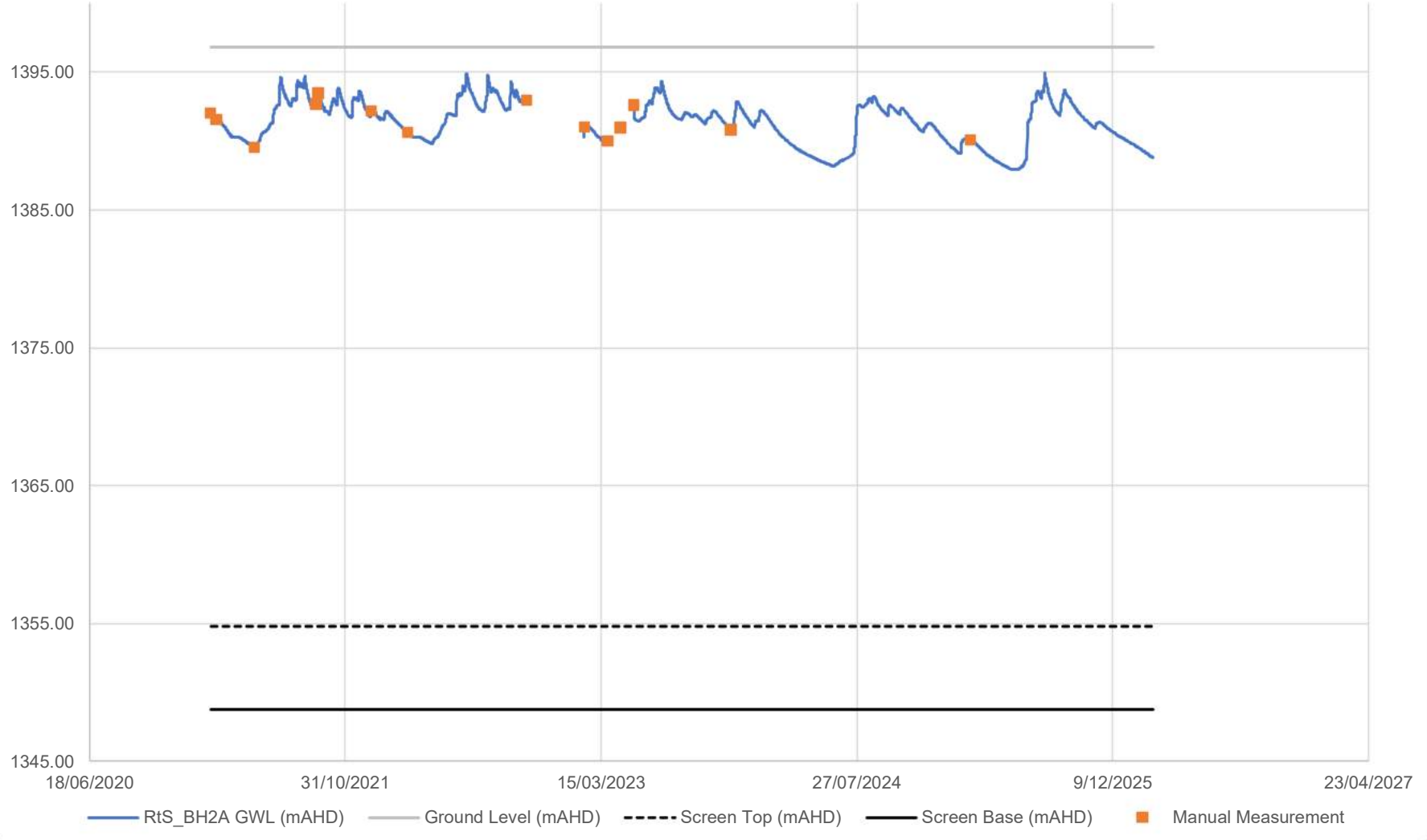
### RtS\_BH1A



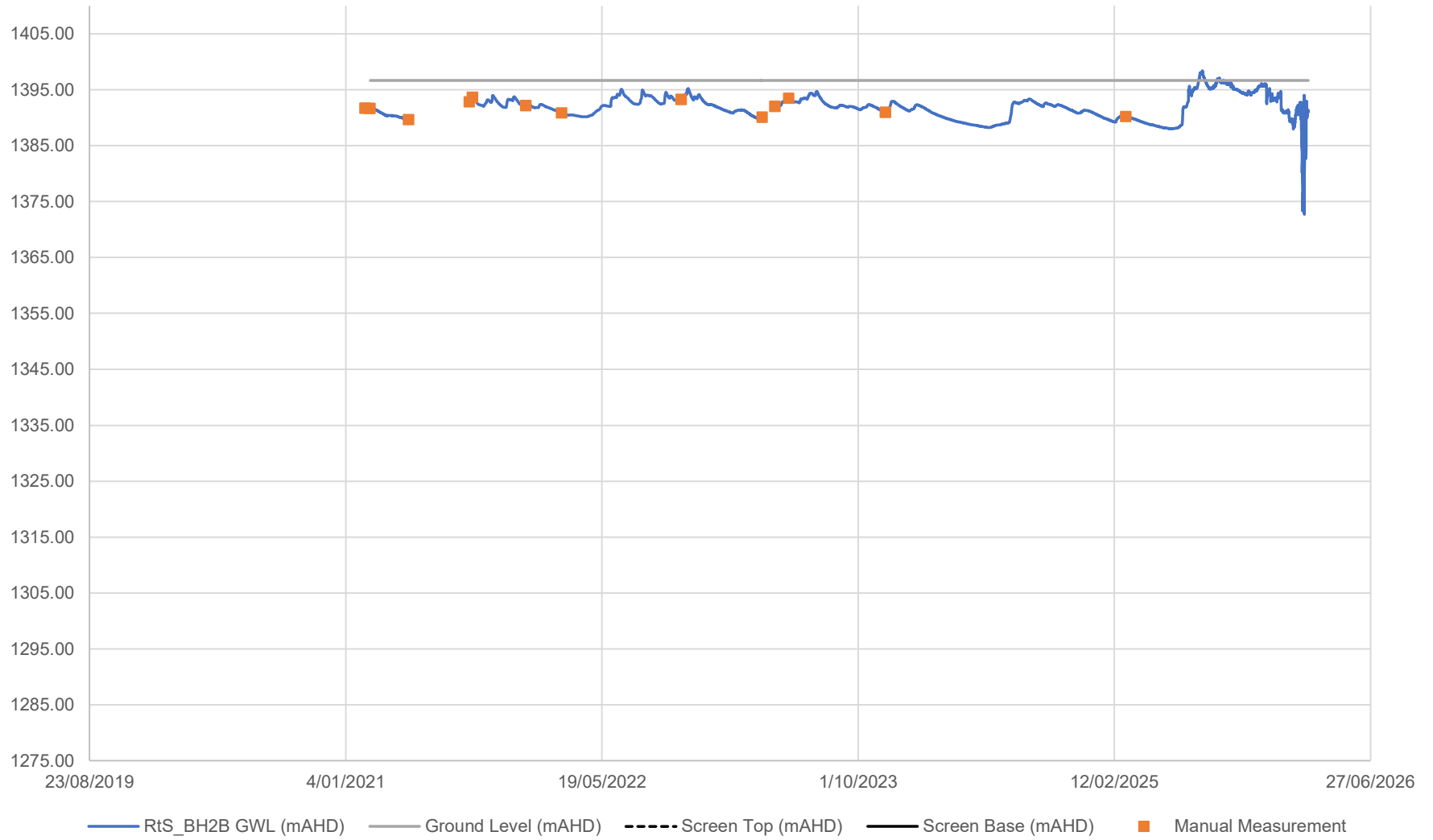
# RtS\_BH1B



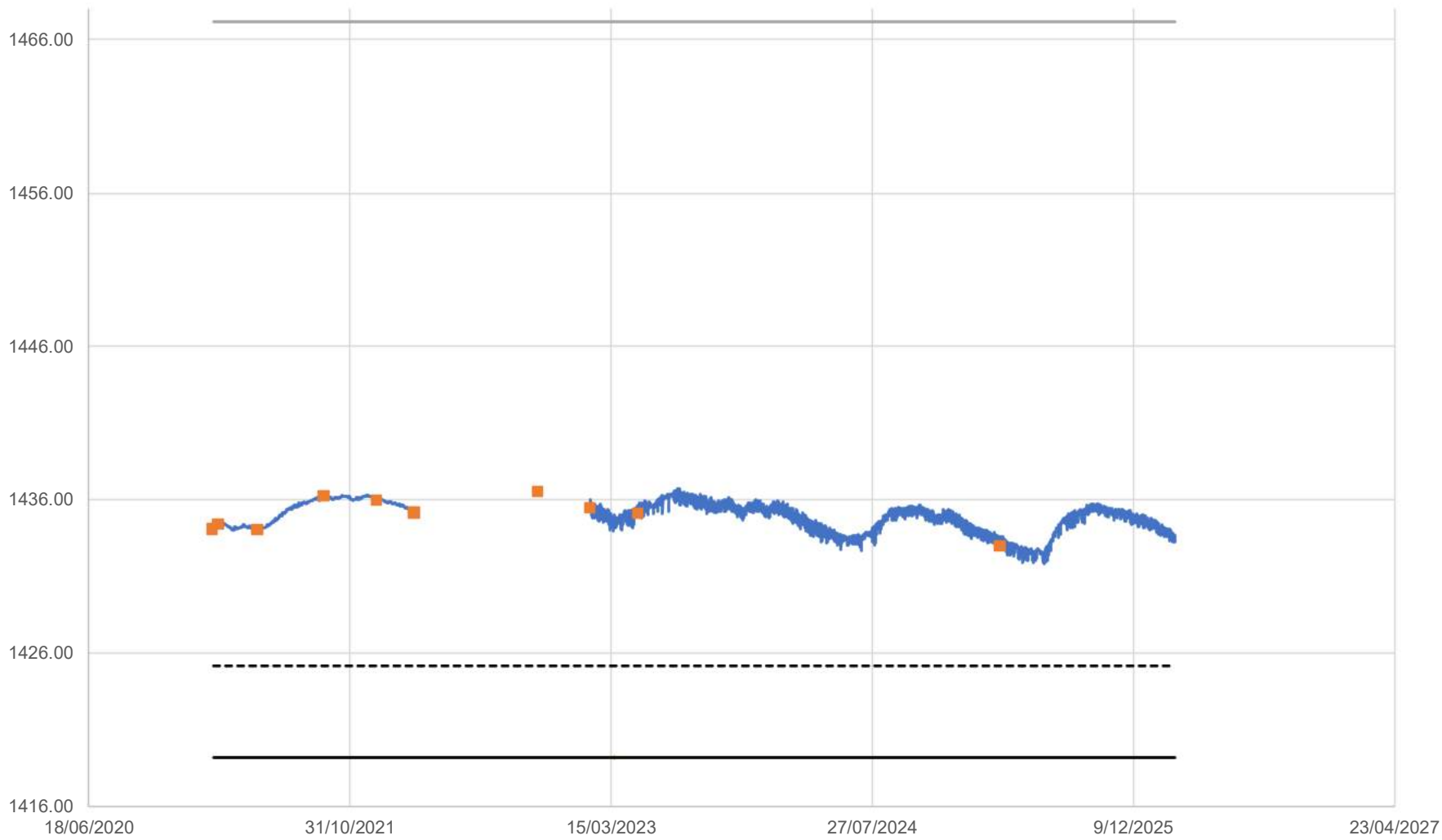
### RtS\_BH2A



# RtS\_BH2B

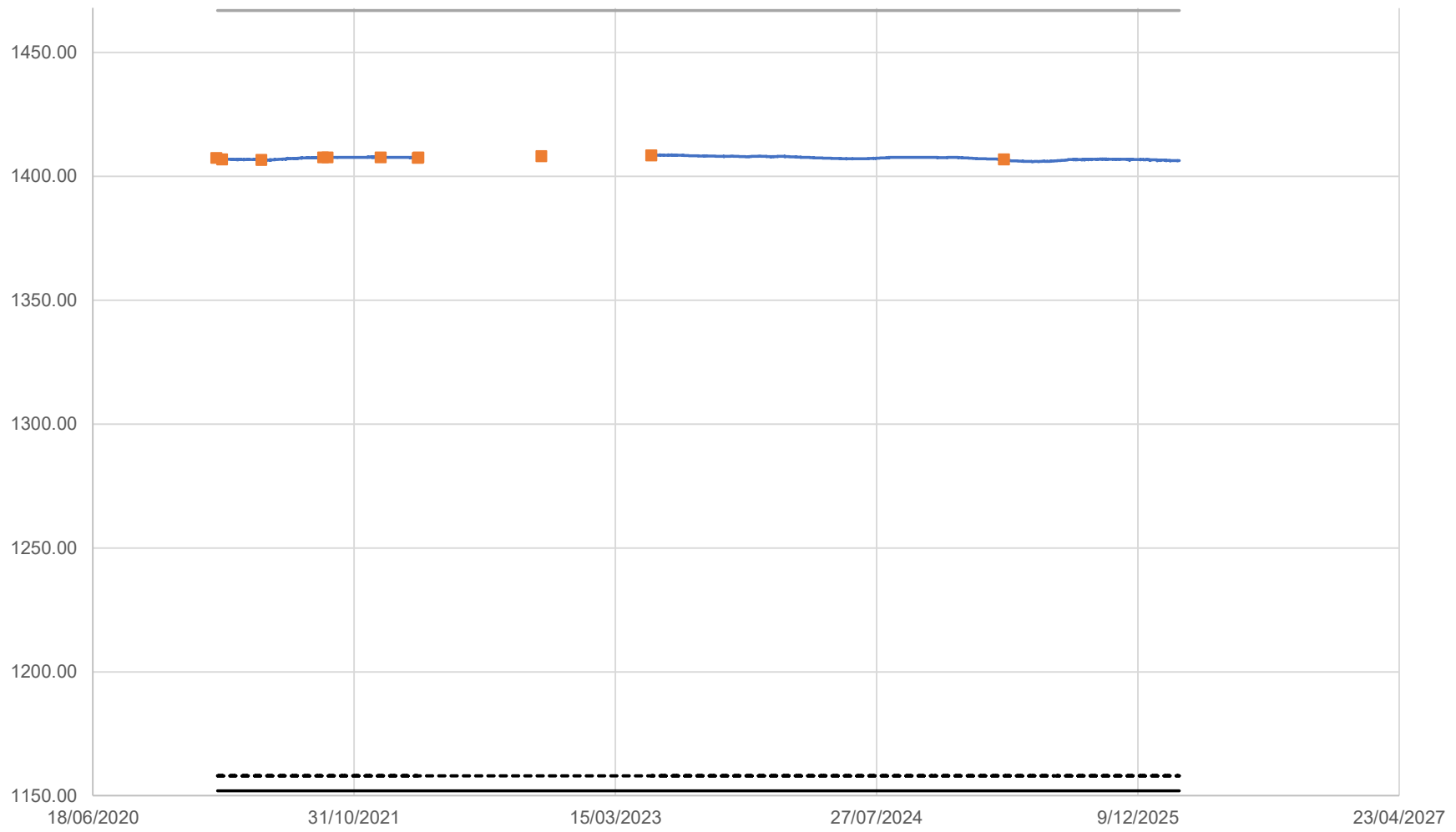


# RtS\_BH3A



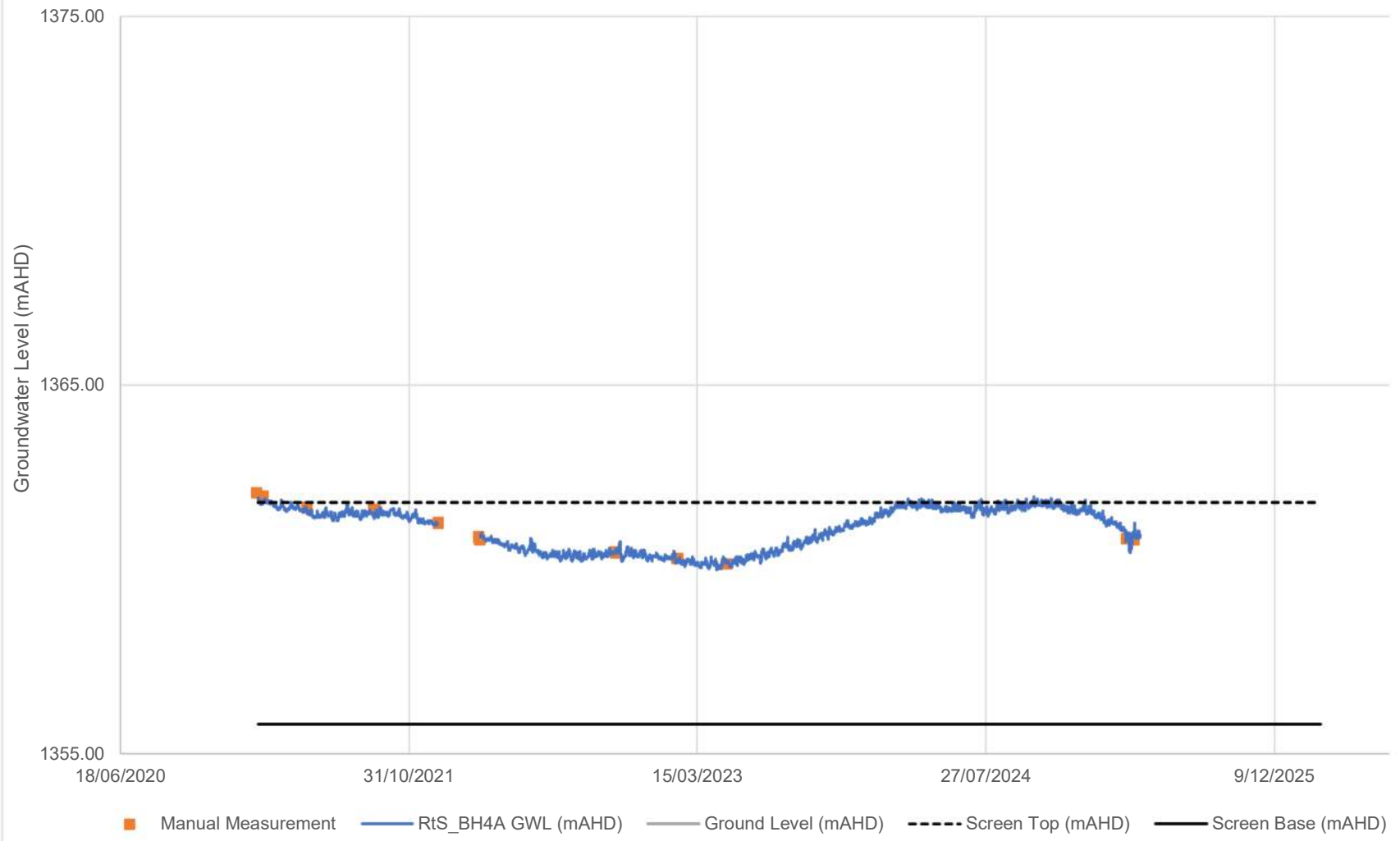
— RtS\_BH3A GWL (mAHD) — Ground Level (mAHD) - - - Screen Top (mAHD) — Screen Base (mAHD) ■ Manual Measurement

### RtS\_BH3B

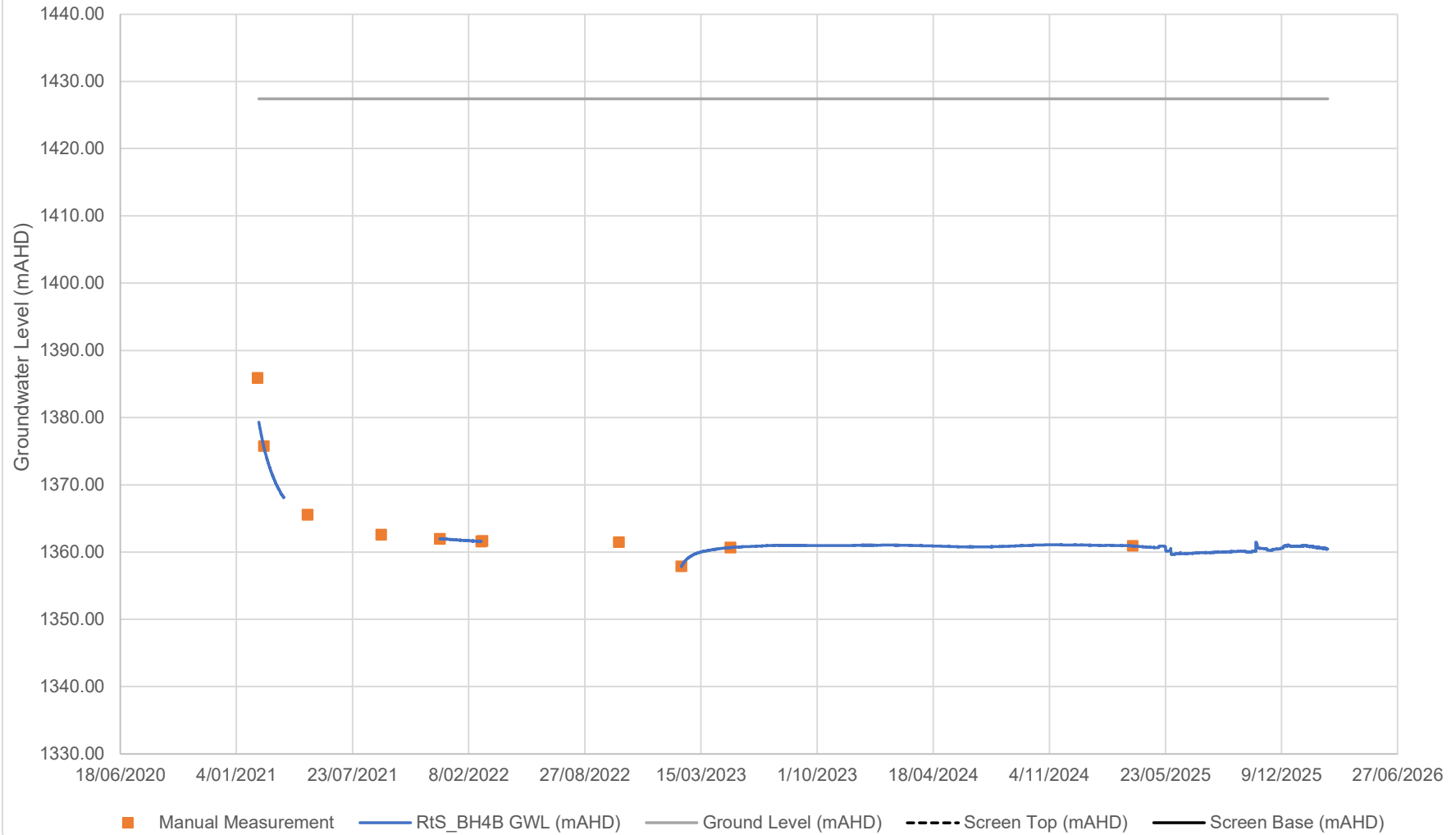


— RtS\_BH3B GWL (mAHD)    — Ground Level (mAHD)    - - - - Screen Top (mAHD)    — Screen Base (mAHD)    ■ Manual Measurement

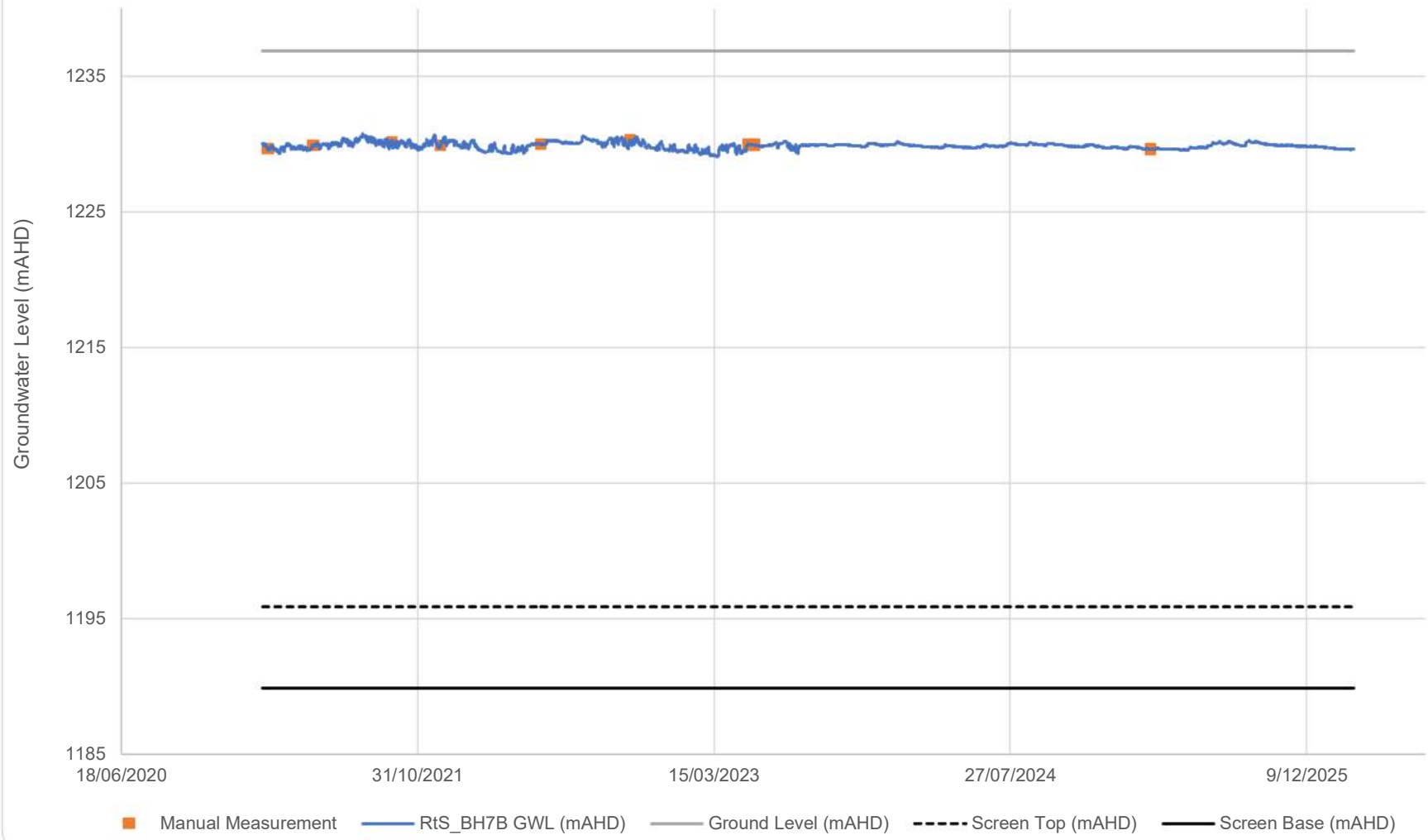
# RtS\_BH4A



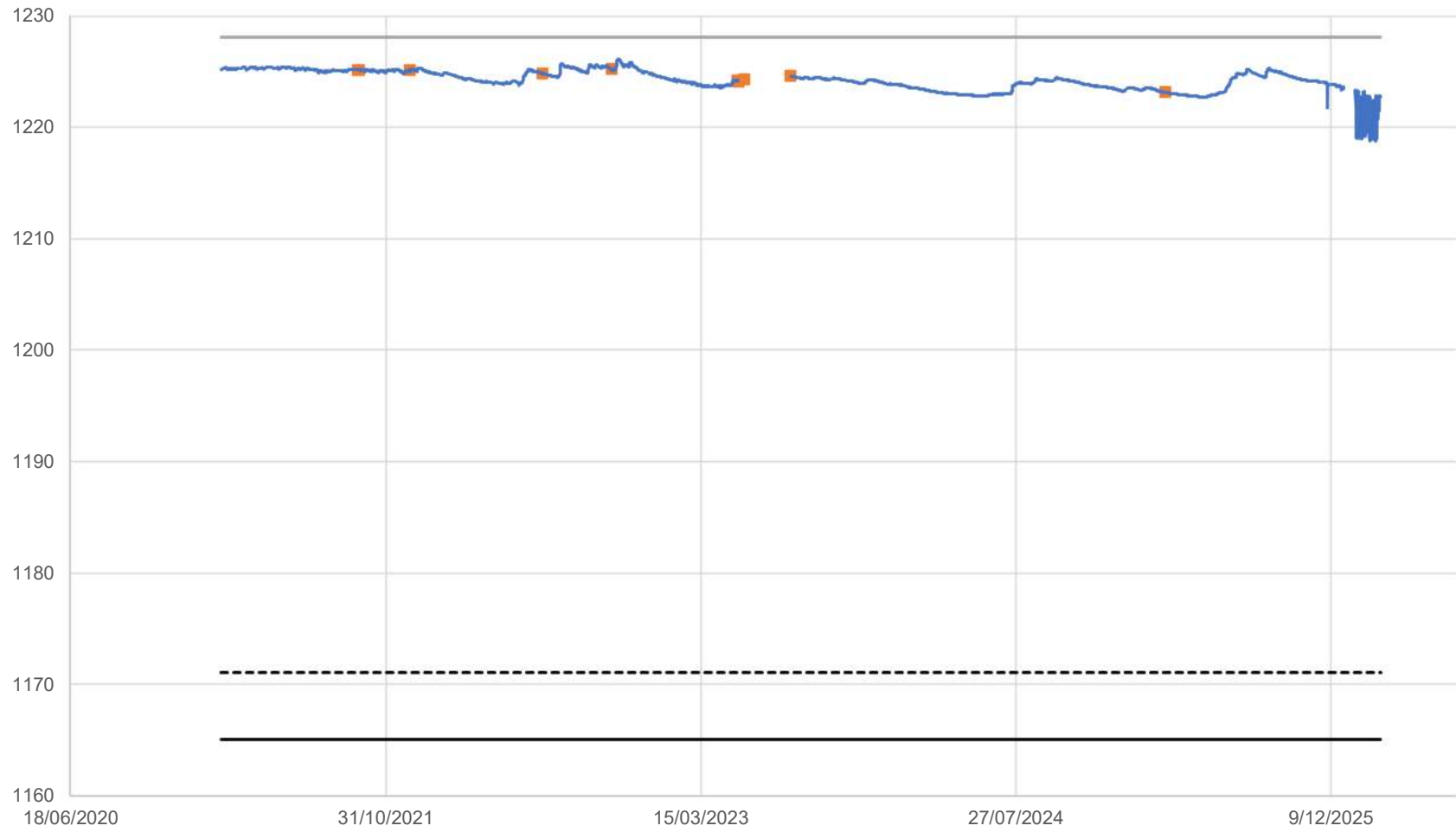
# RtS\_BH4B



# RtS\_BH7B



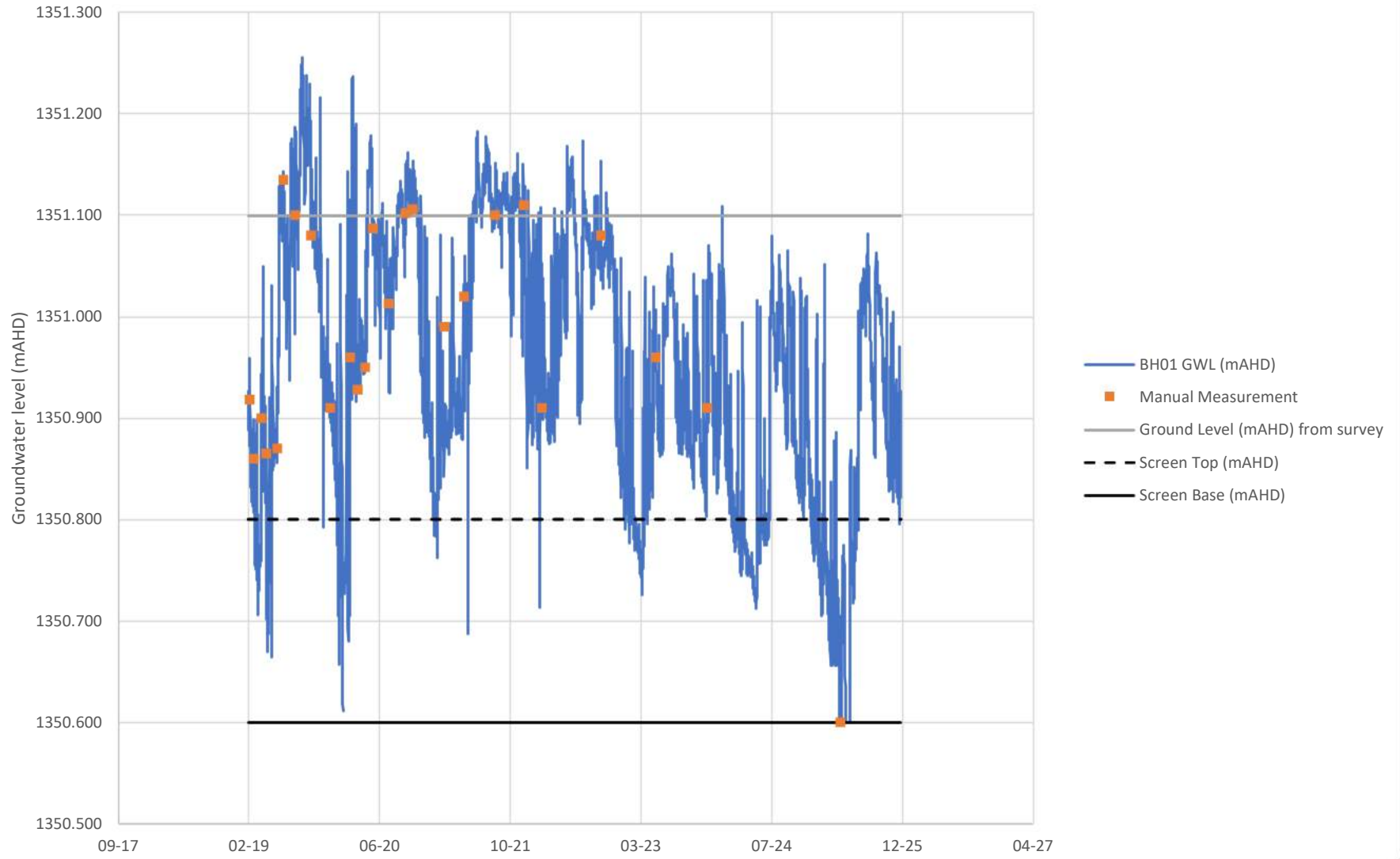
# RtS\_BH8B



Manual Measurement    RtS\_BH8B GWL (mAHD)    Ground Level (mAHD)    Screen Top (mAHD)    Screen Base (mAHD)

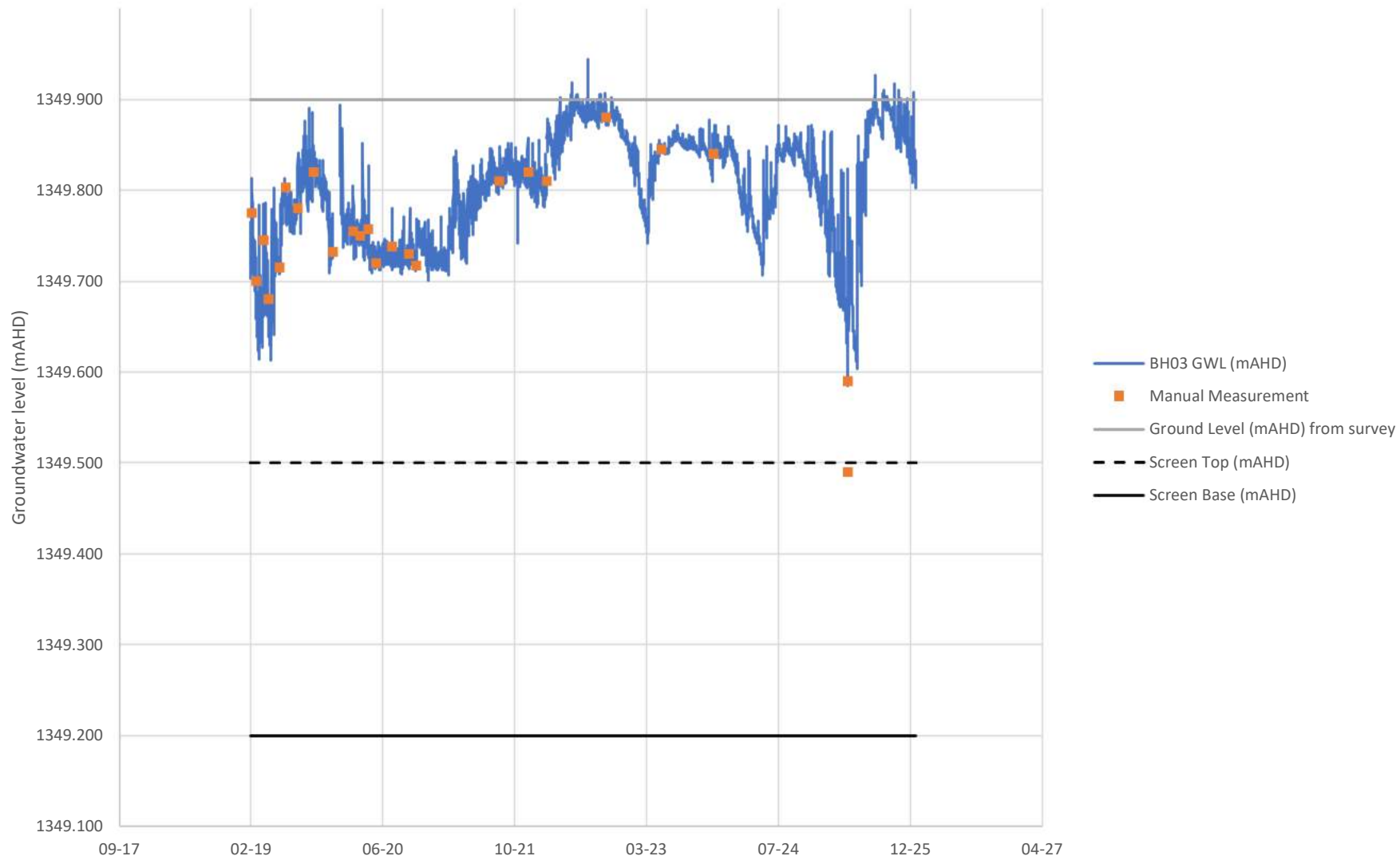
## **Appendix B - Bogs and Fens Hydrographs**

# BH01

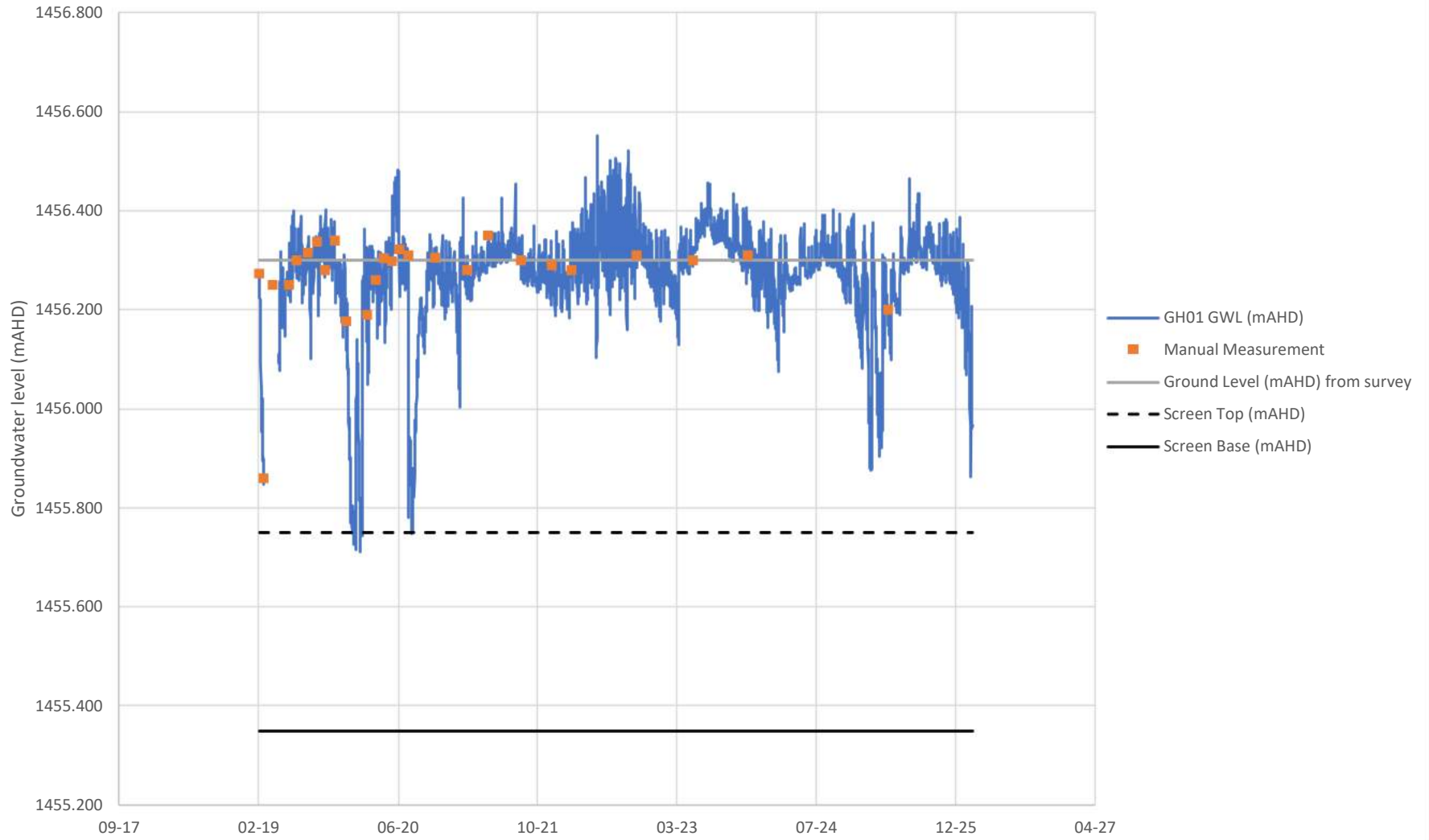




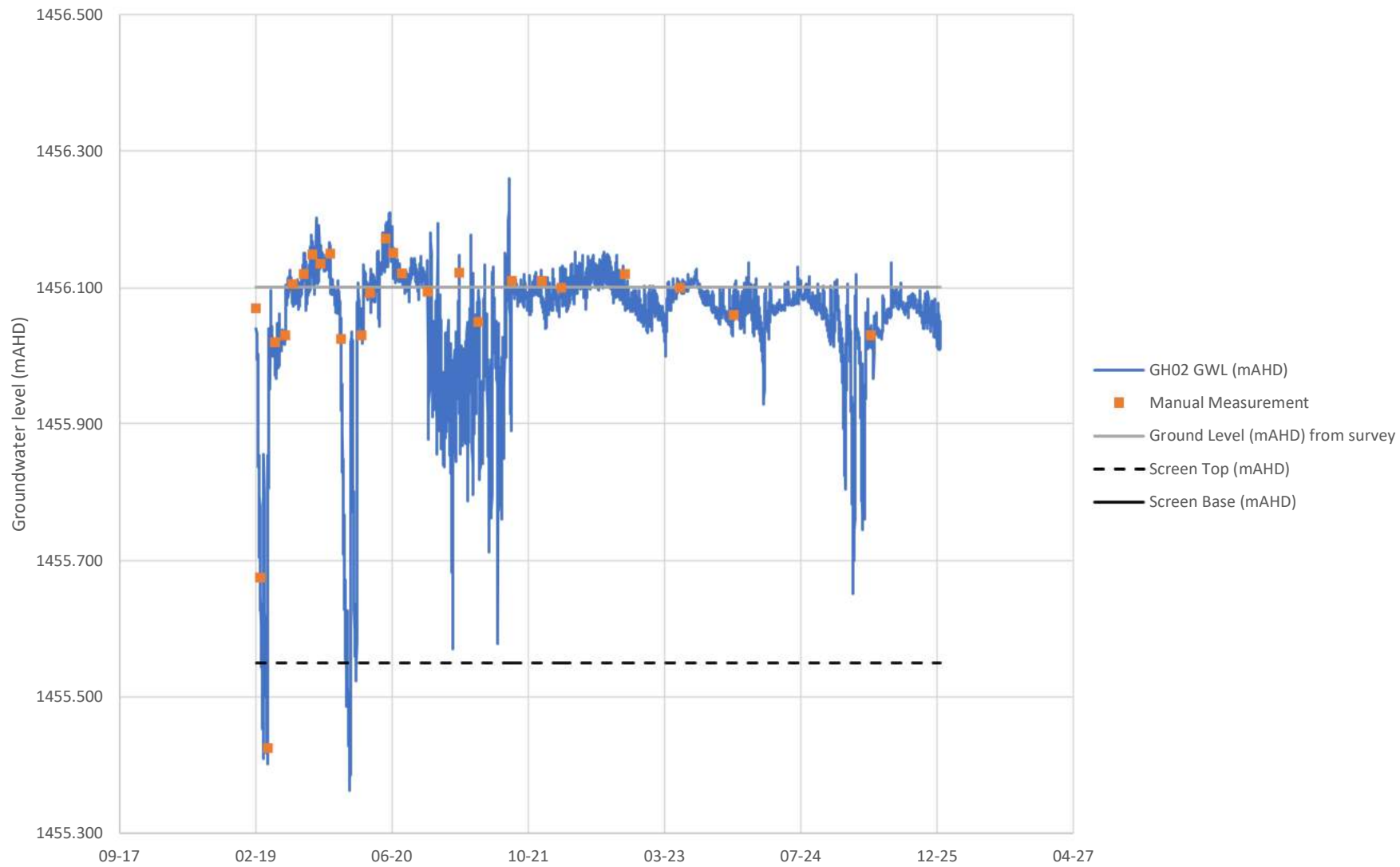
### BH03



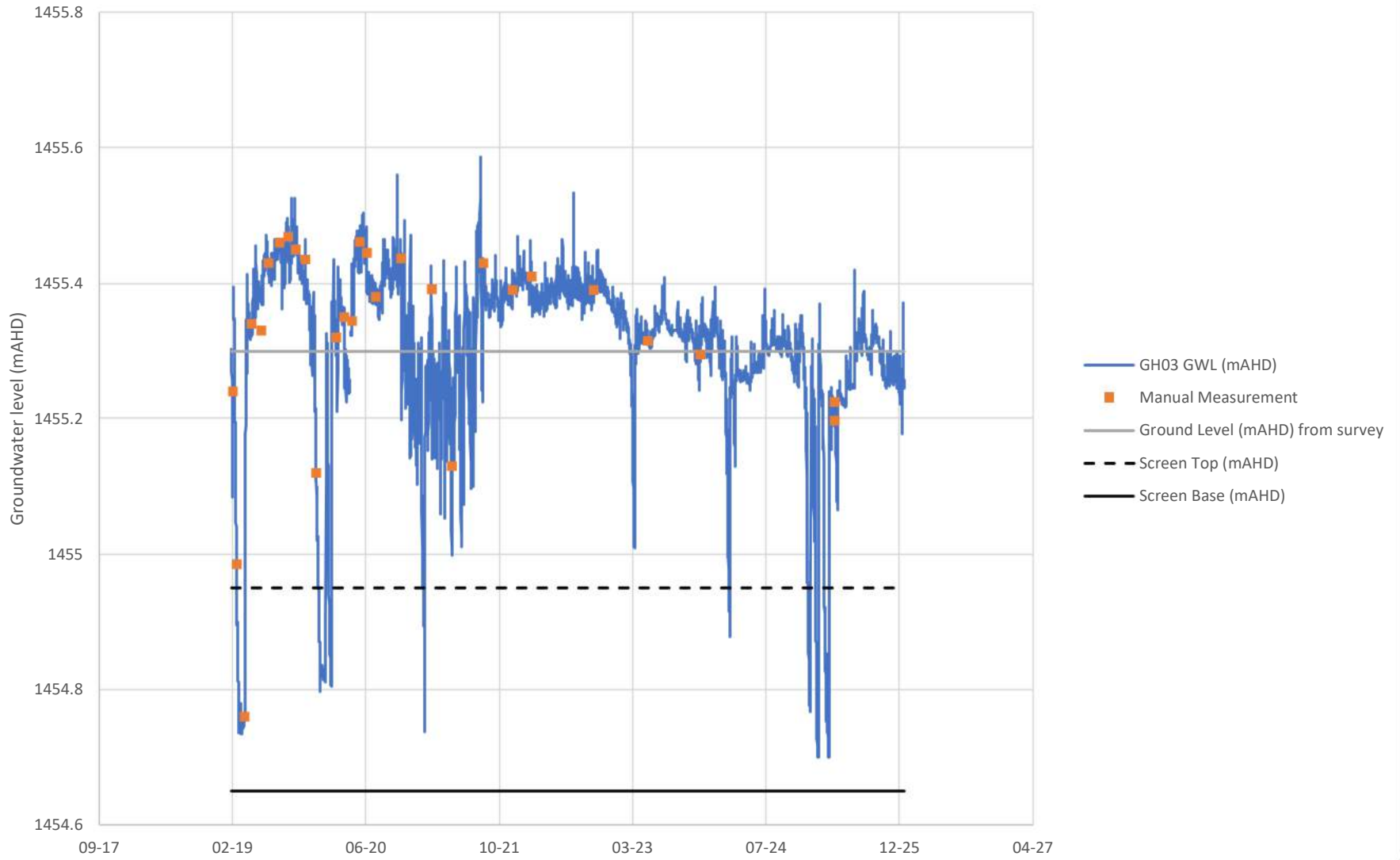
# GH01



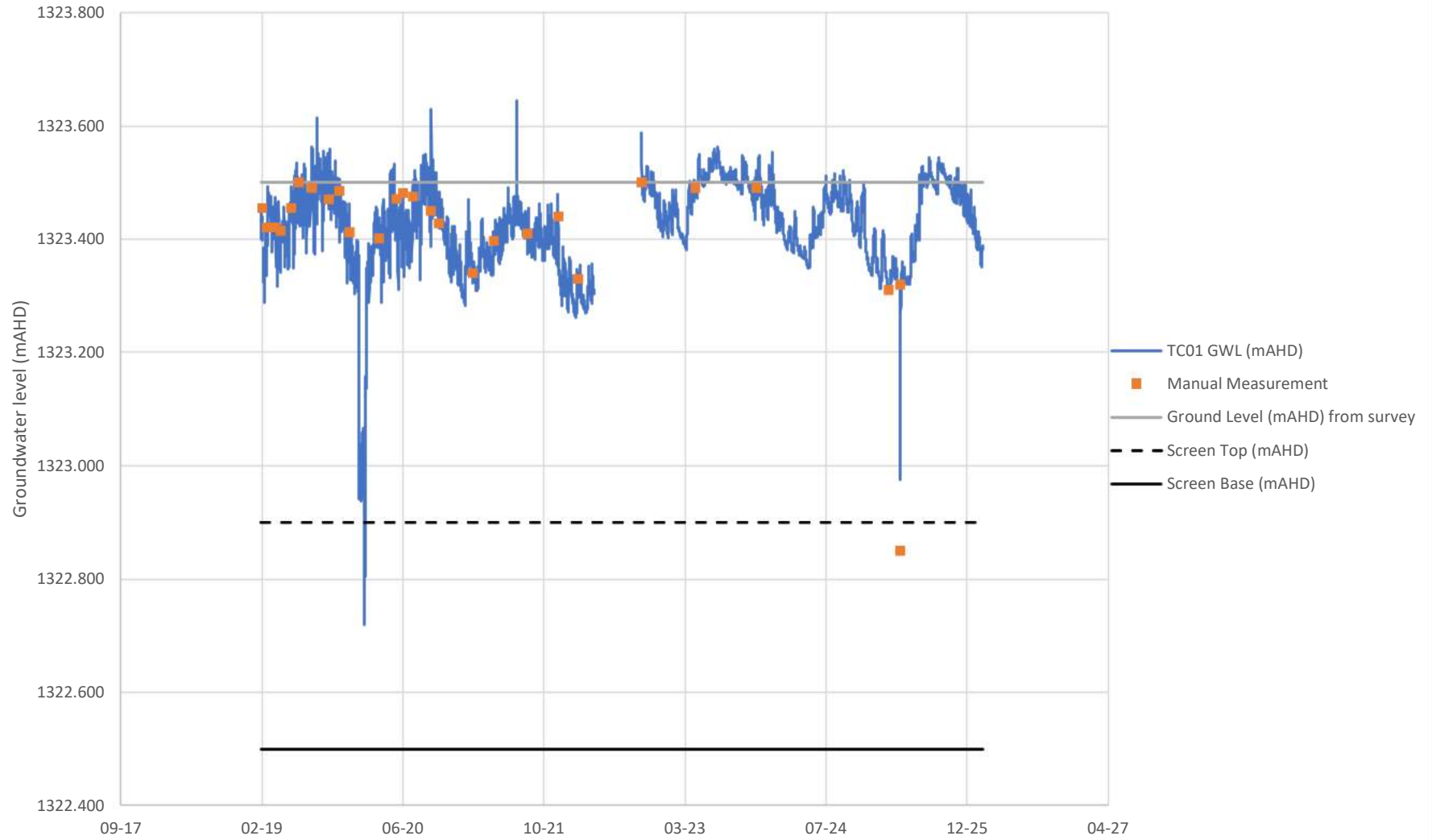
# GH02



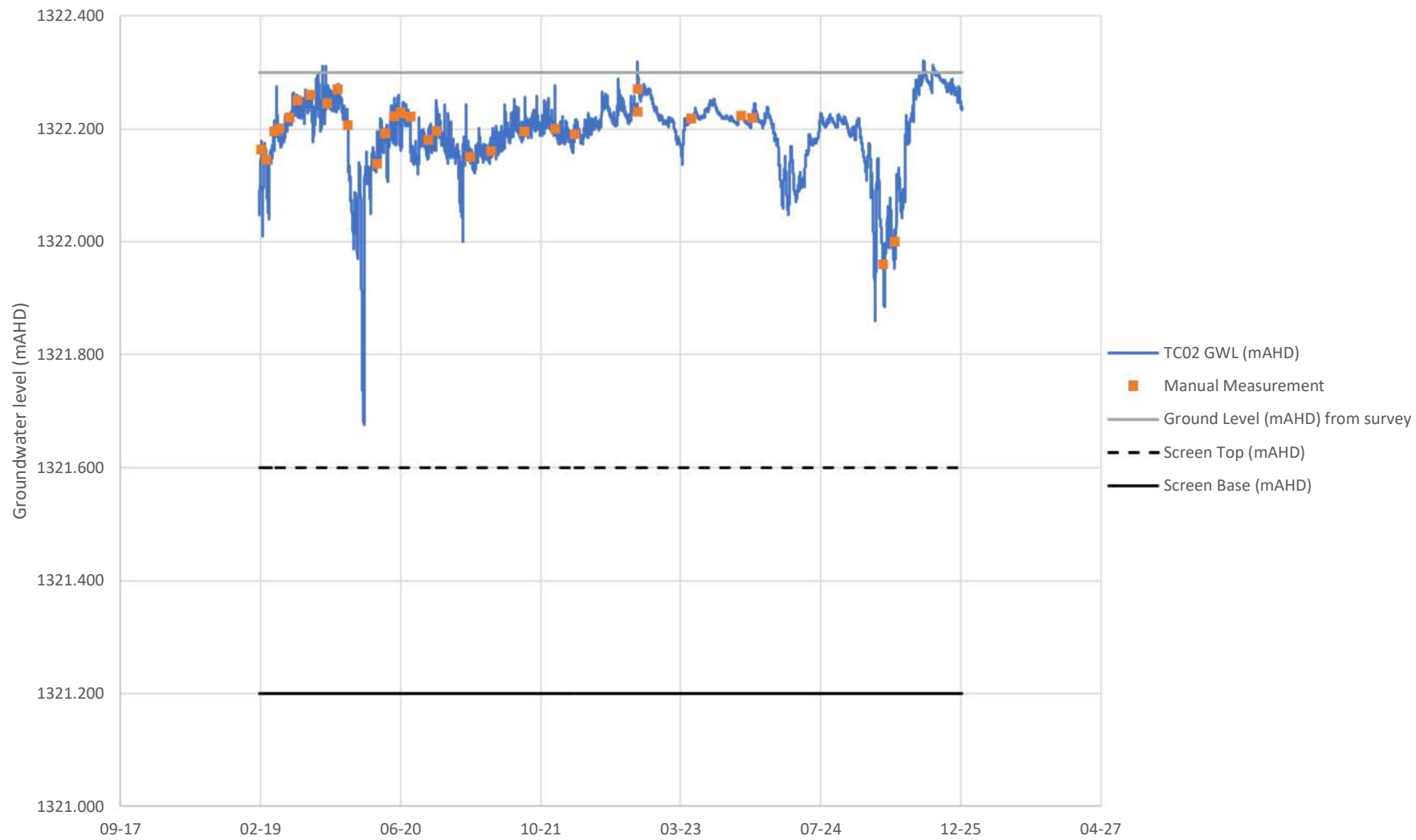
# GH03



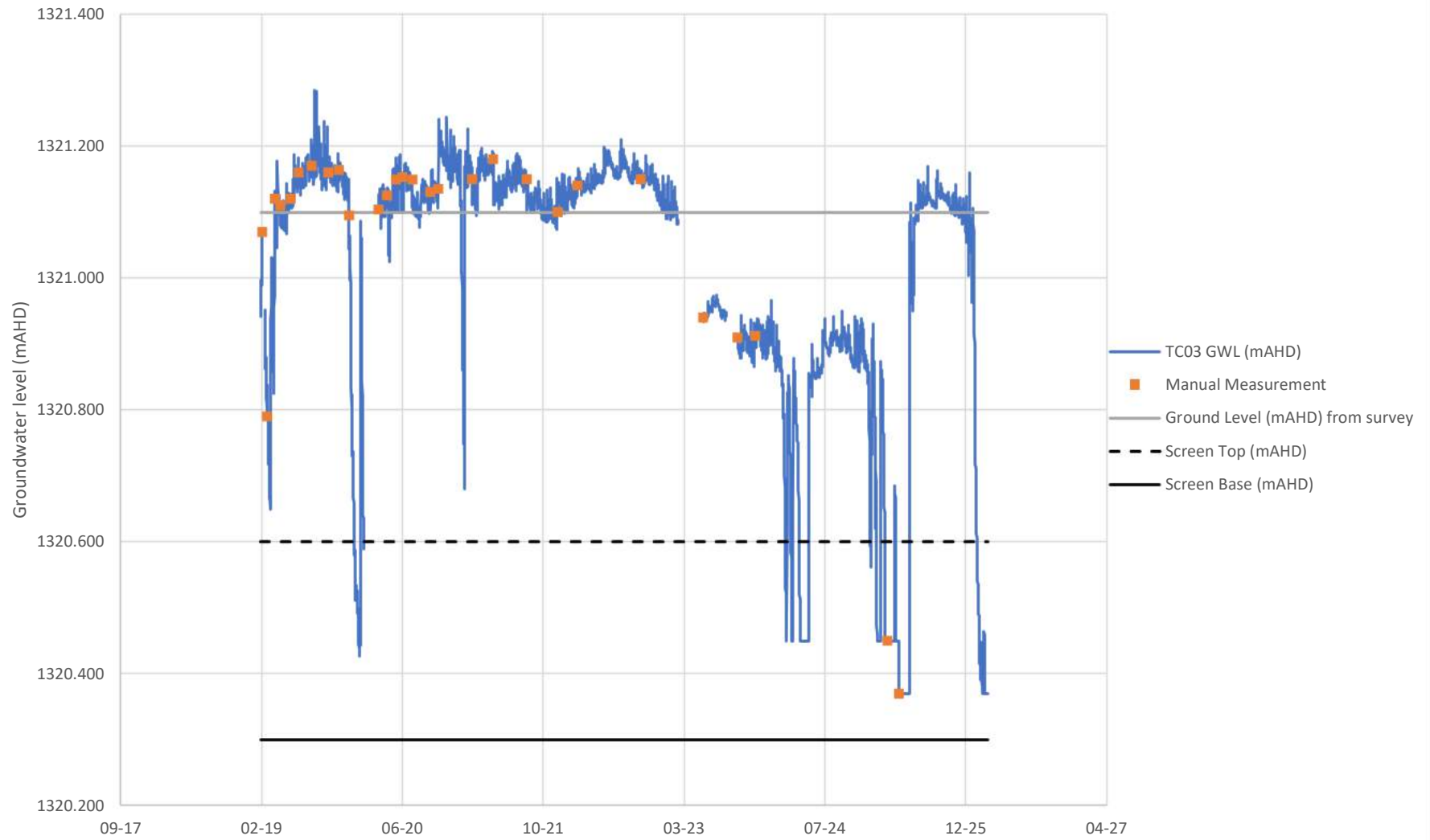
# TC01



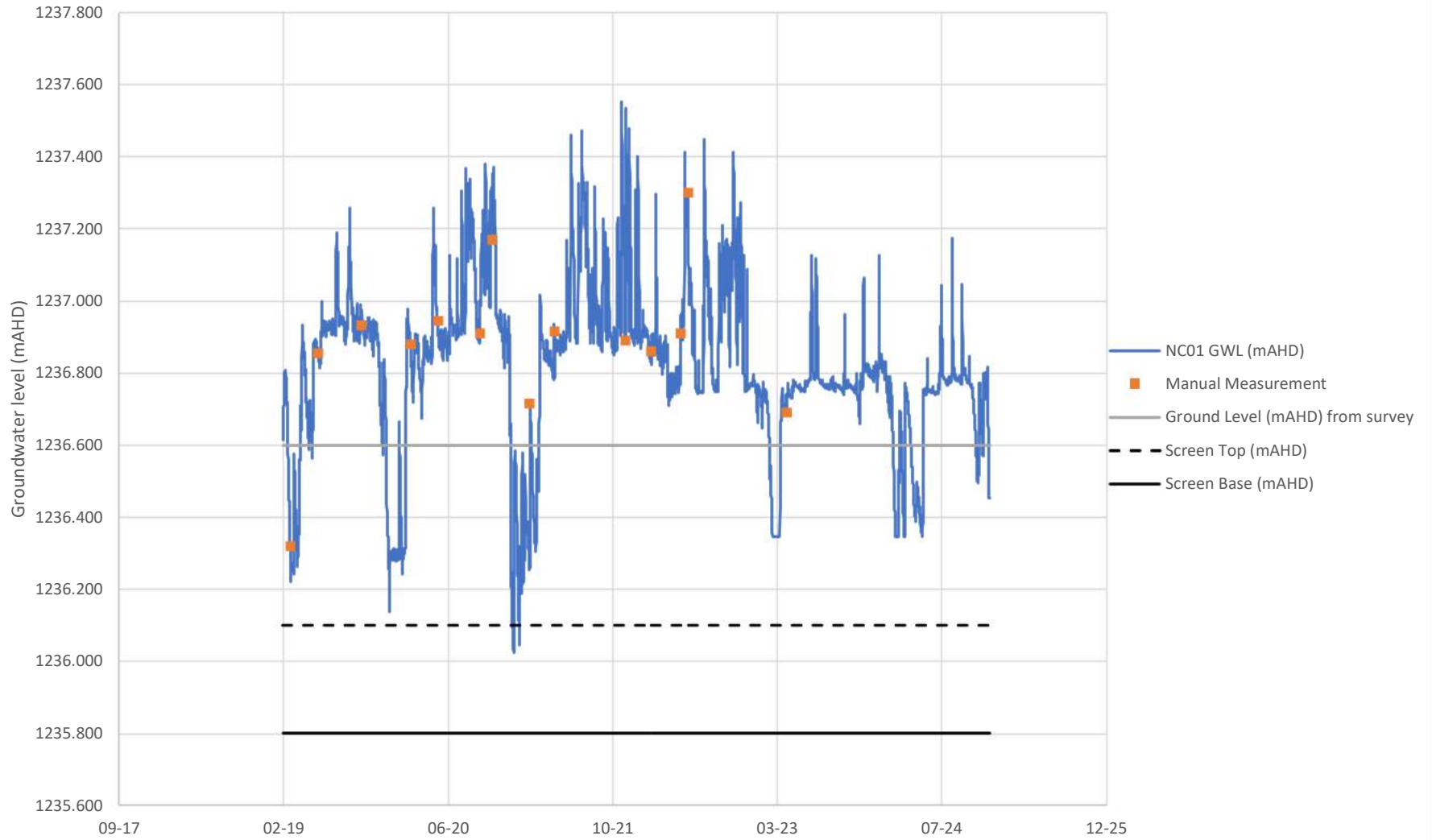
# TC02



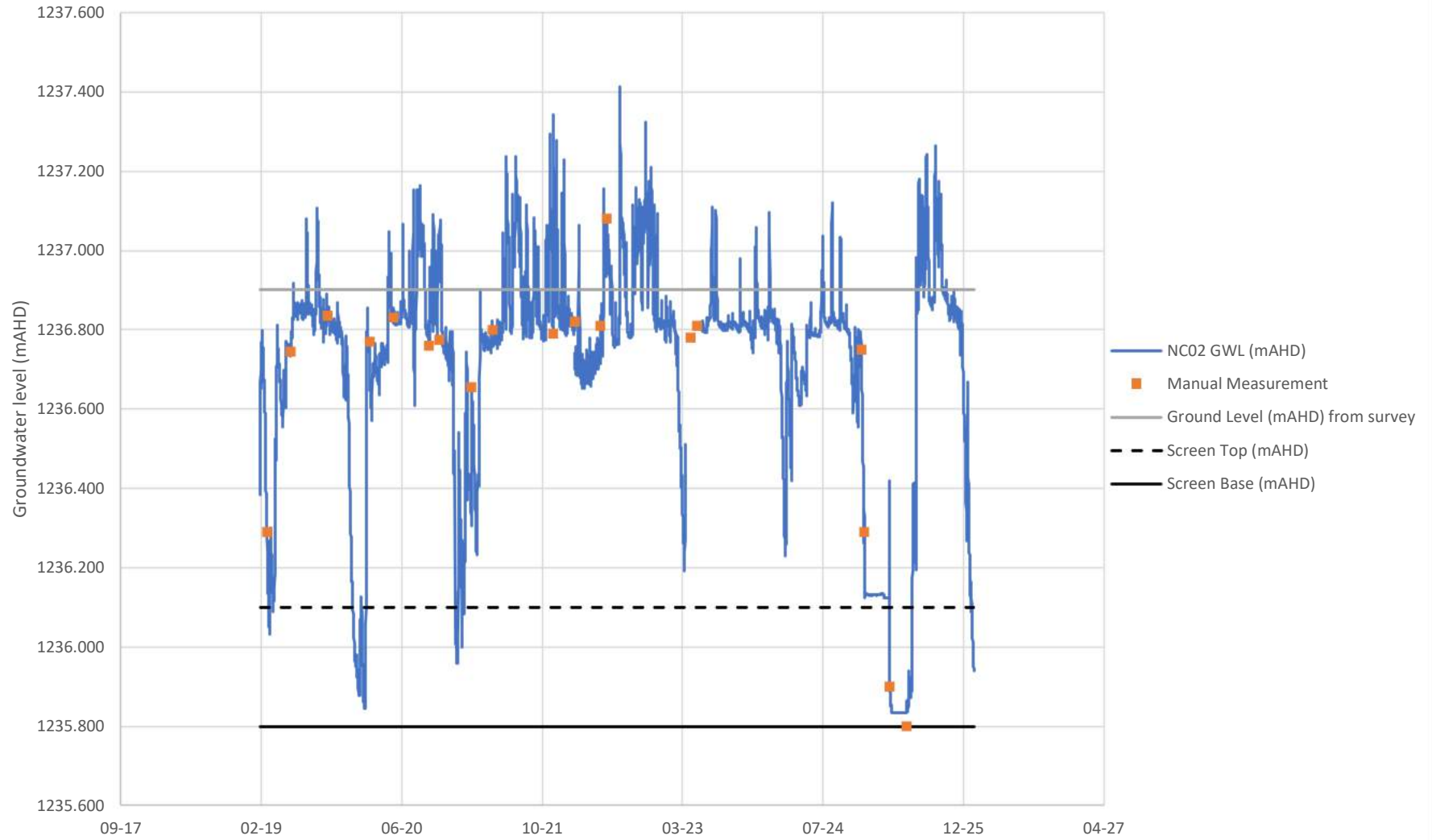
# TC03



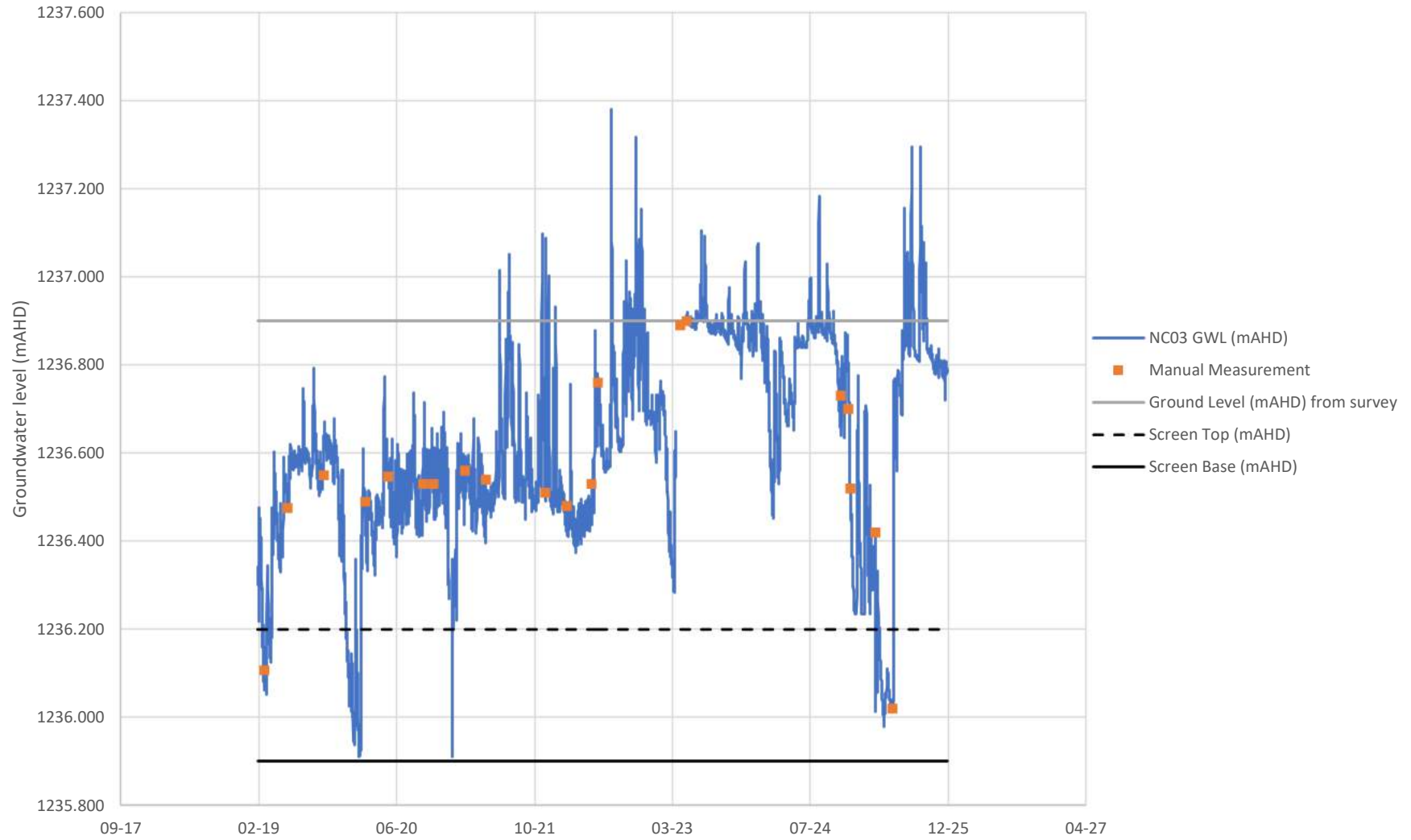
# NC01



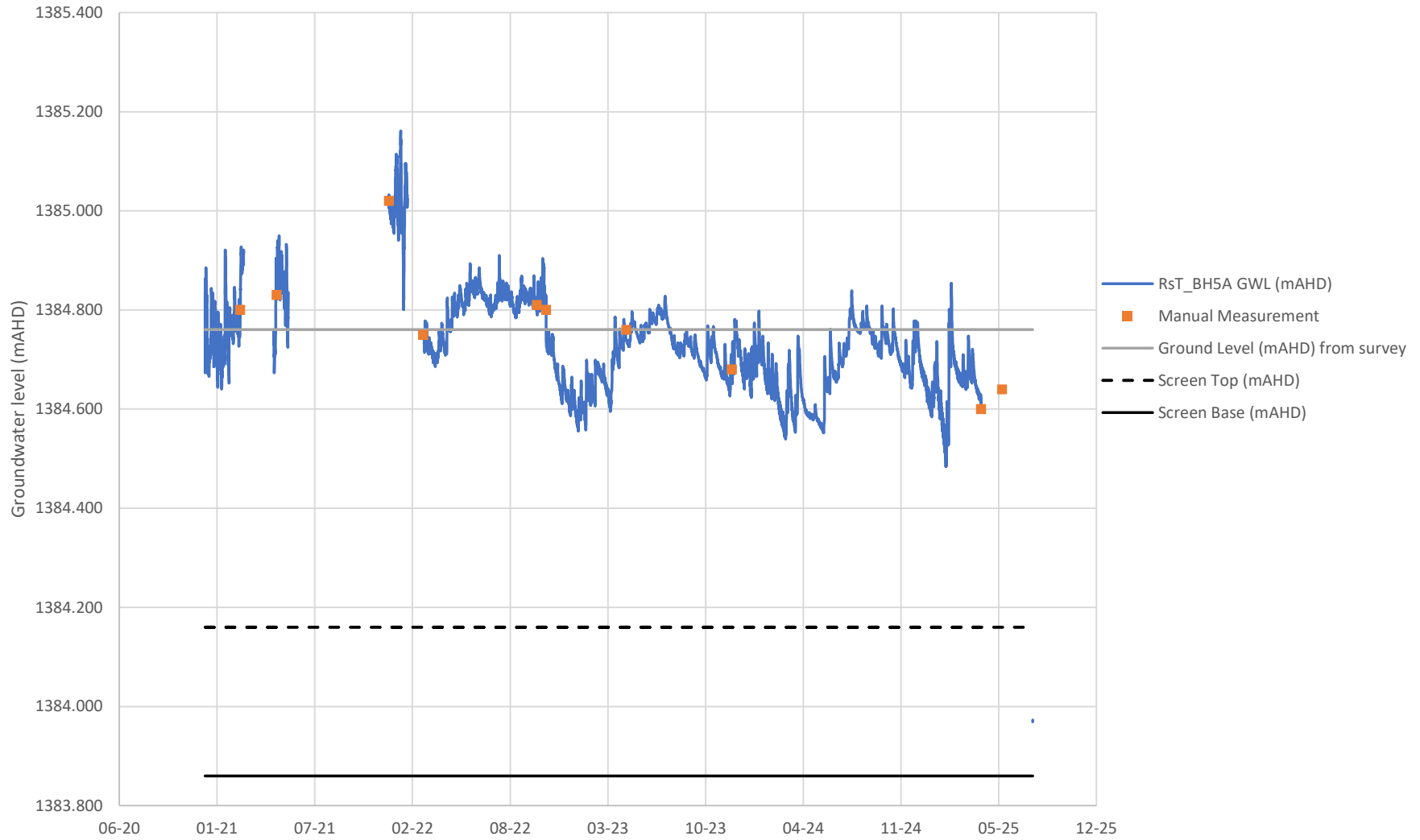
# NC02



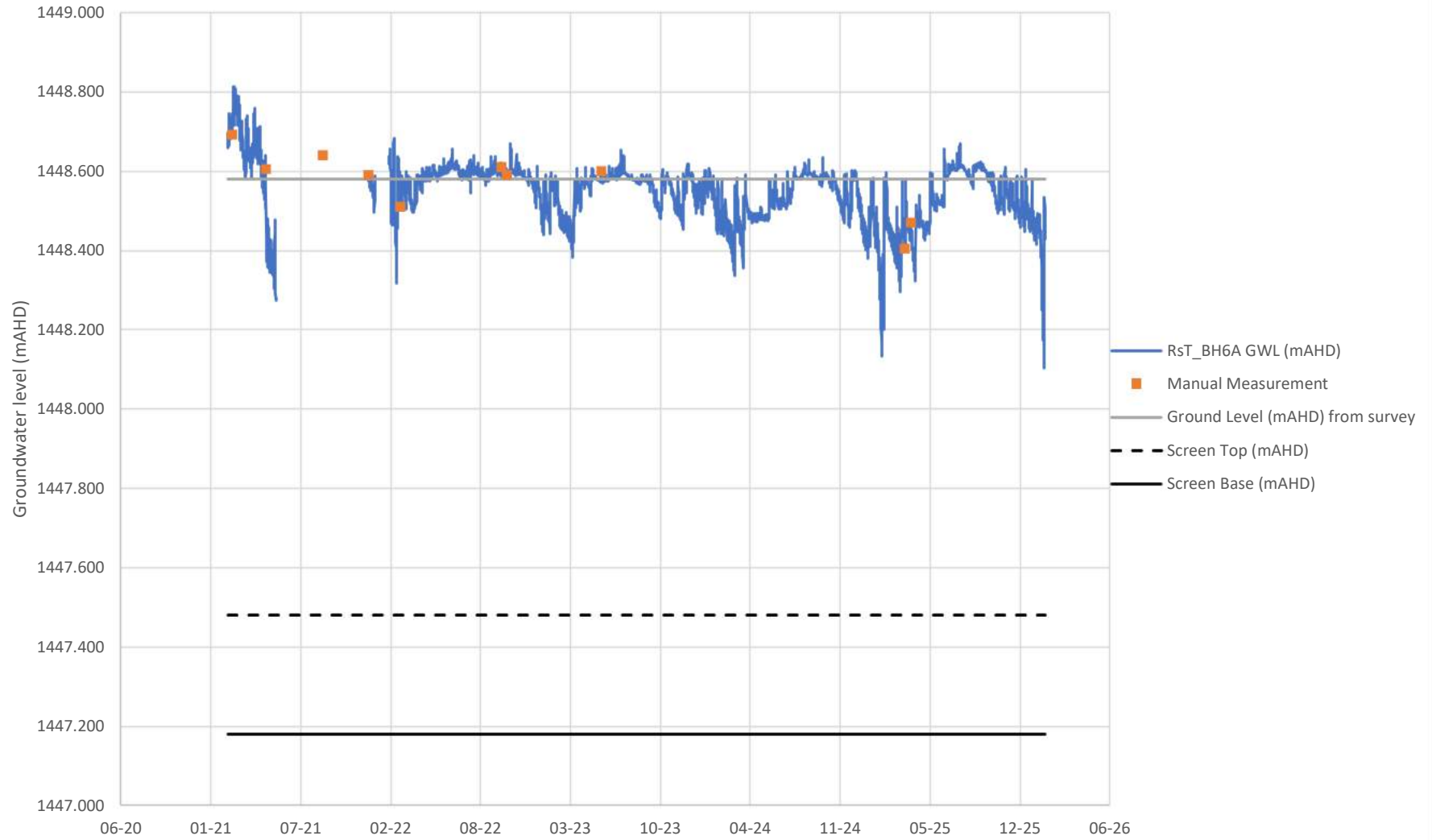
# NC03



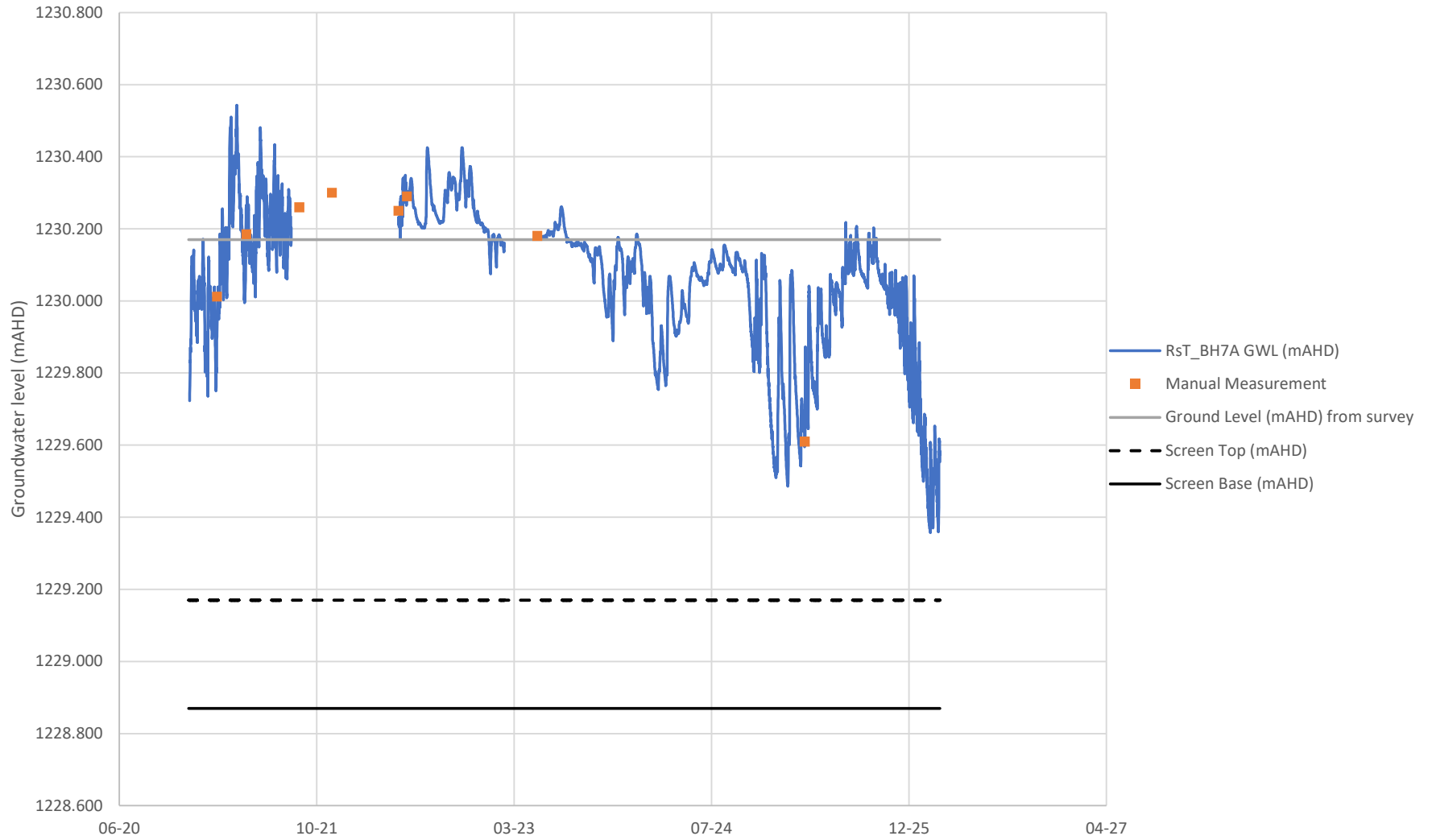
# RtS\_BH5A



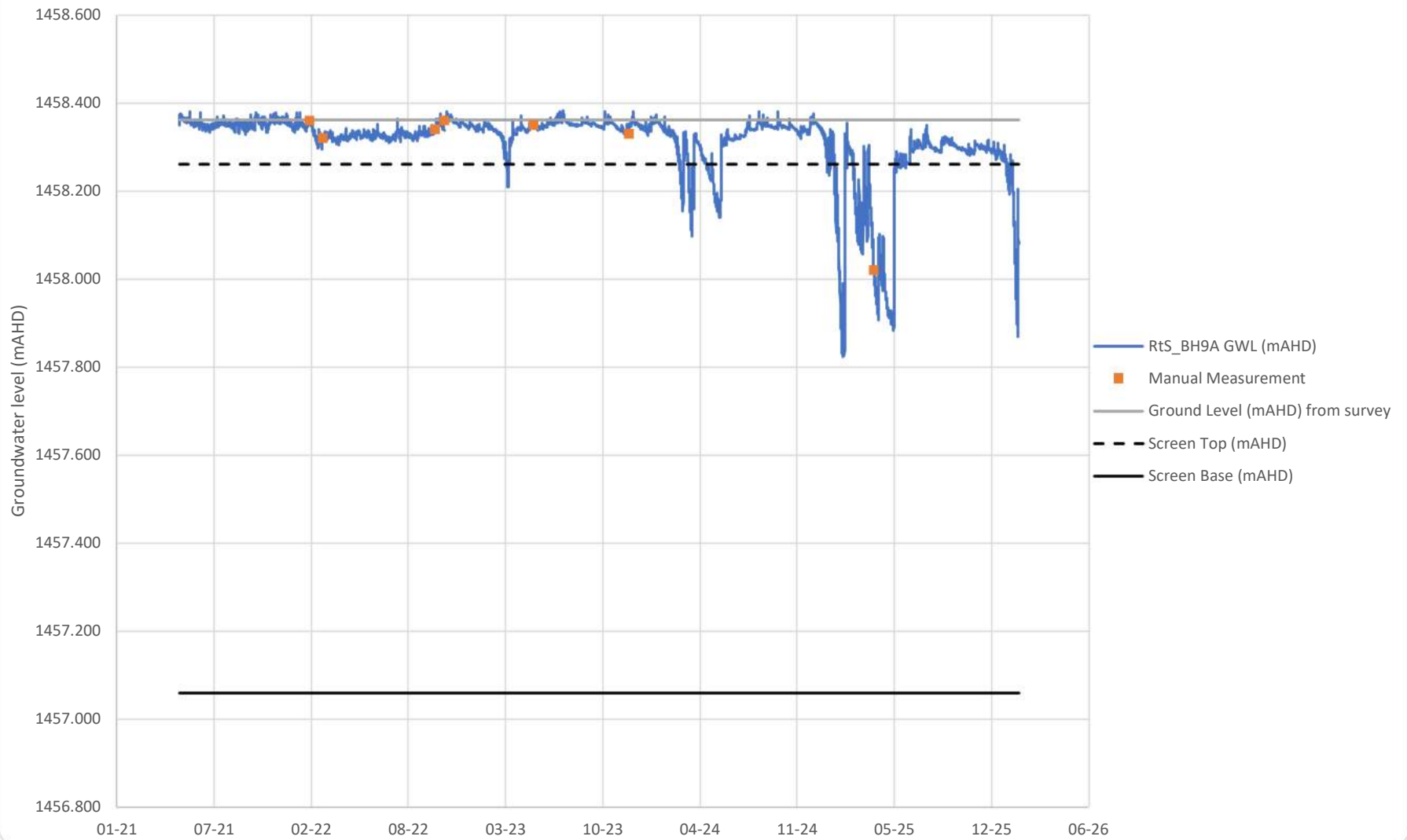
# RtS\_BH6A



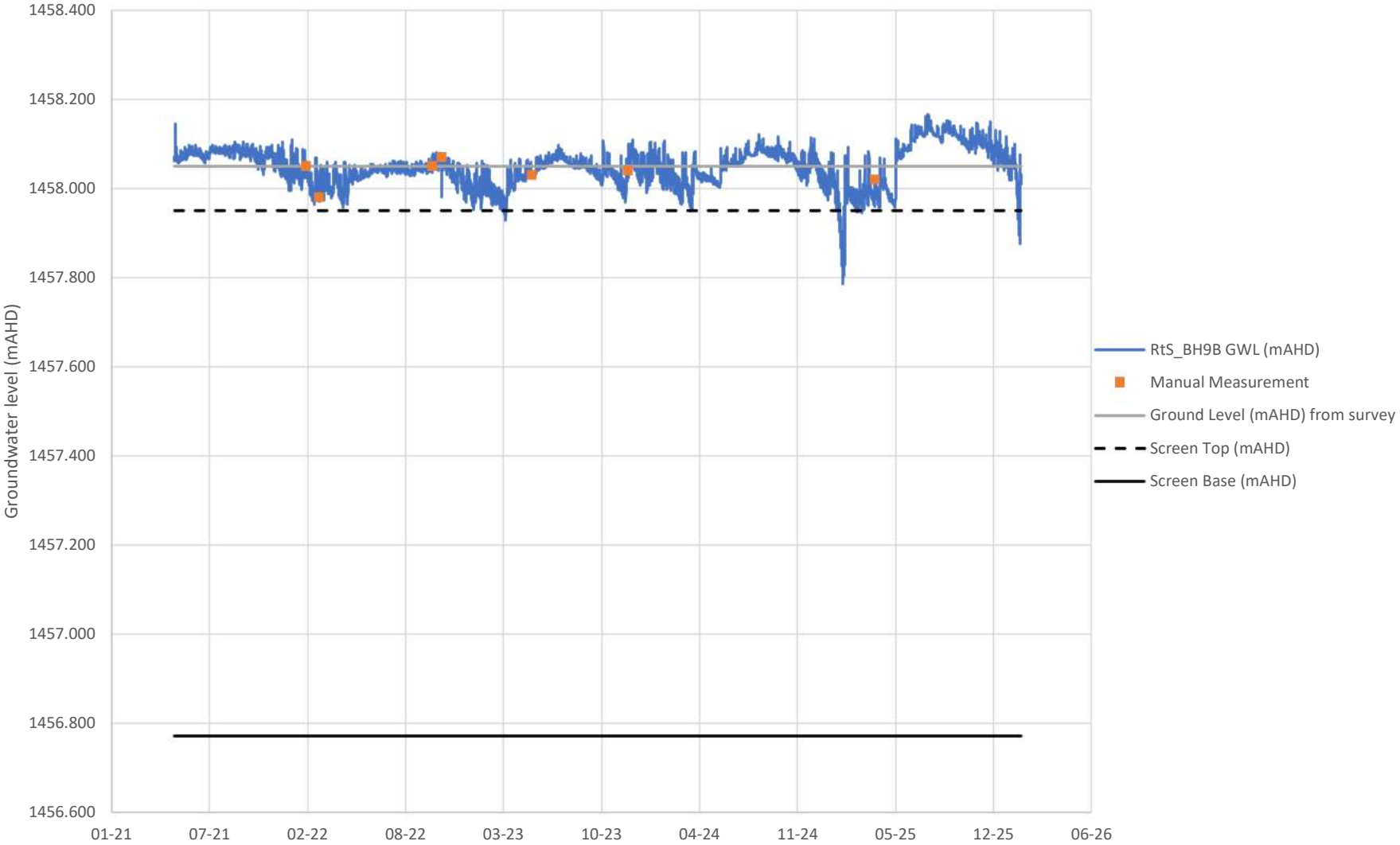
RtS\_BH7A



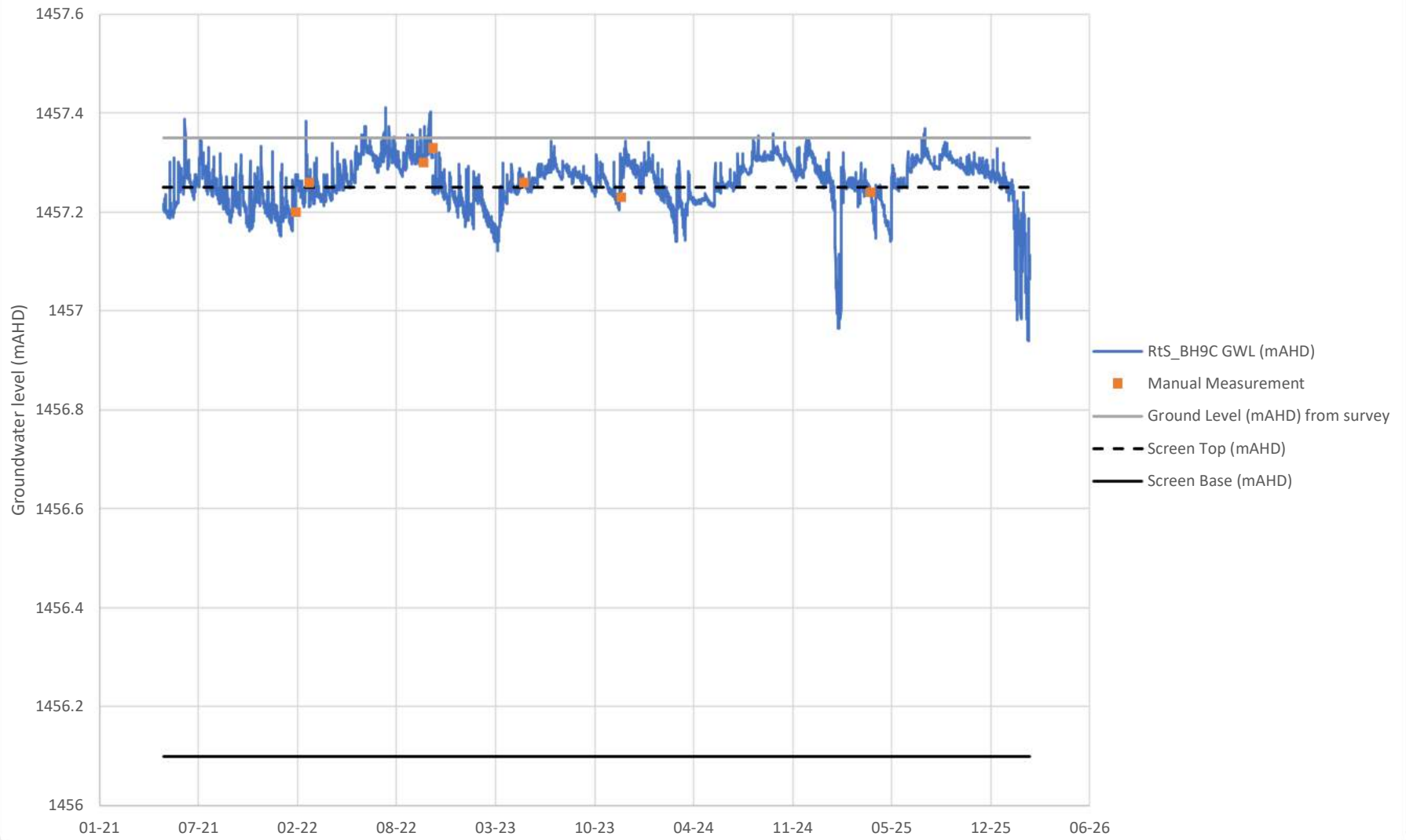
### RtS\_BH9A



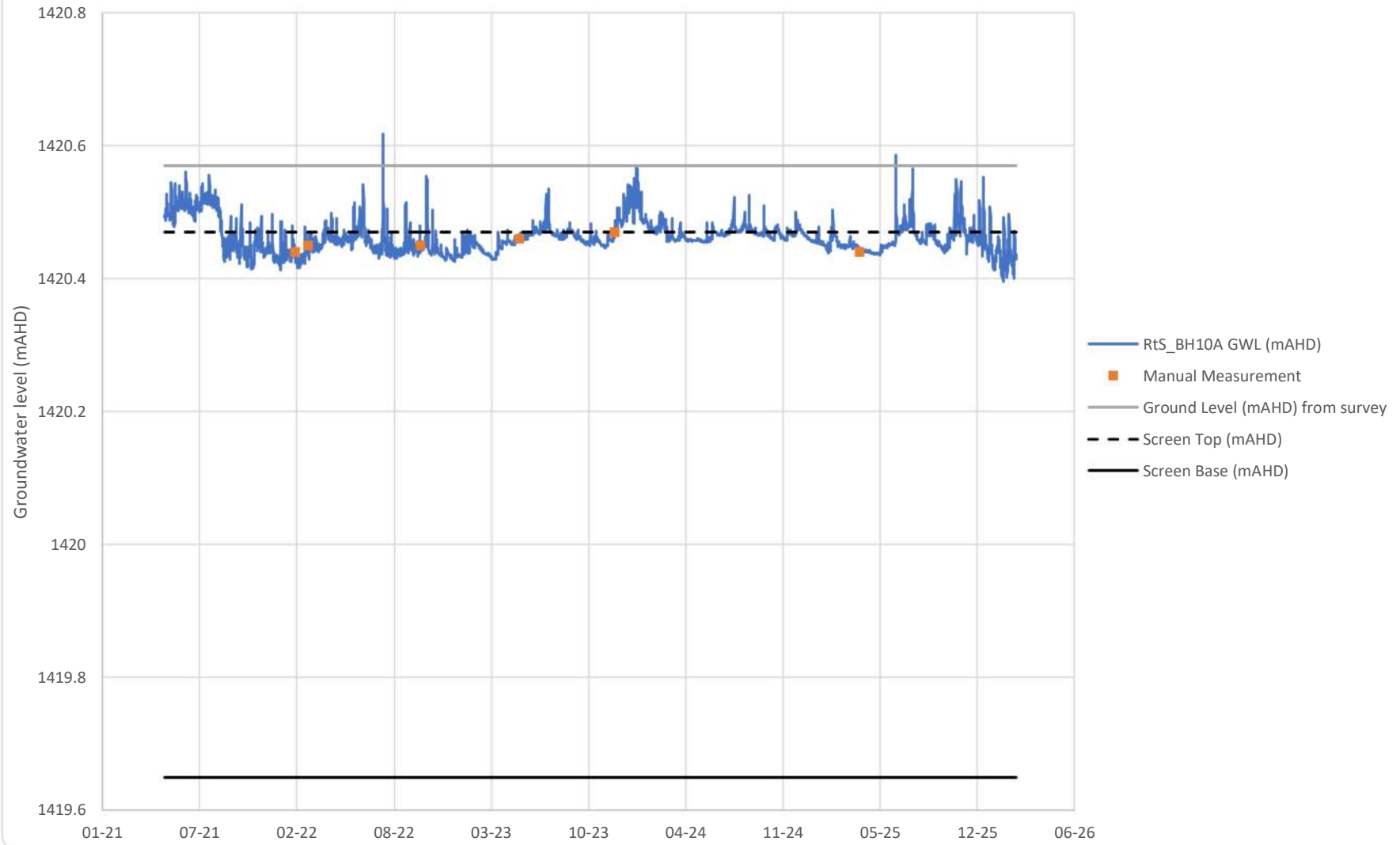
RtS\_BH9B



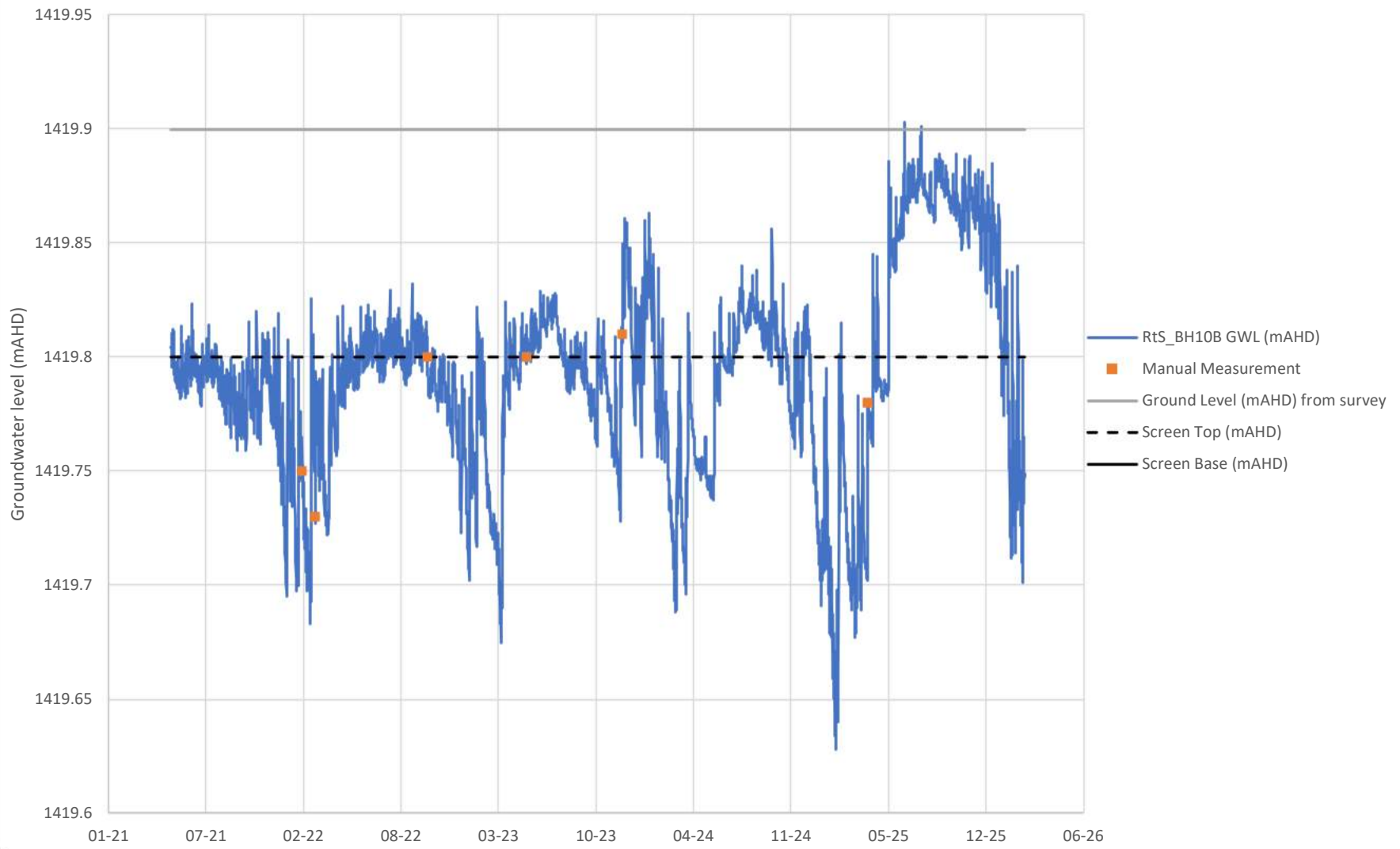
### RtS\_BH9C



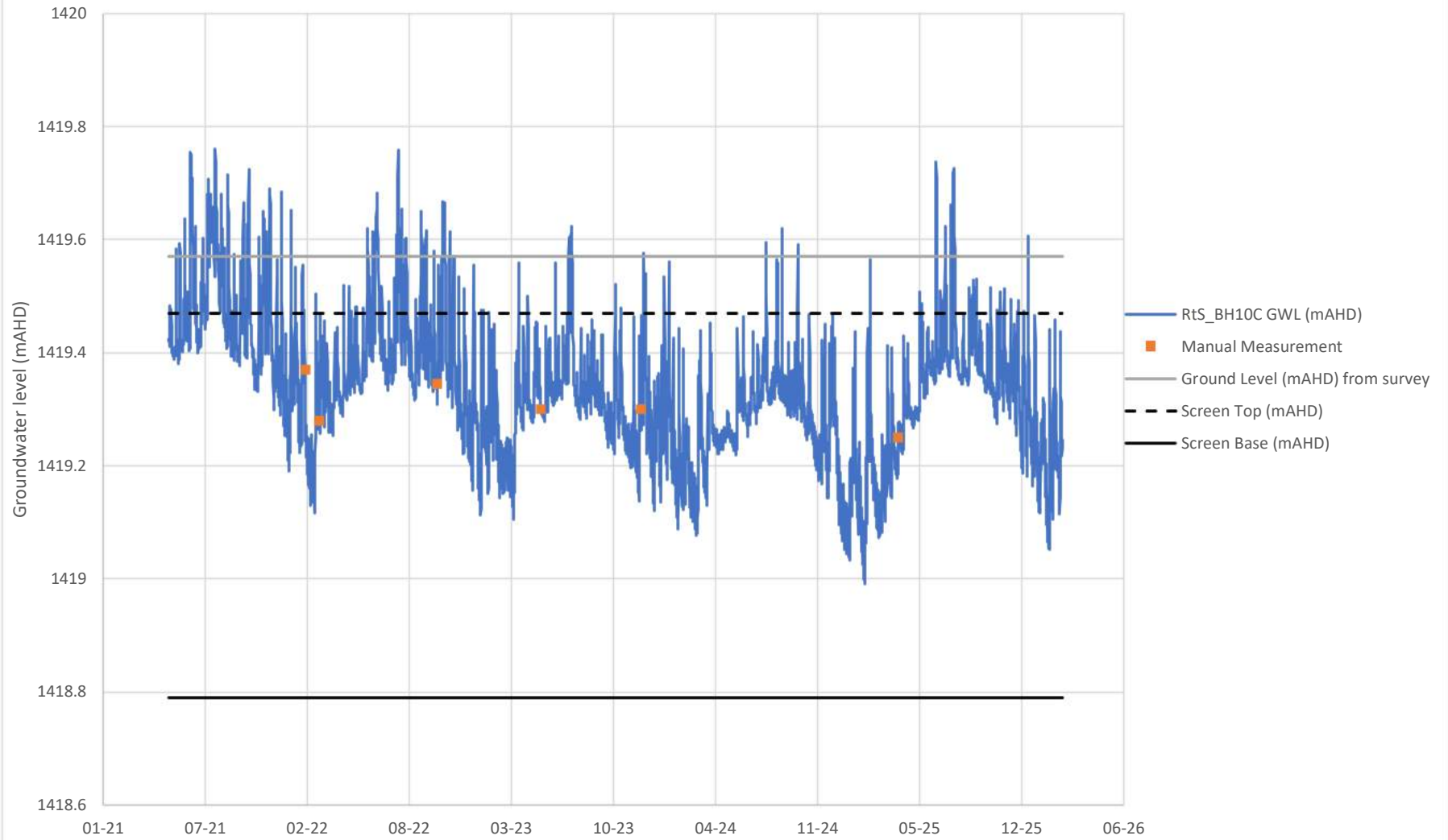
# RtS\_BH10A



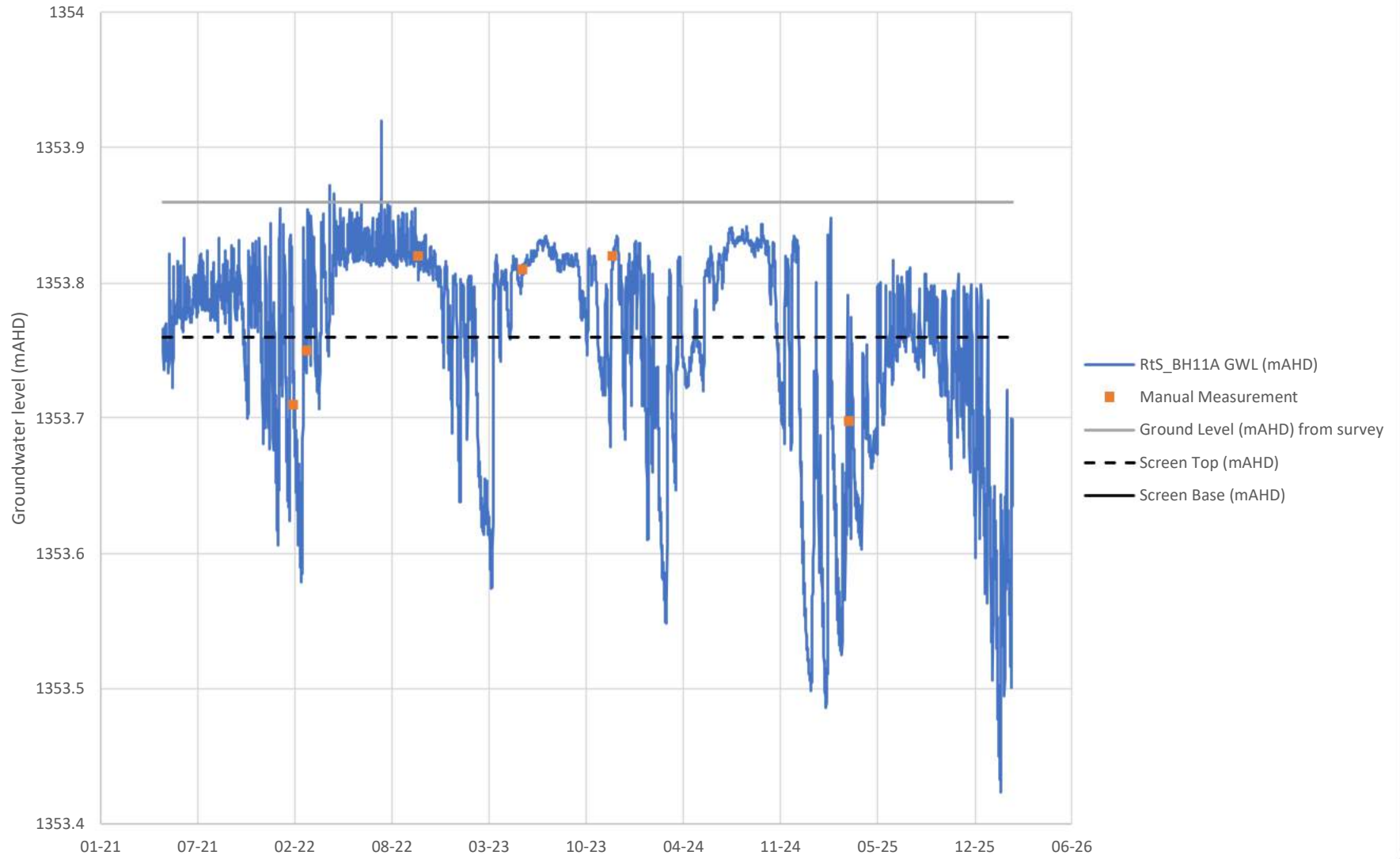
# RtS\_BH10B



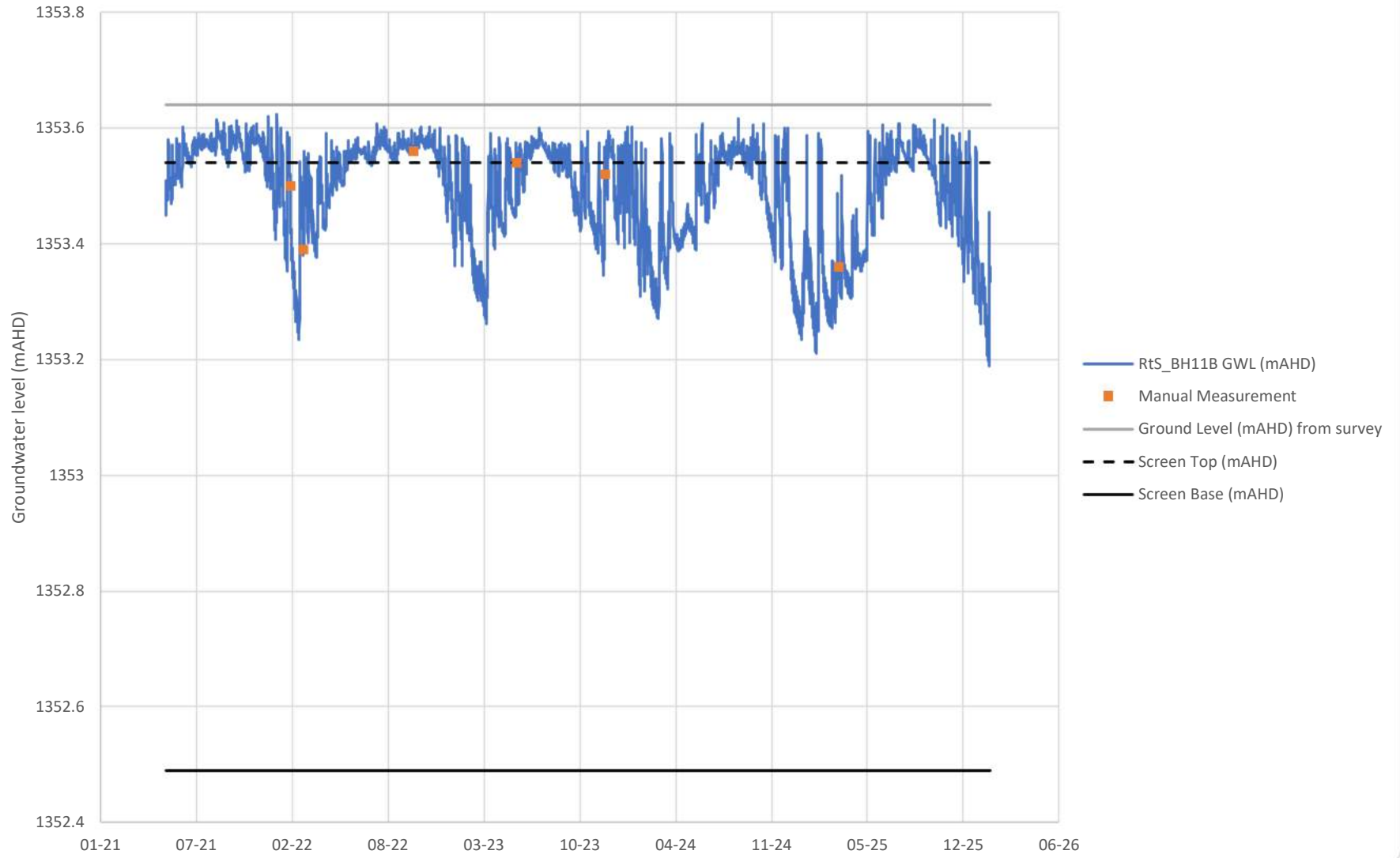
# RtS\_BH10C



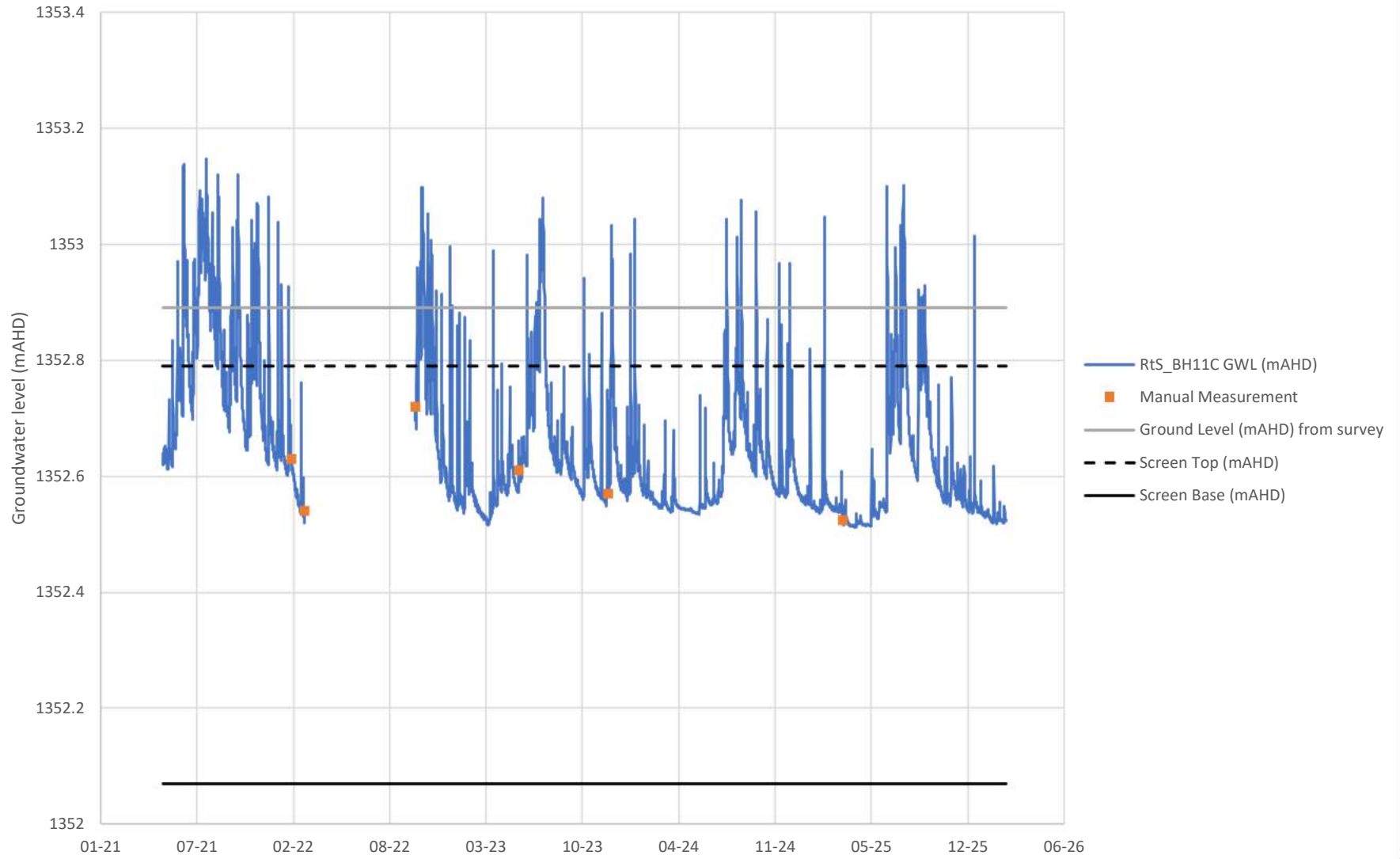
RtS\_BH11A



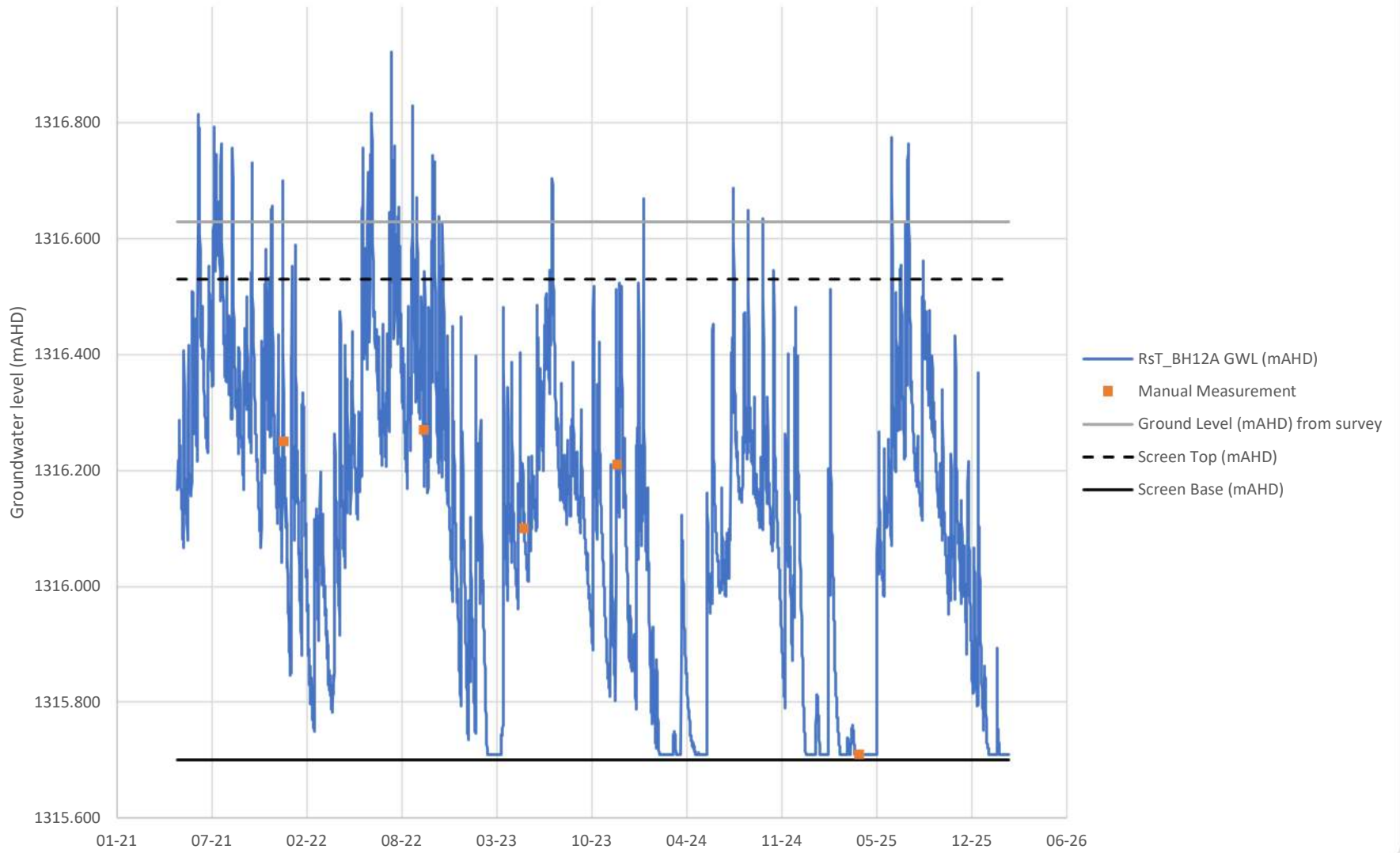
### RtS\_BH11B



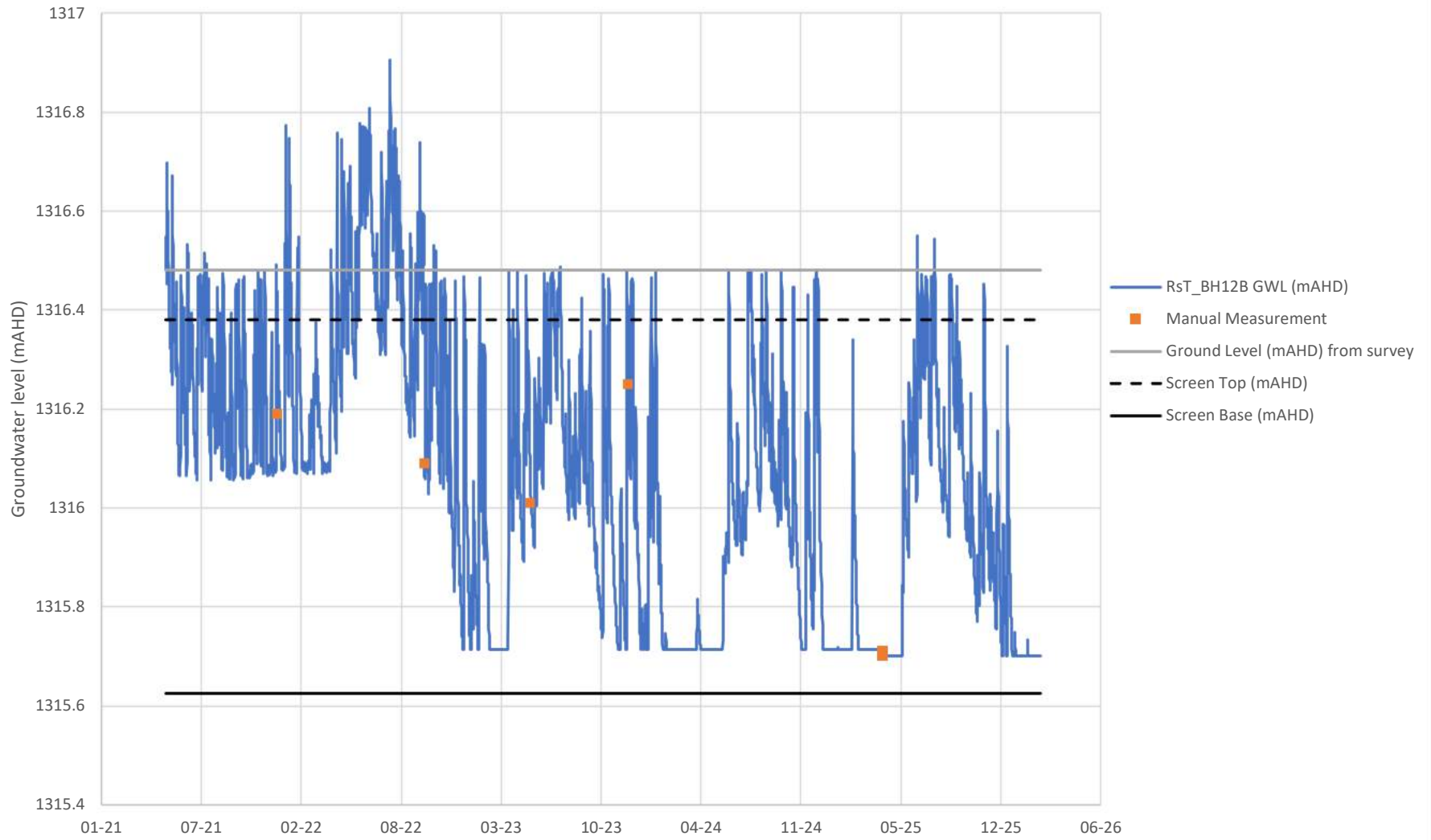
### RtS\_BH11C



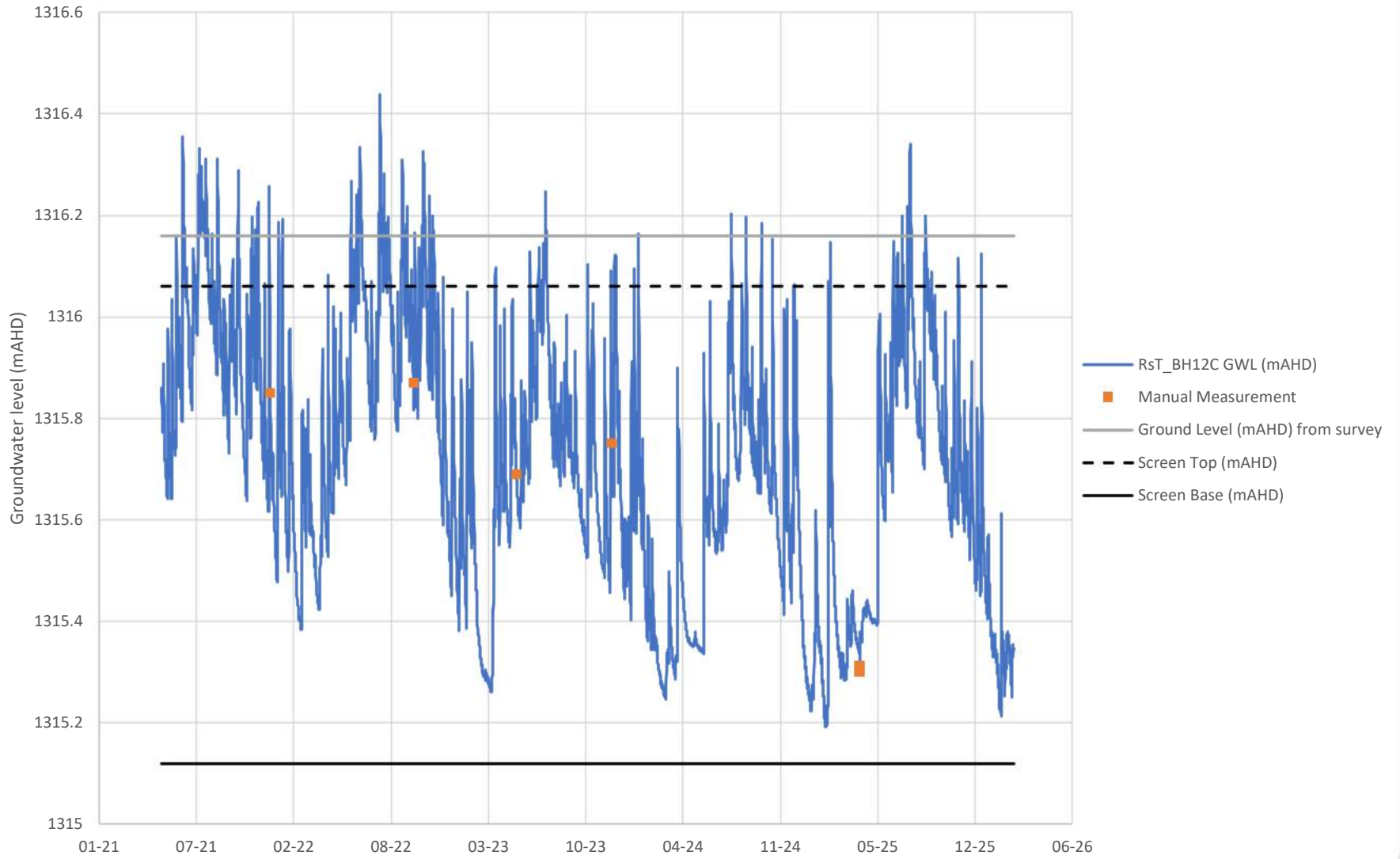
# RtS\_BH12A



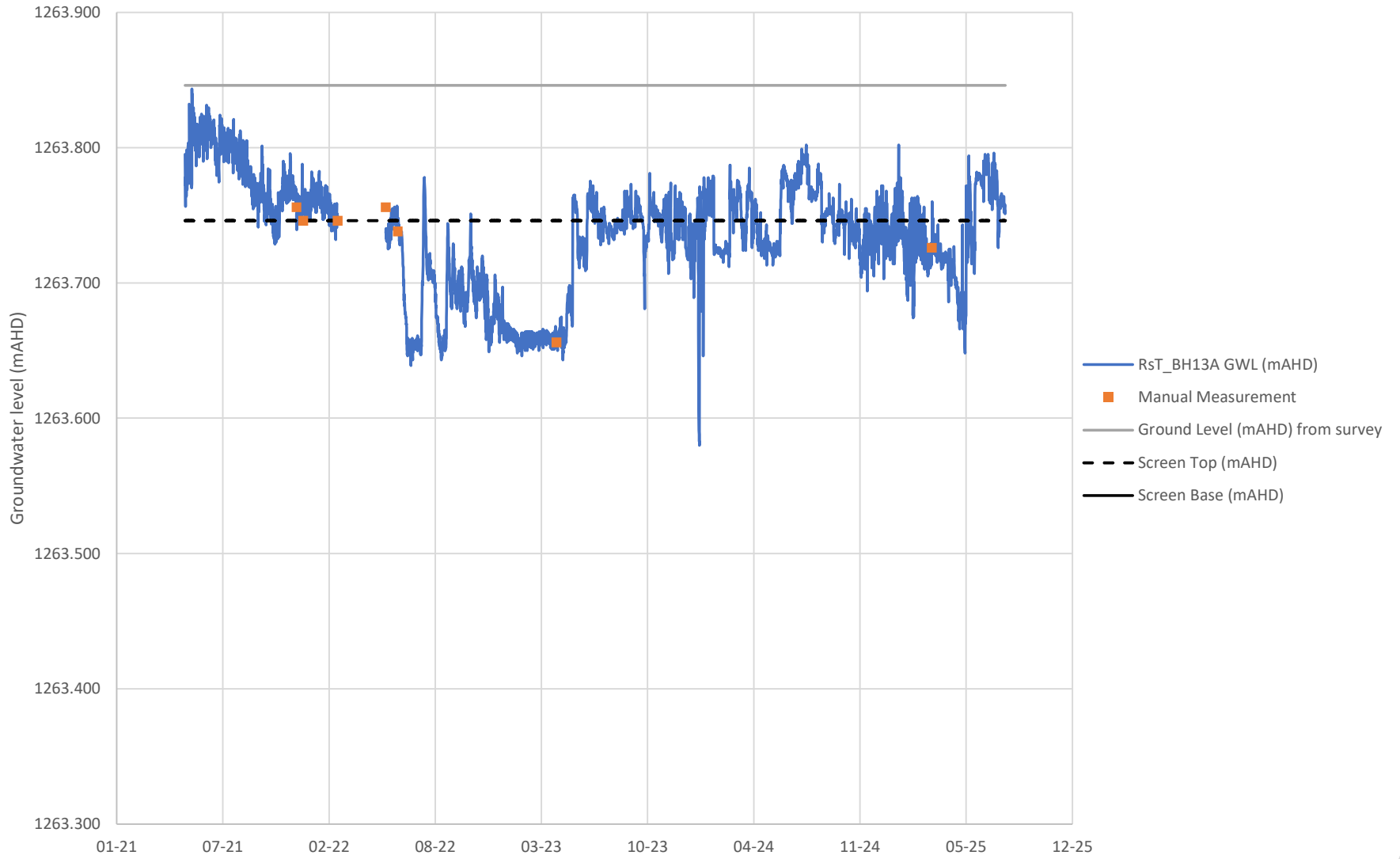
# RtS\_BH12B



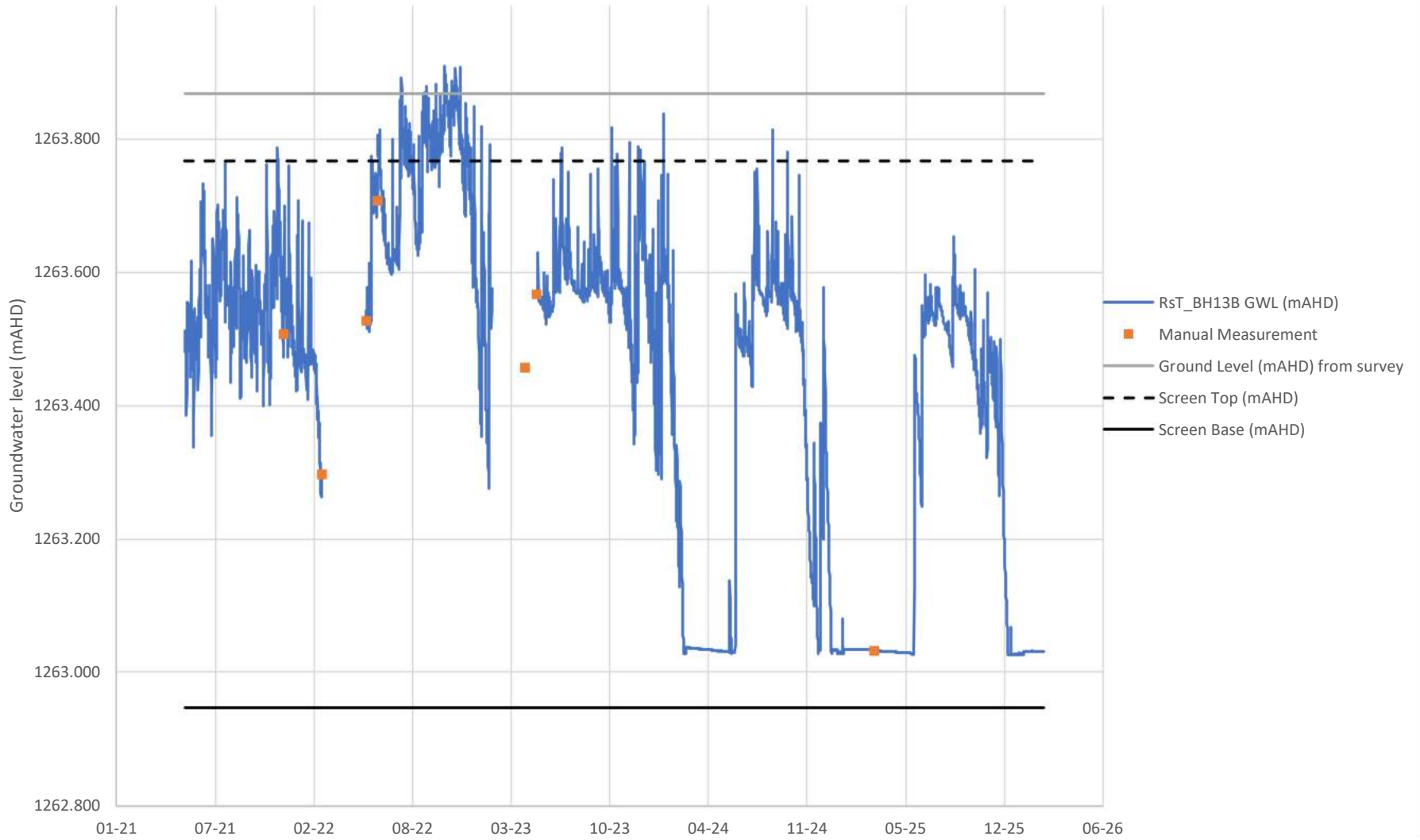
# RtS\_BH12C



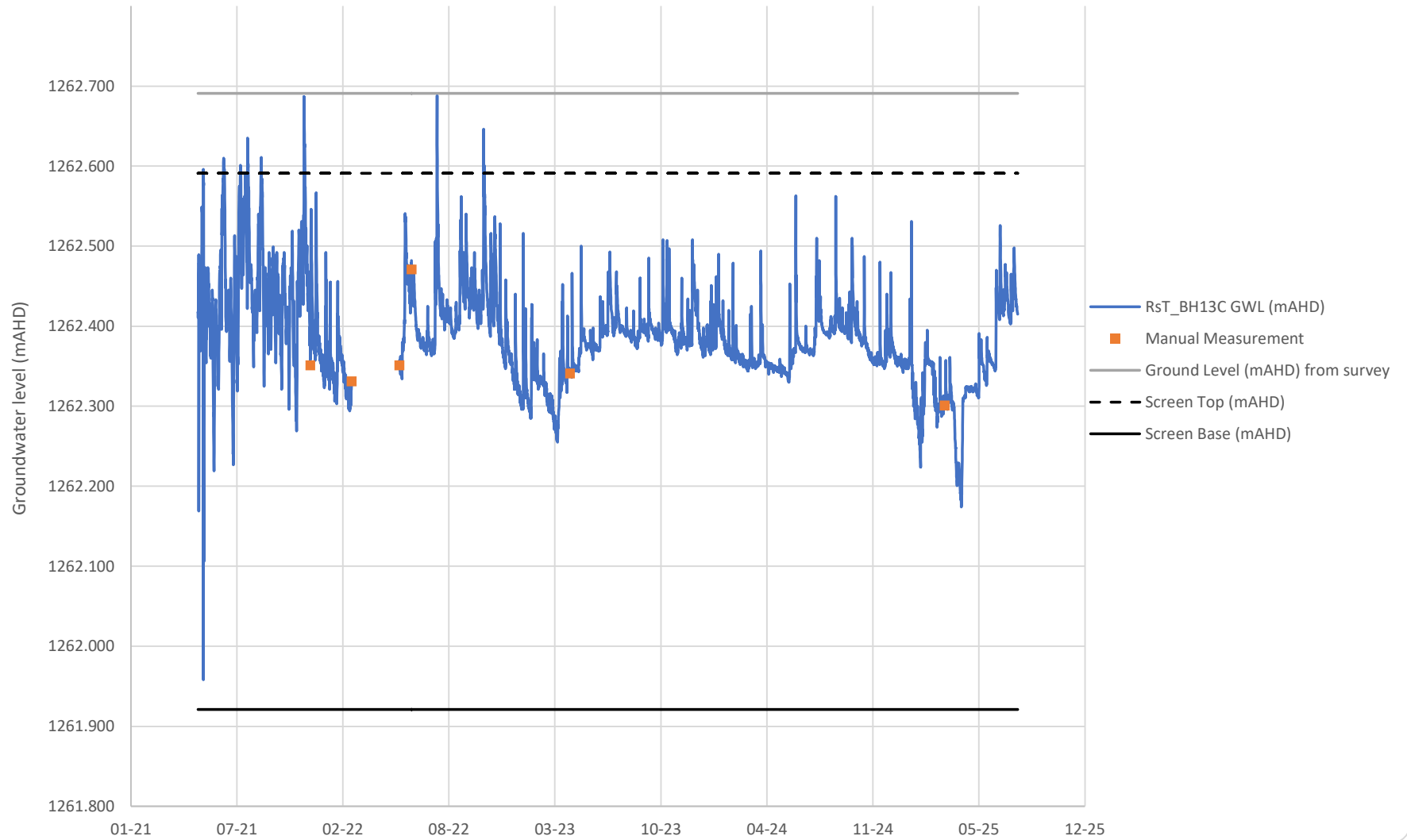
RtS\_BH13A



### RtS\_BH13B

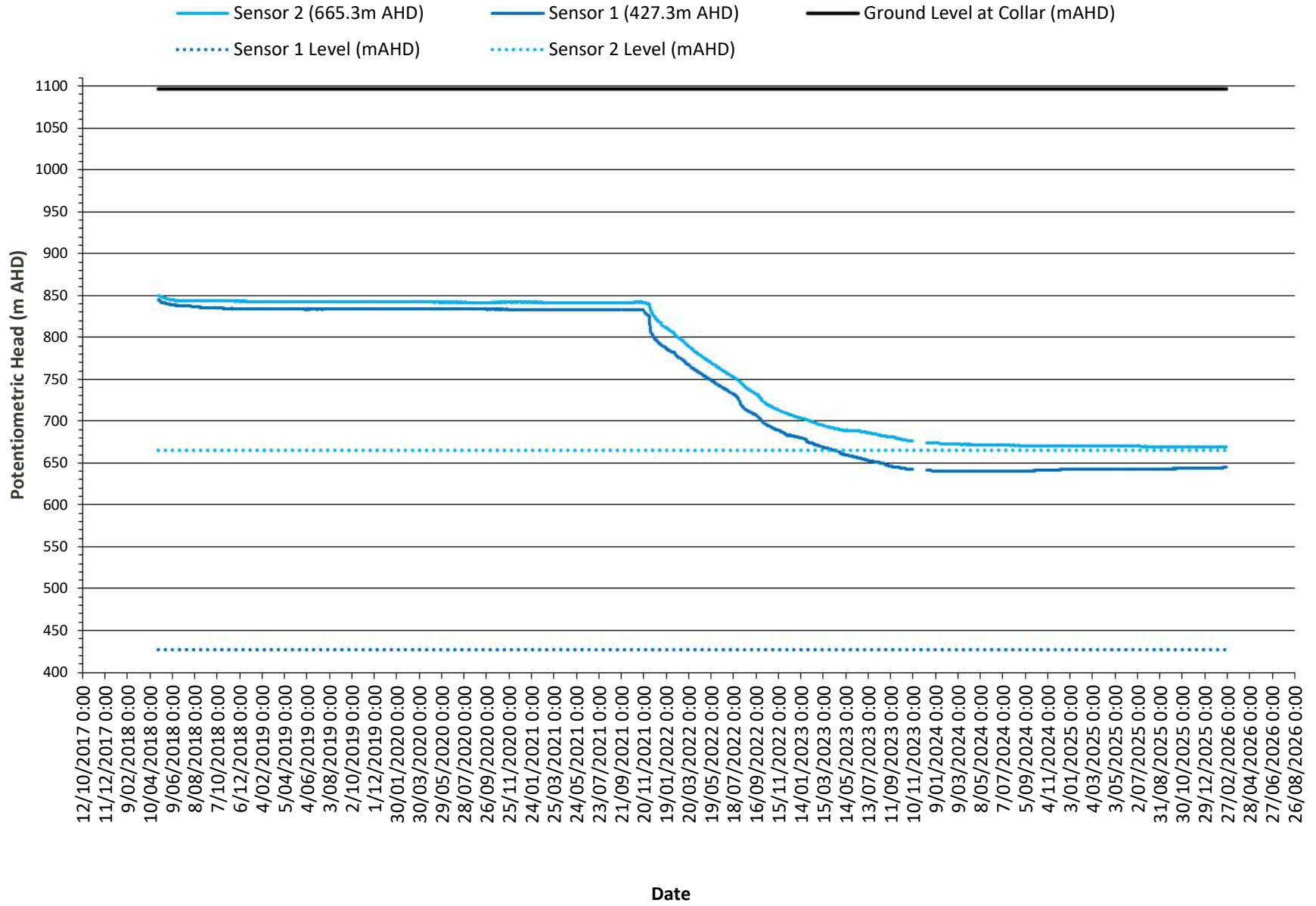


# RtS\_BH13C

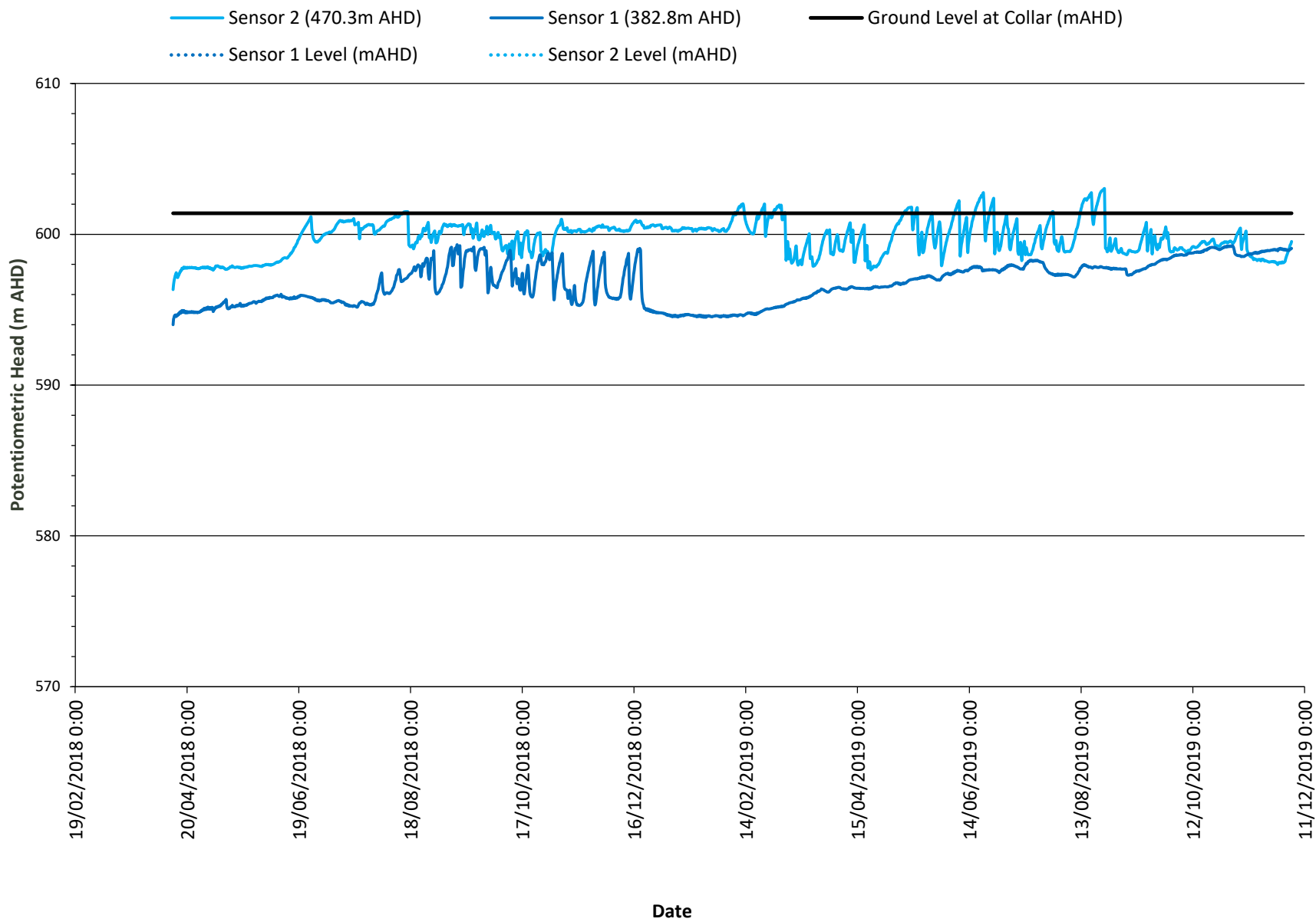


## **Appendix C - Vibrating Wire Piezometer Hydrographs**

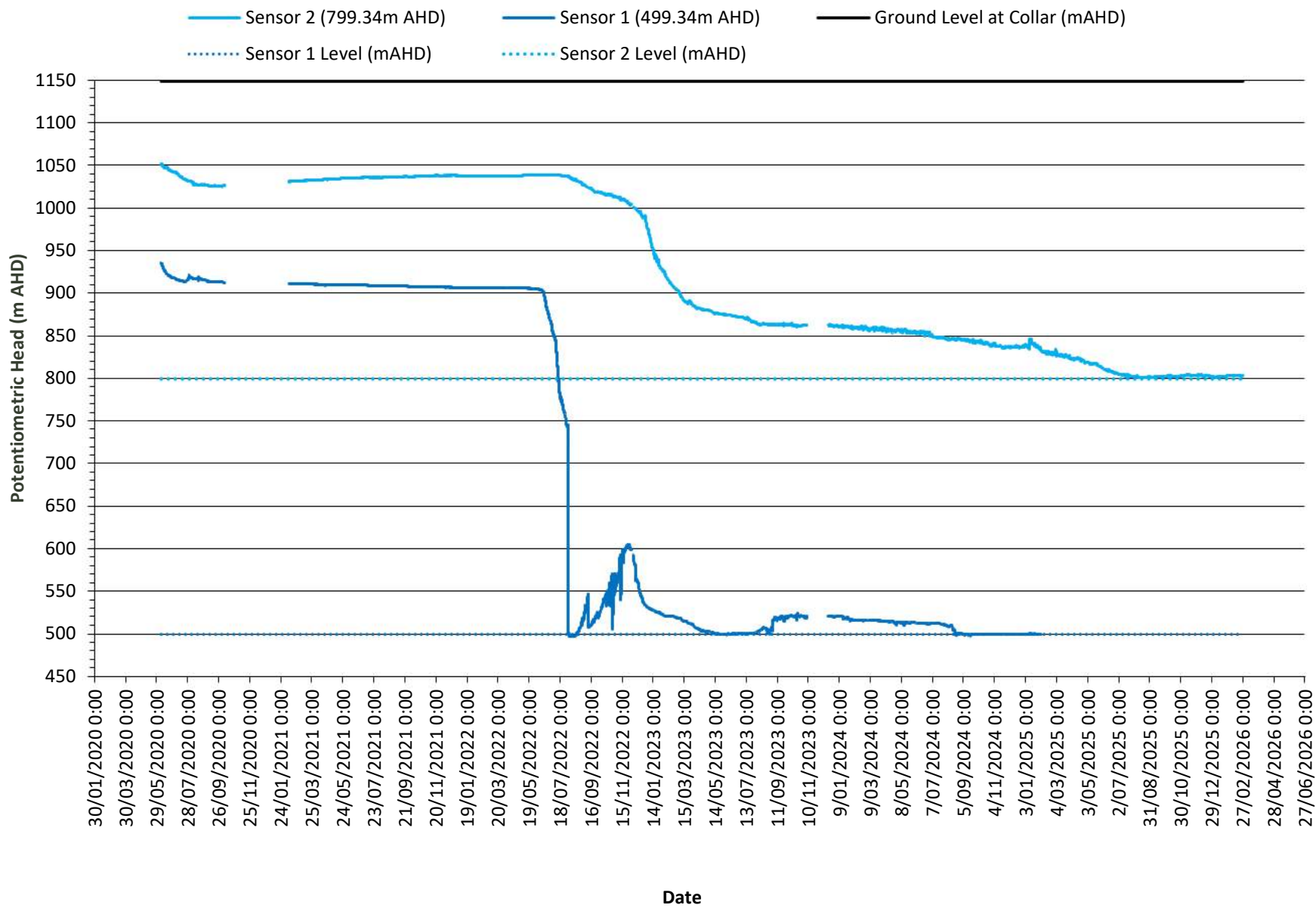
### BH8106 Potentiometric Surface



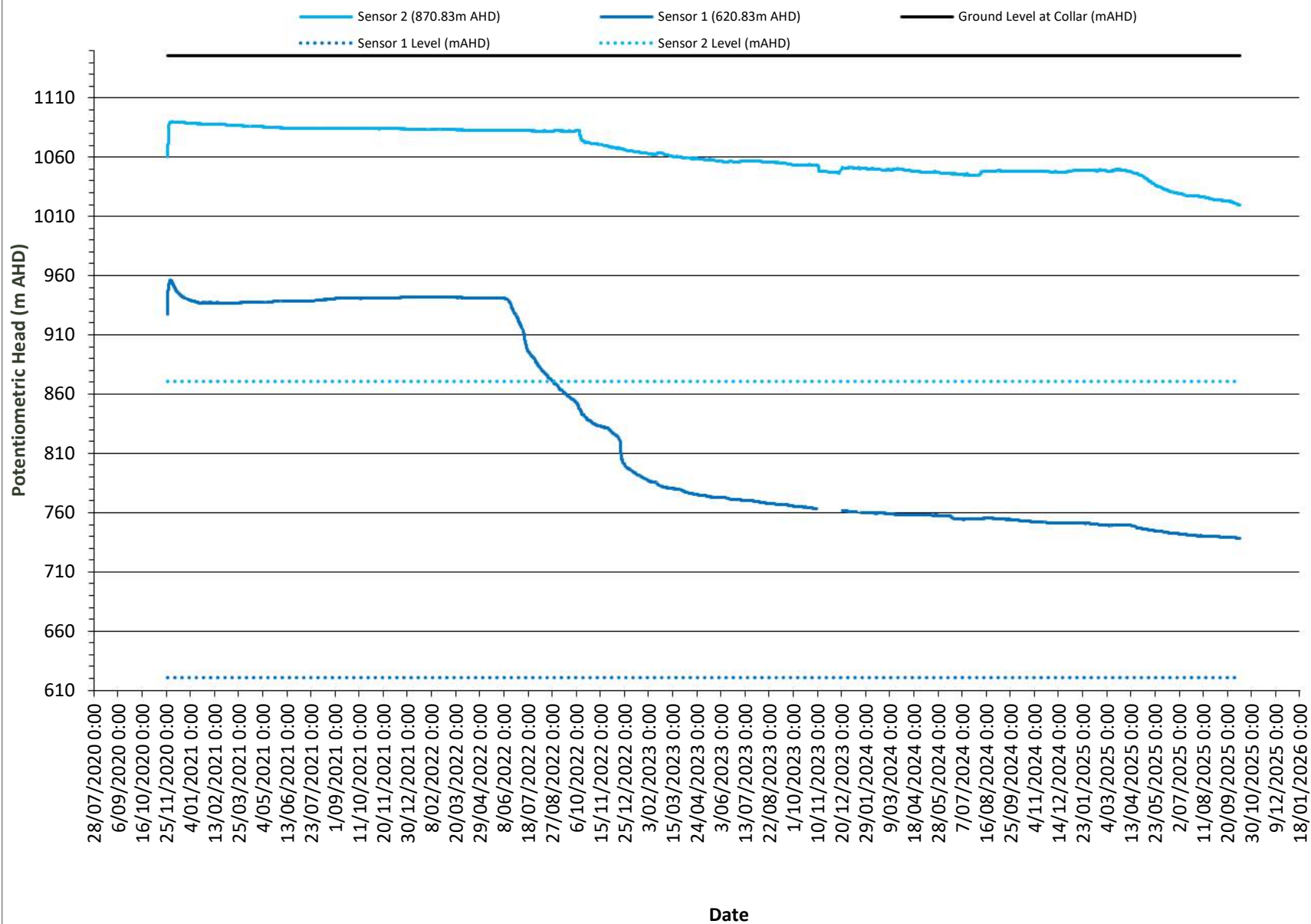
### BH6103 Potentiometric Surface



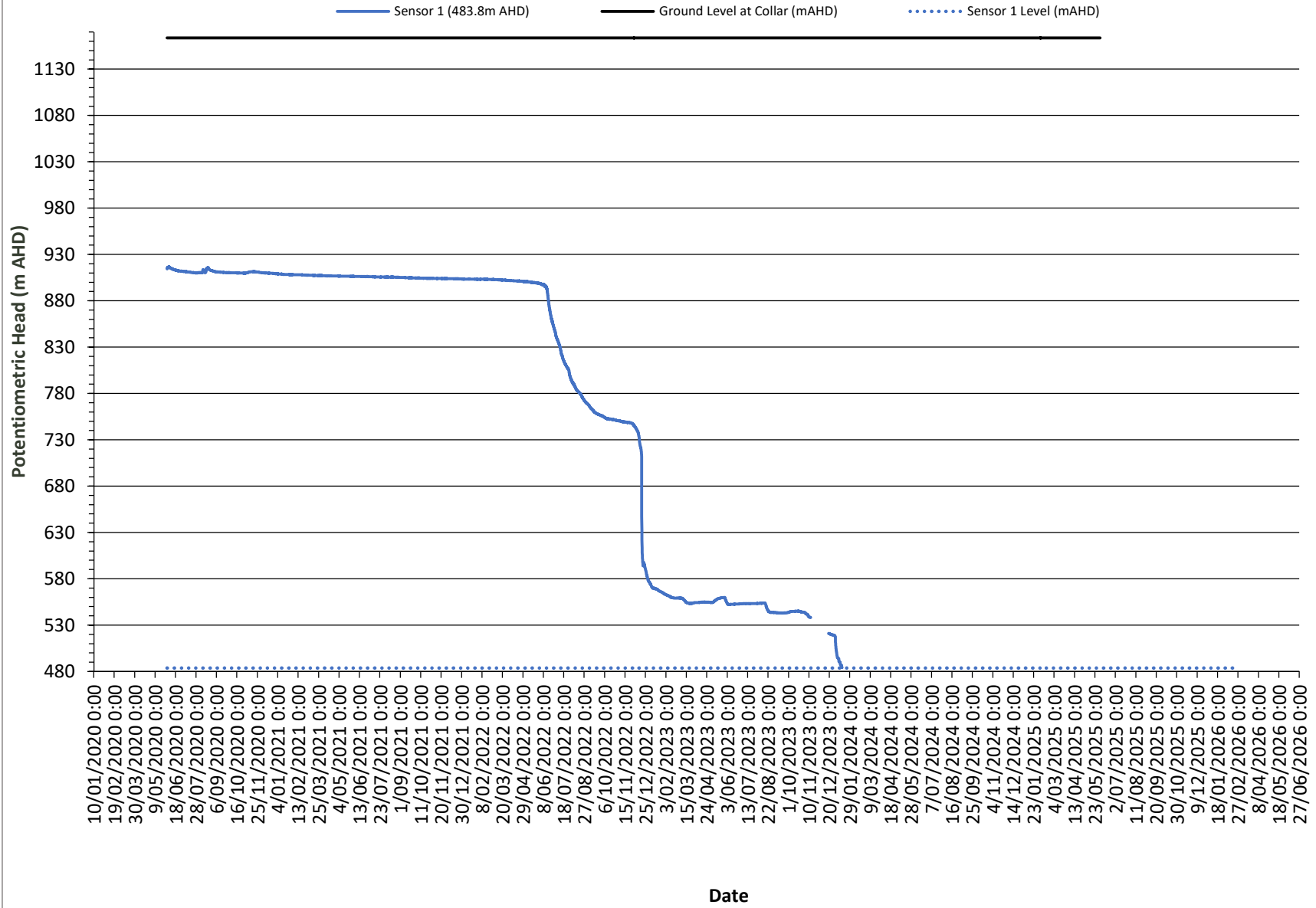
### BH5209 Potentiometric Surface



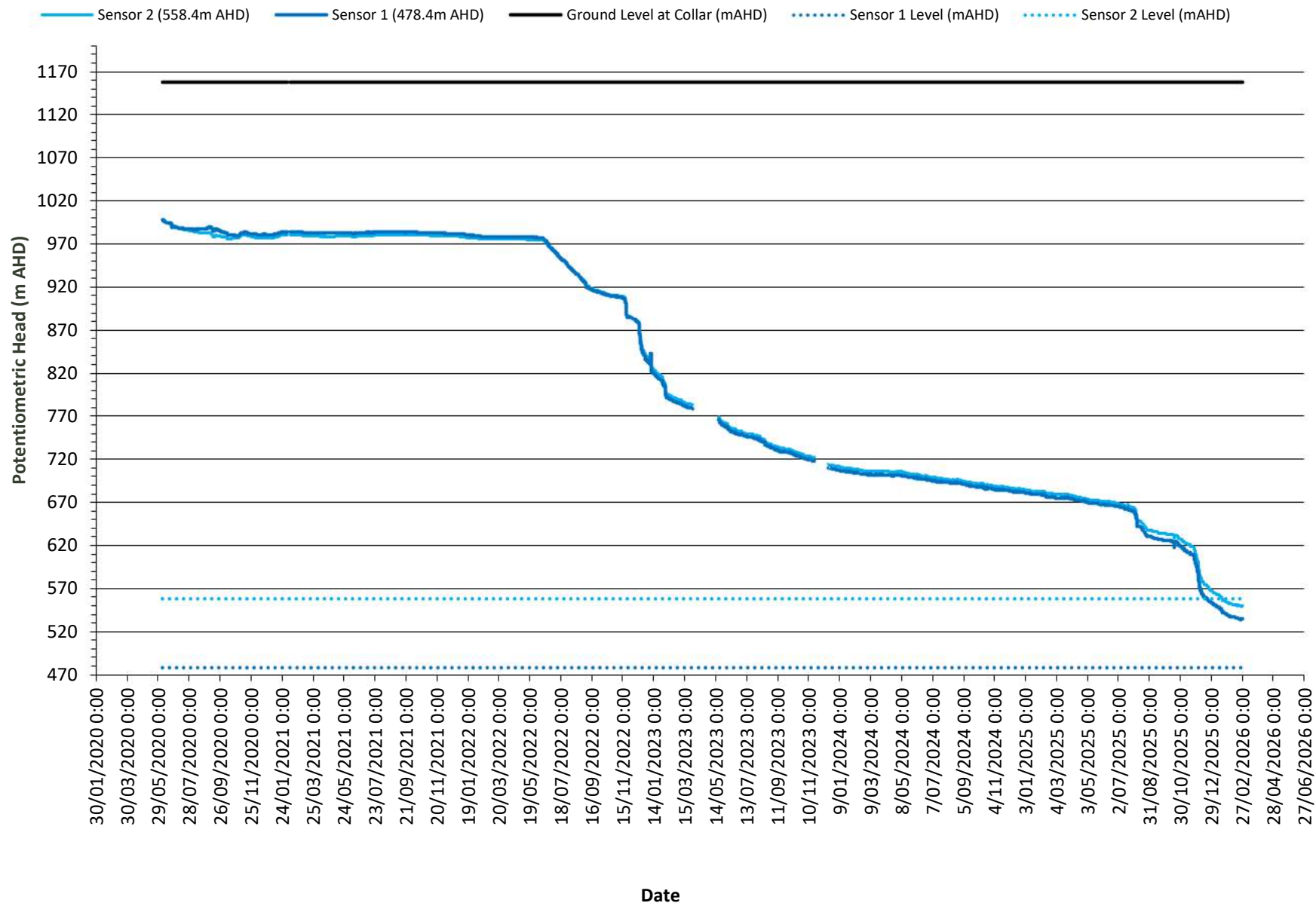
## BH5208 Potentiometric Surface



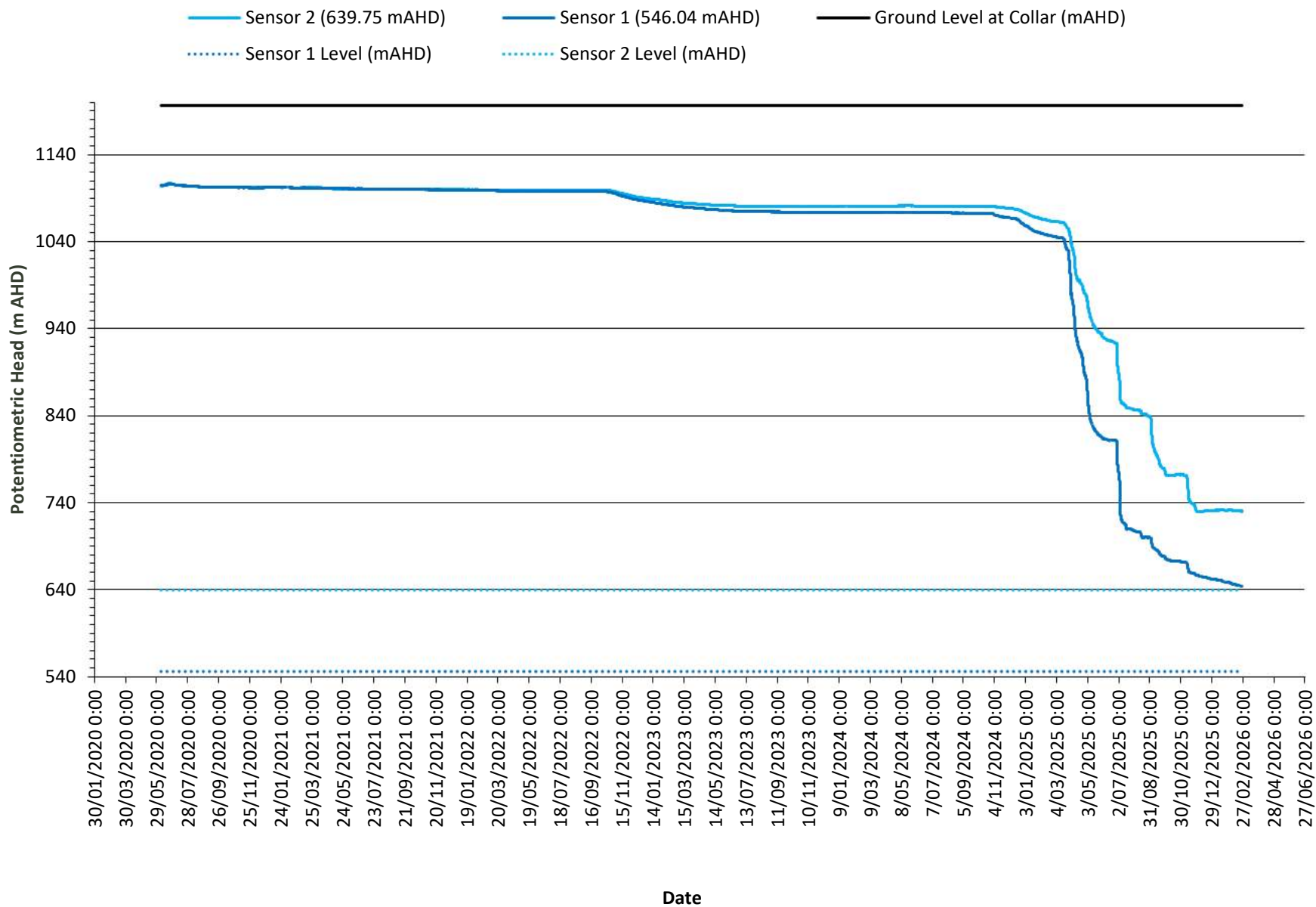
# BH5207 Potentiometric Surface



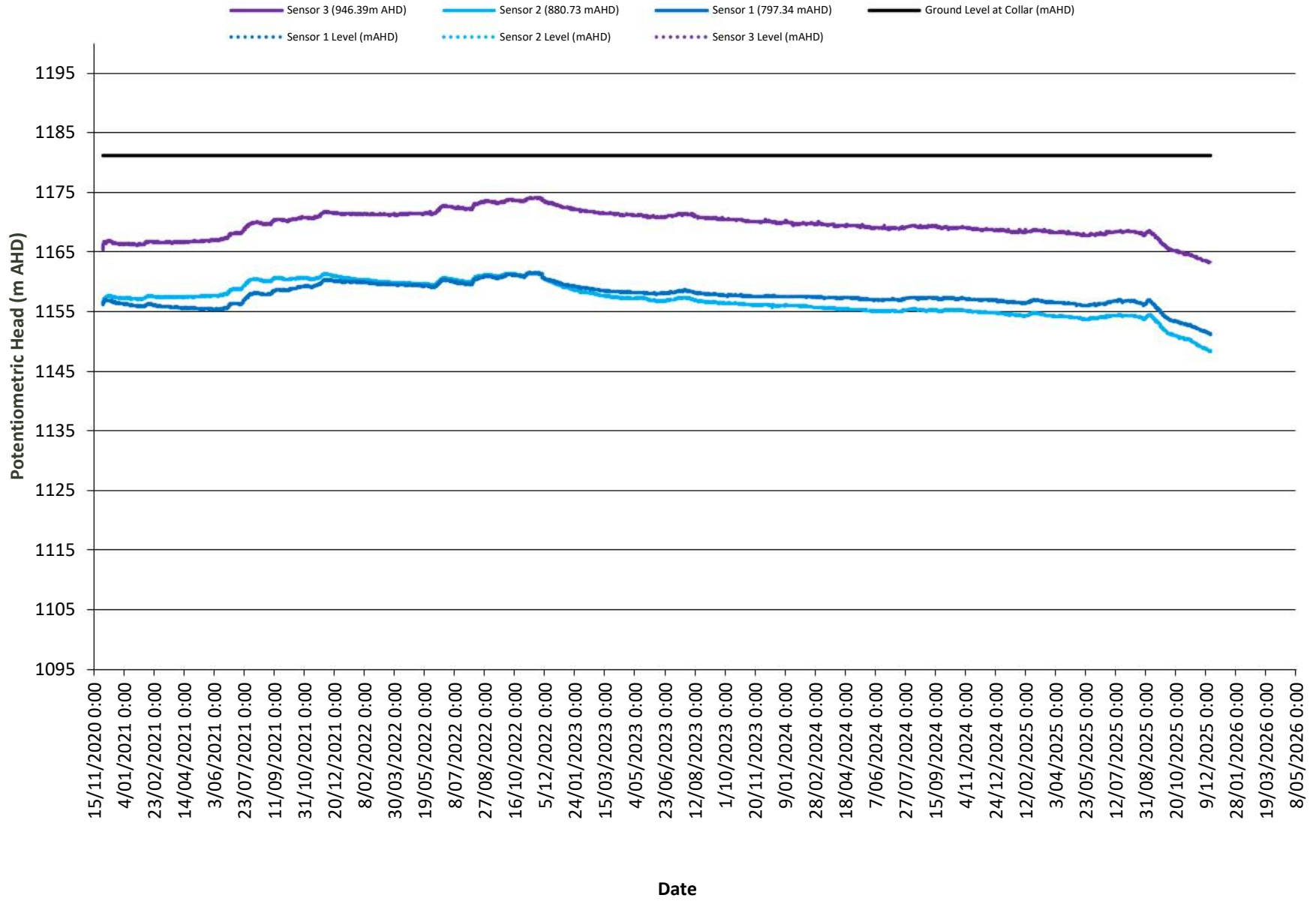
### BH5206 Potentiometric Surface



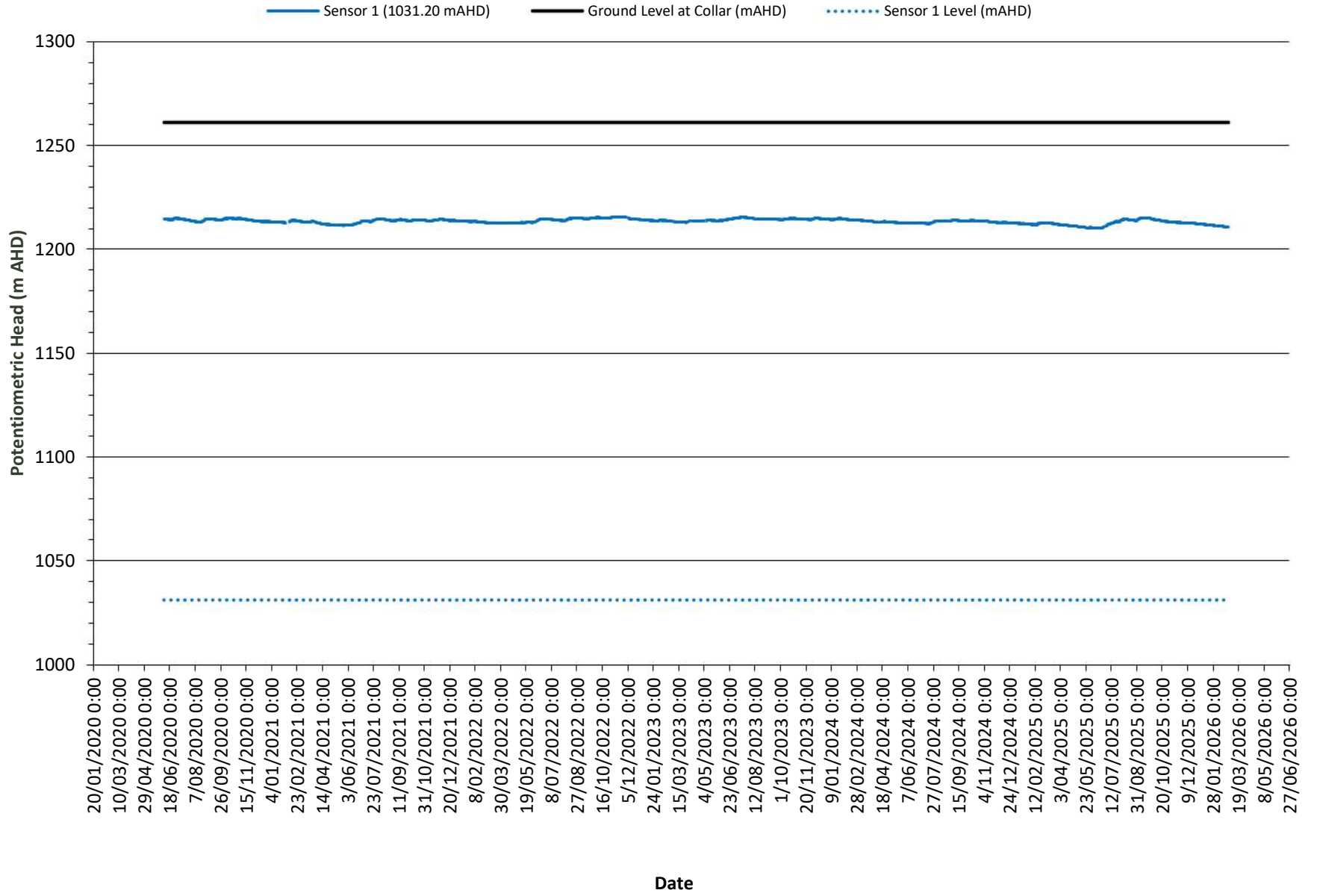
### BH5204 Potentiometric Surface



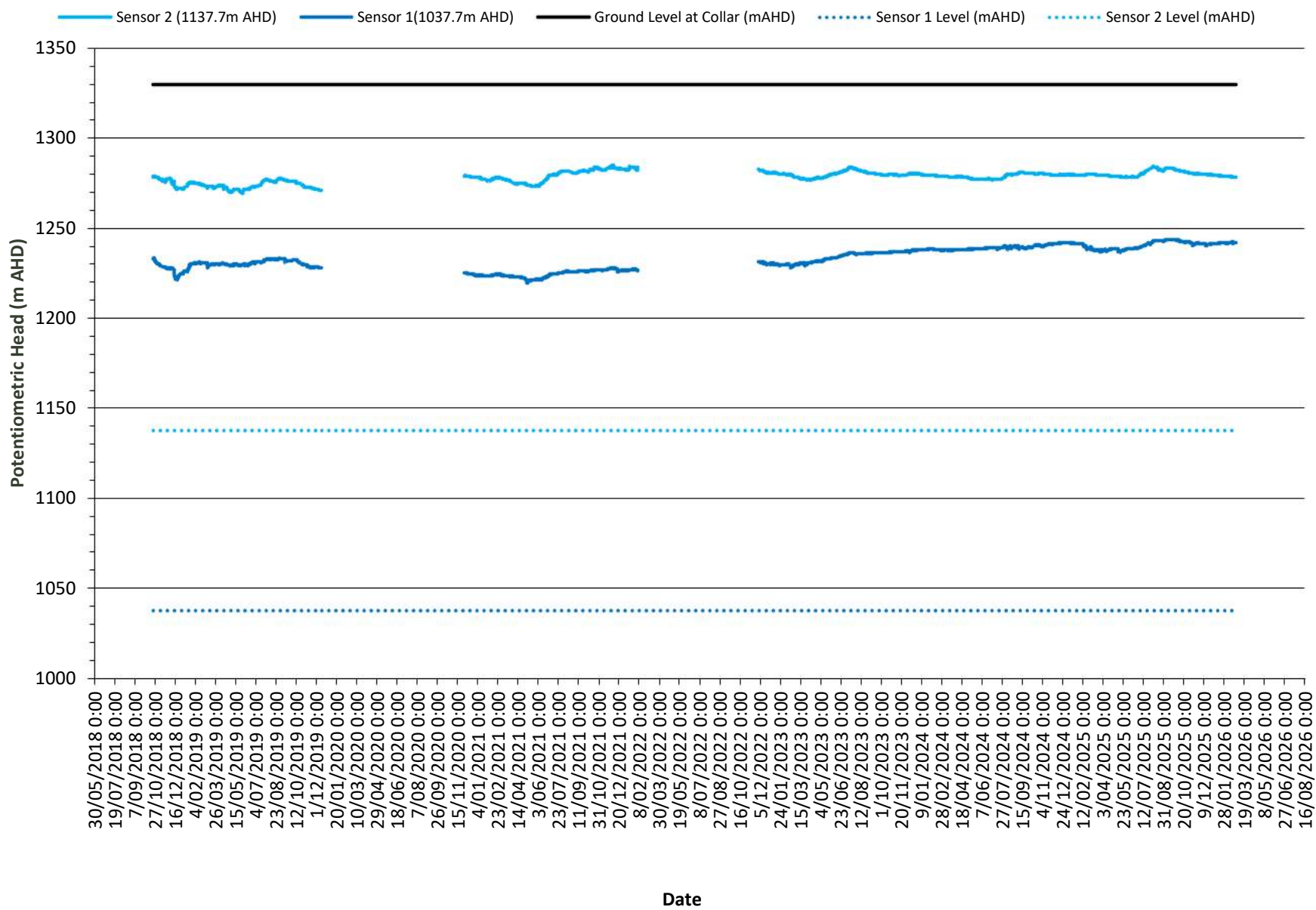
# BH5203A Potentiometric Surface



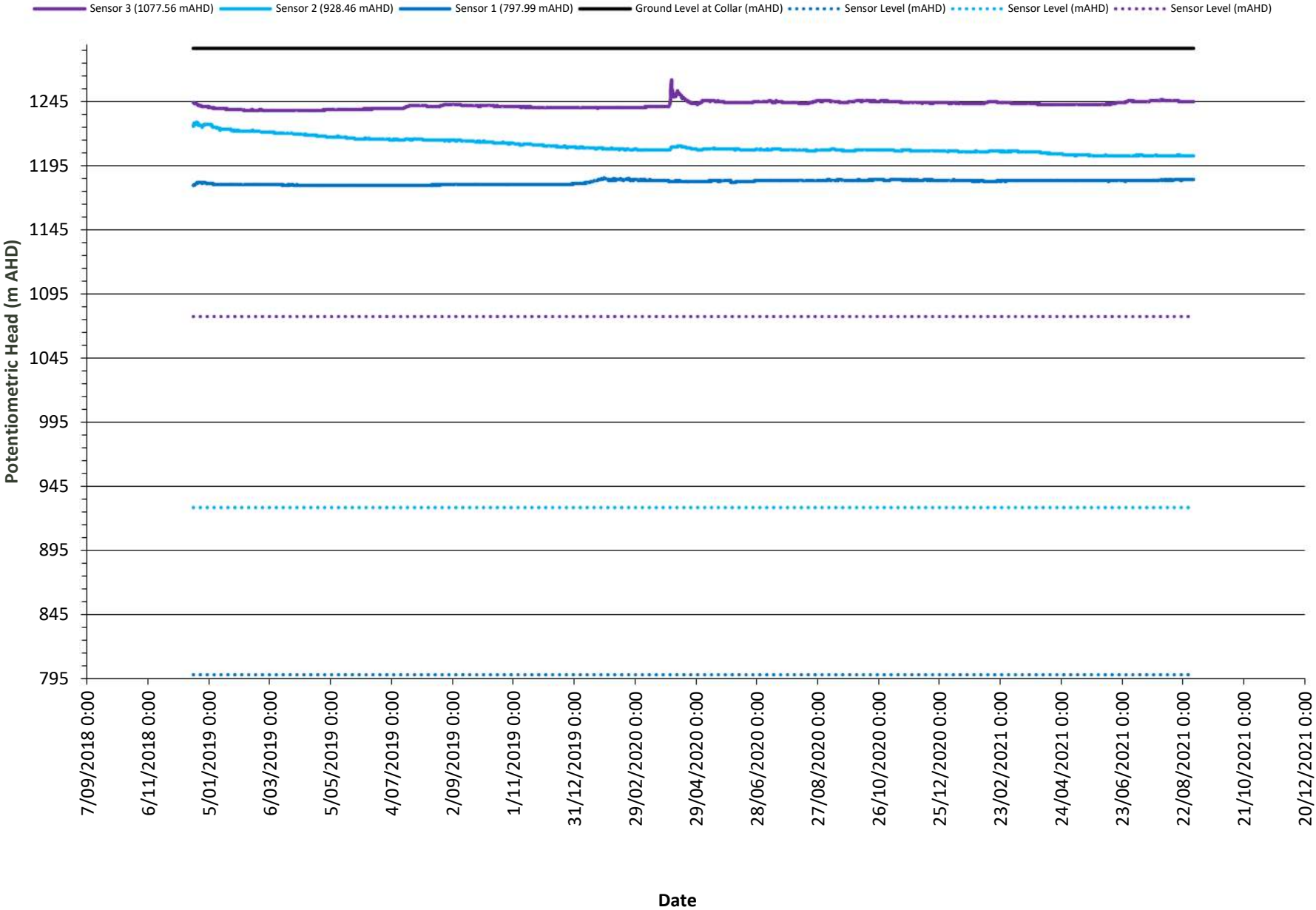
### BH5202 Potentiometric Surface



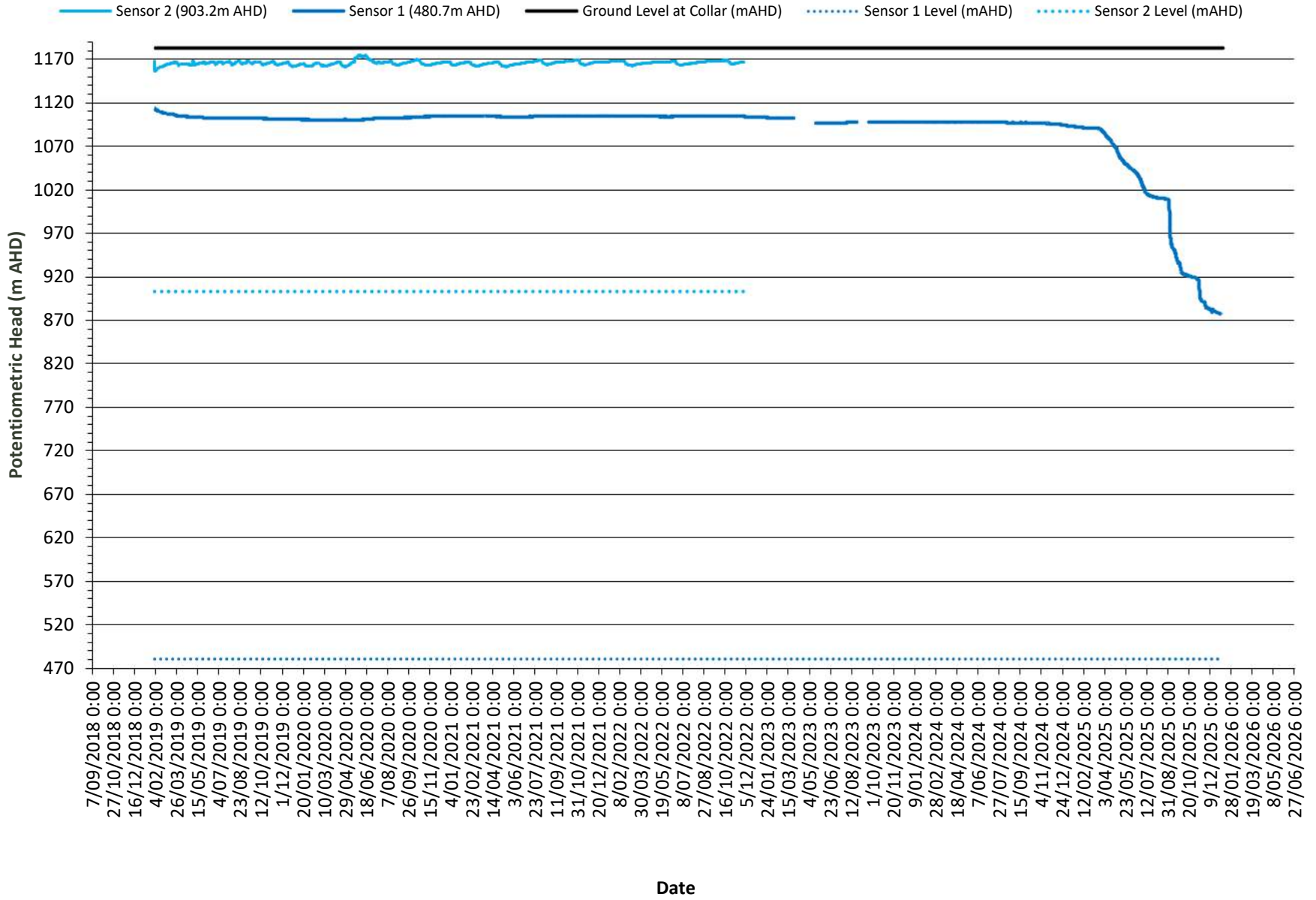
### BH5115 Potentiometric Surface



# BH5114 Potentiometric Surface

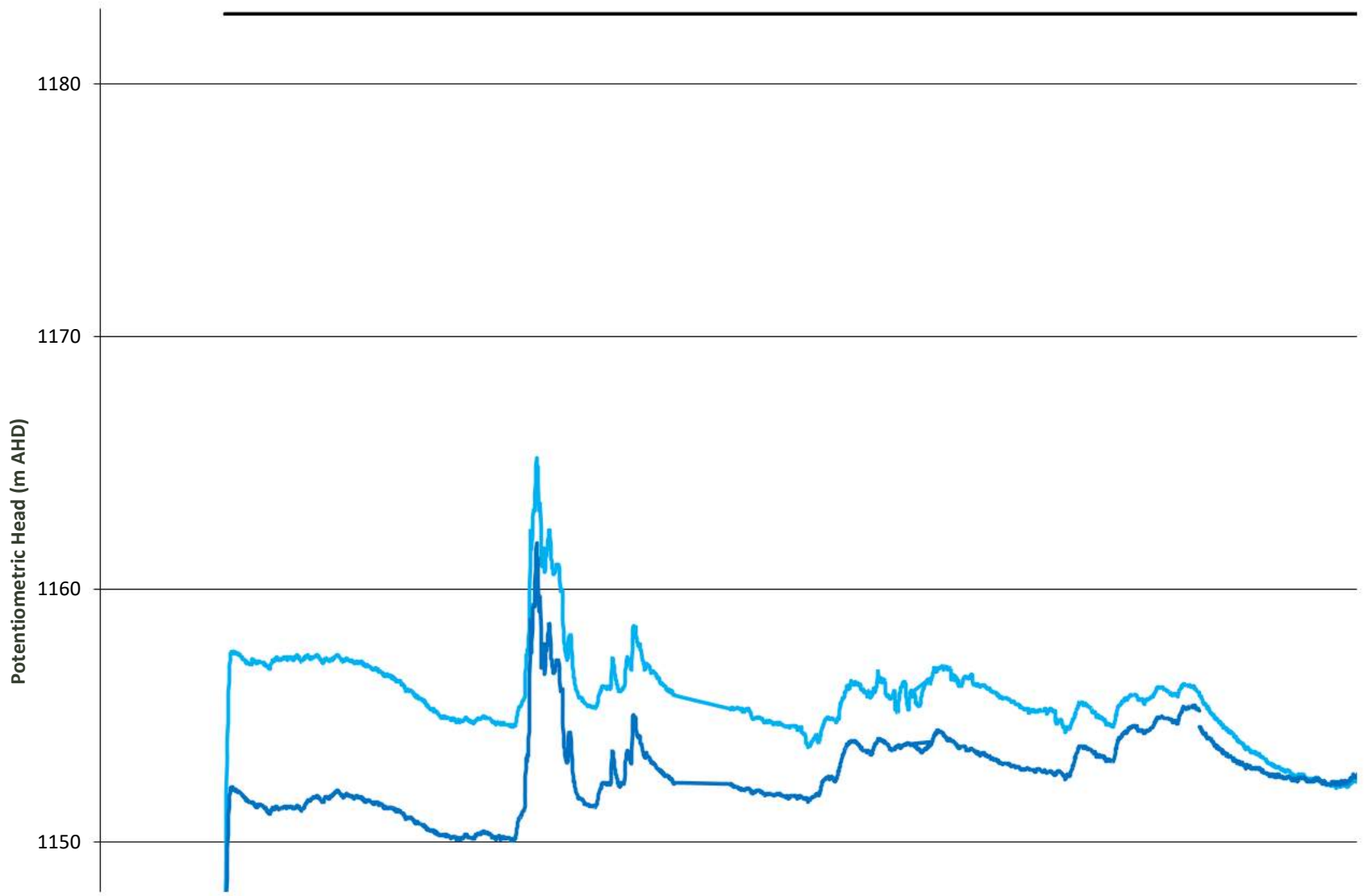


### BH5113B Potentiometric Surface

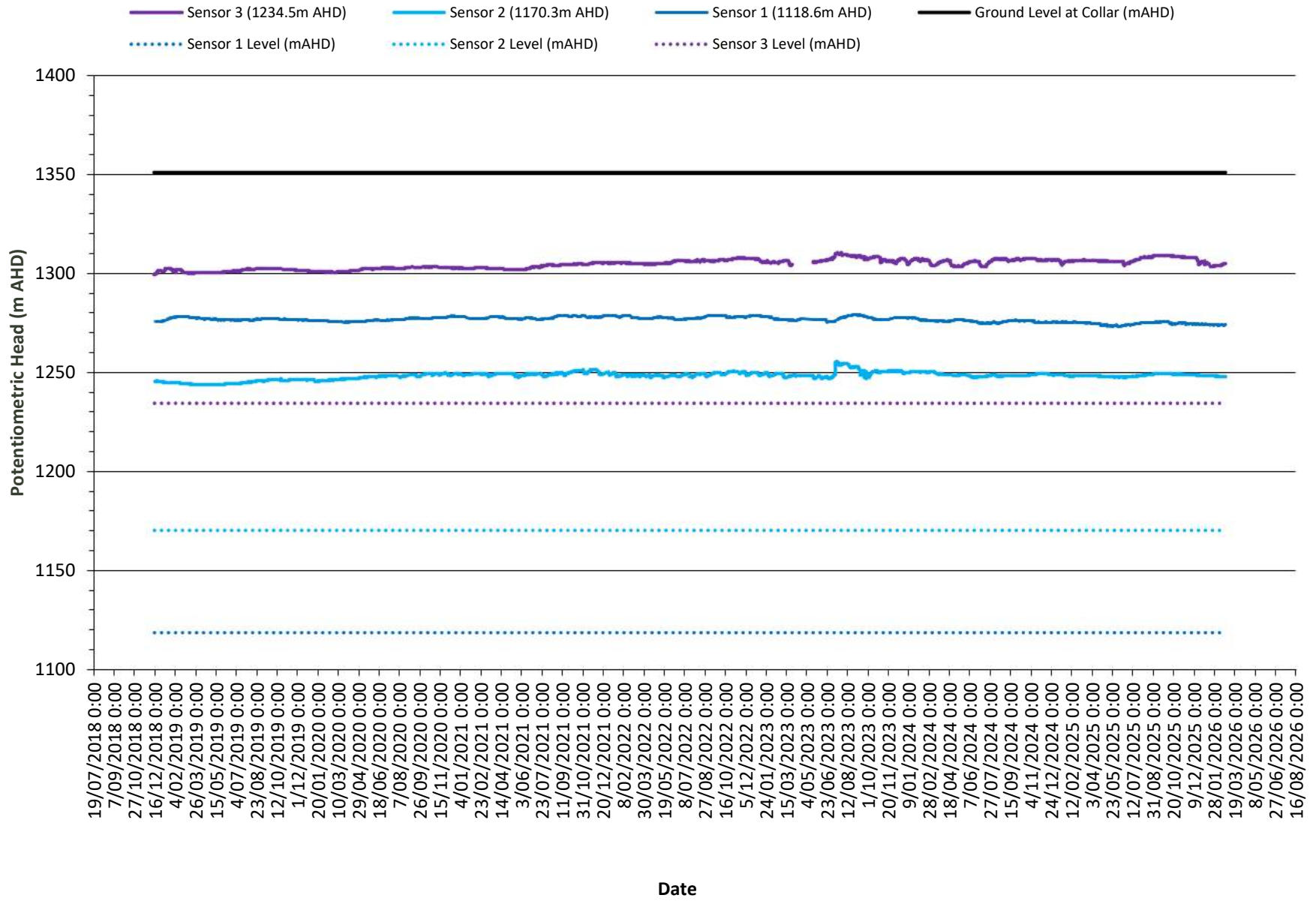


# BH5113C Potentiometric Surface

Sensor 2 (880.10 mAHD)    Sensor 1 (752.17 mAHD)    Ground Level at Collar (mAHD)    Sensor 1 Level (mAHD)

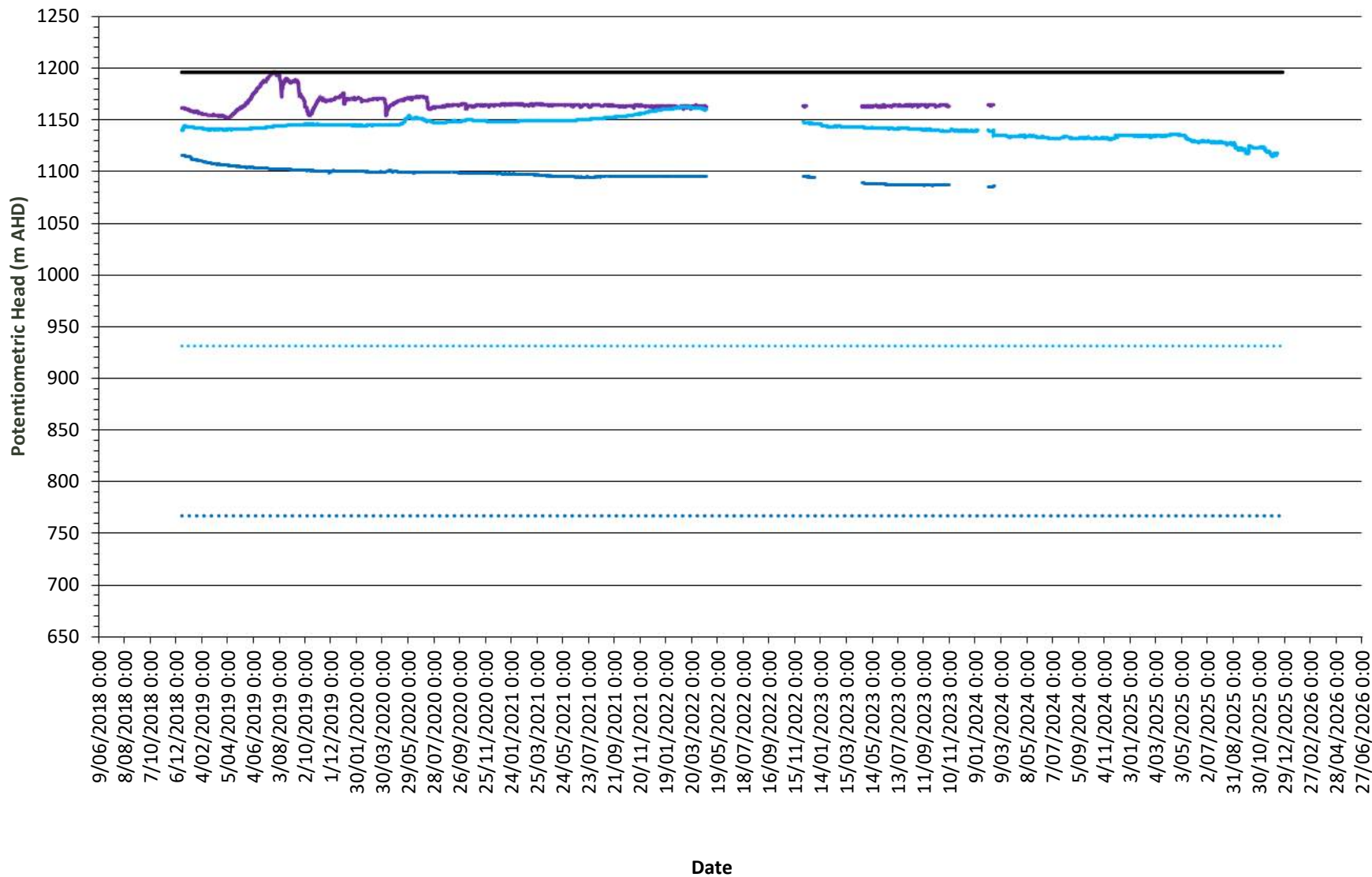


### BH5111 Potentiometric Surface

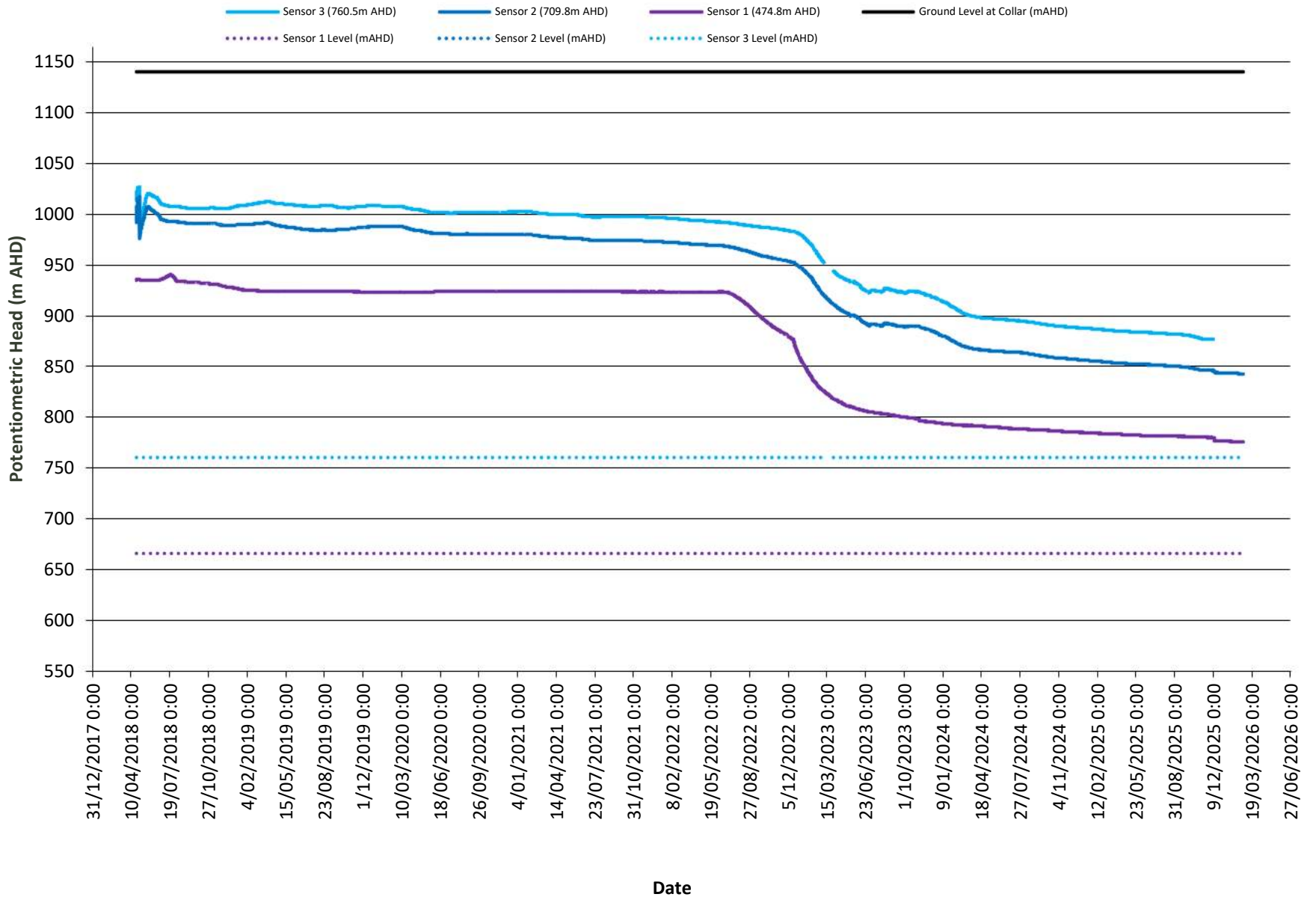


### BH5110 Potentiometric Surface

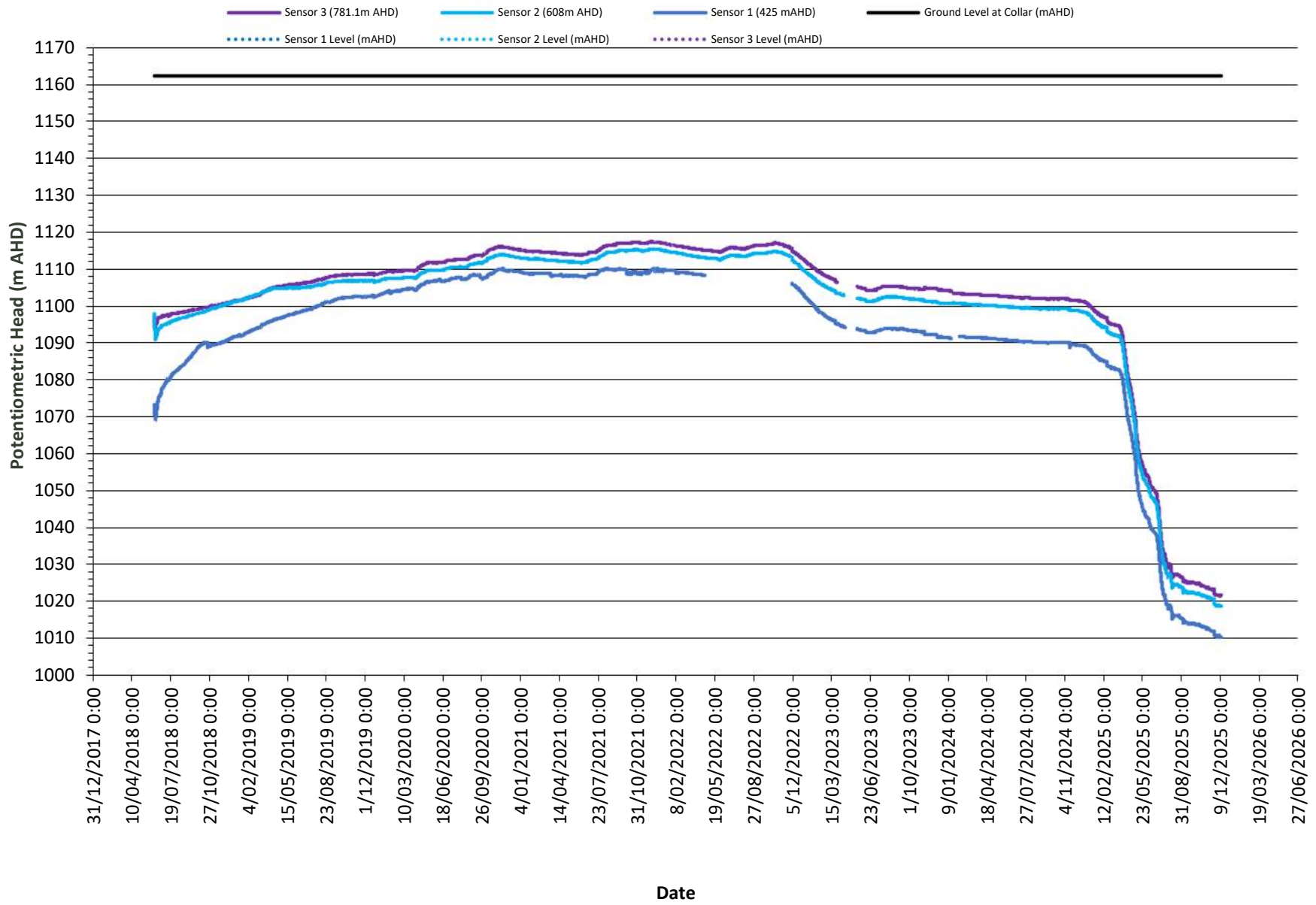
Sensor 3 (931.32 mAHD)      Sensor 2 (767.05 mAHD)      Sensor 1 (524.30 mAHD)      Ground Level at Collar (mAHD)  
Sensor 1 Level (mAHD)      Sensor 2 Level (mAHD)      Sensor 3 Level (mAHD)



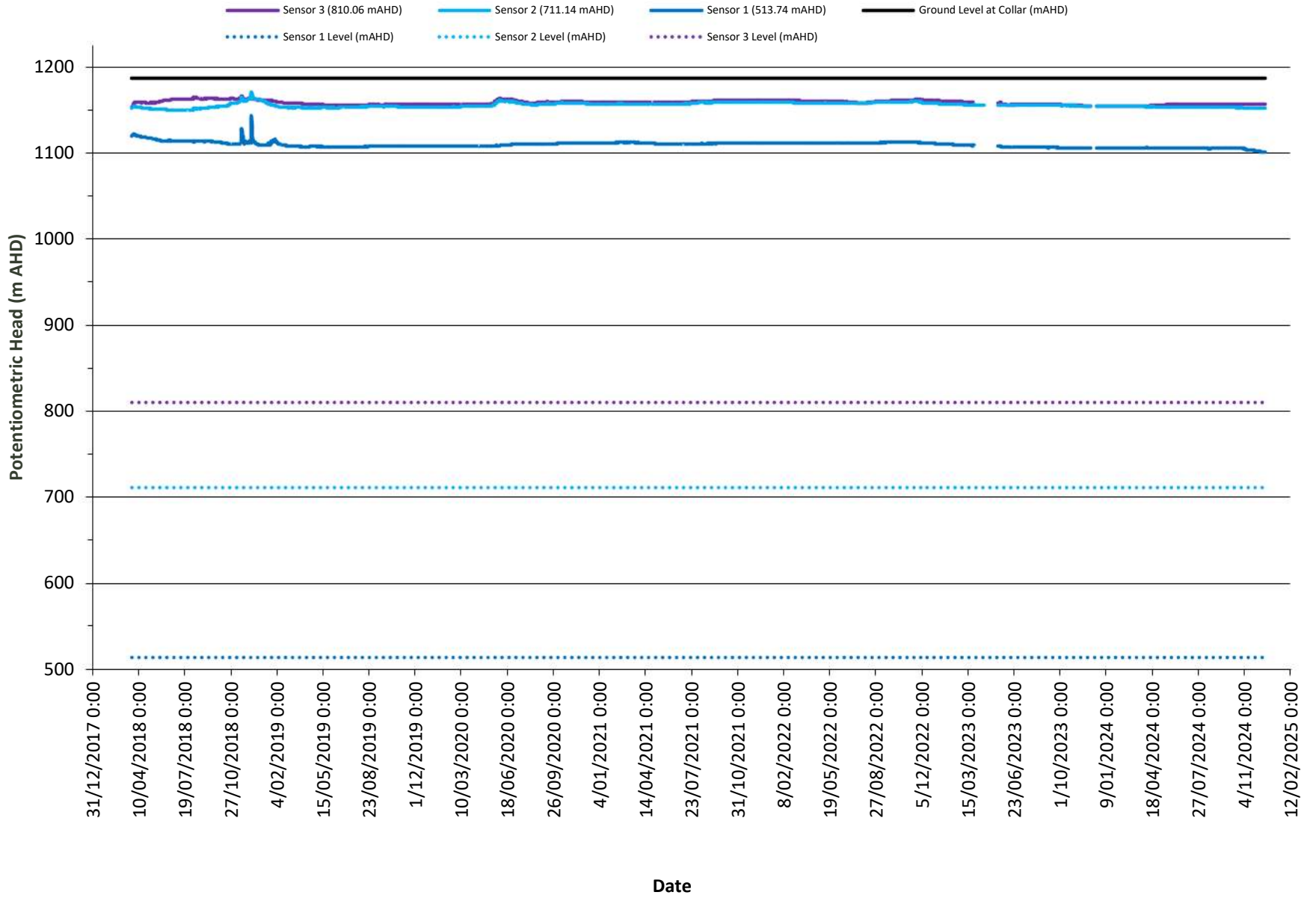
# BH5108 Potentiometric Surface



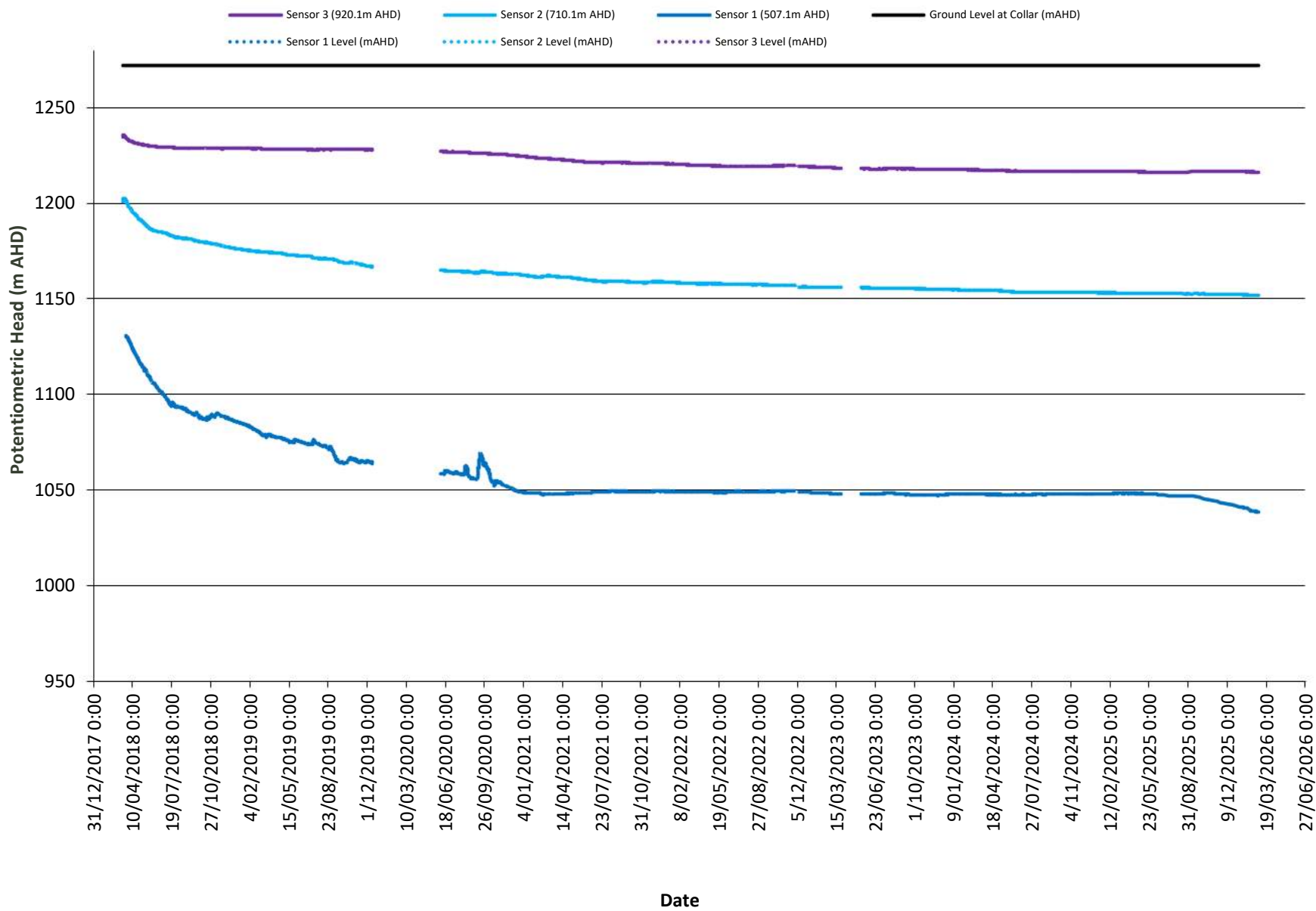
### BH5107 Potentiometric Surface



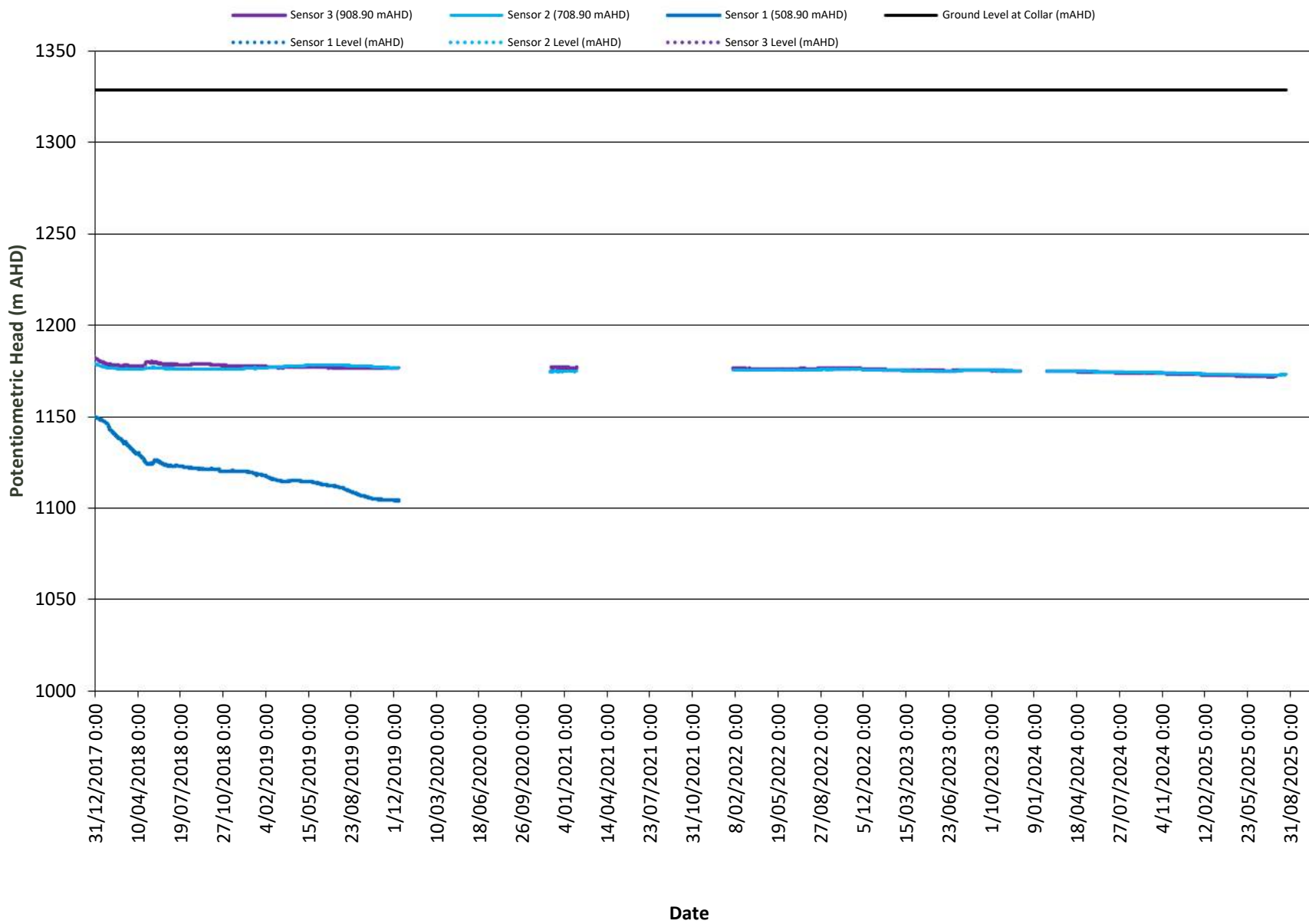
# BH5104A Potentiometric Surface



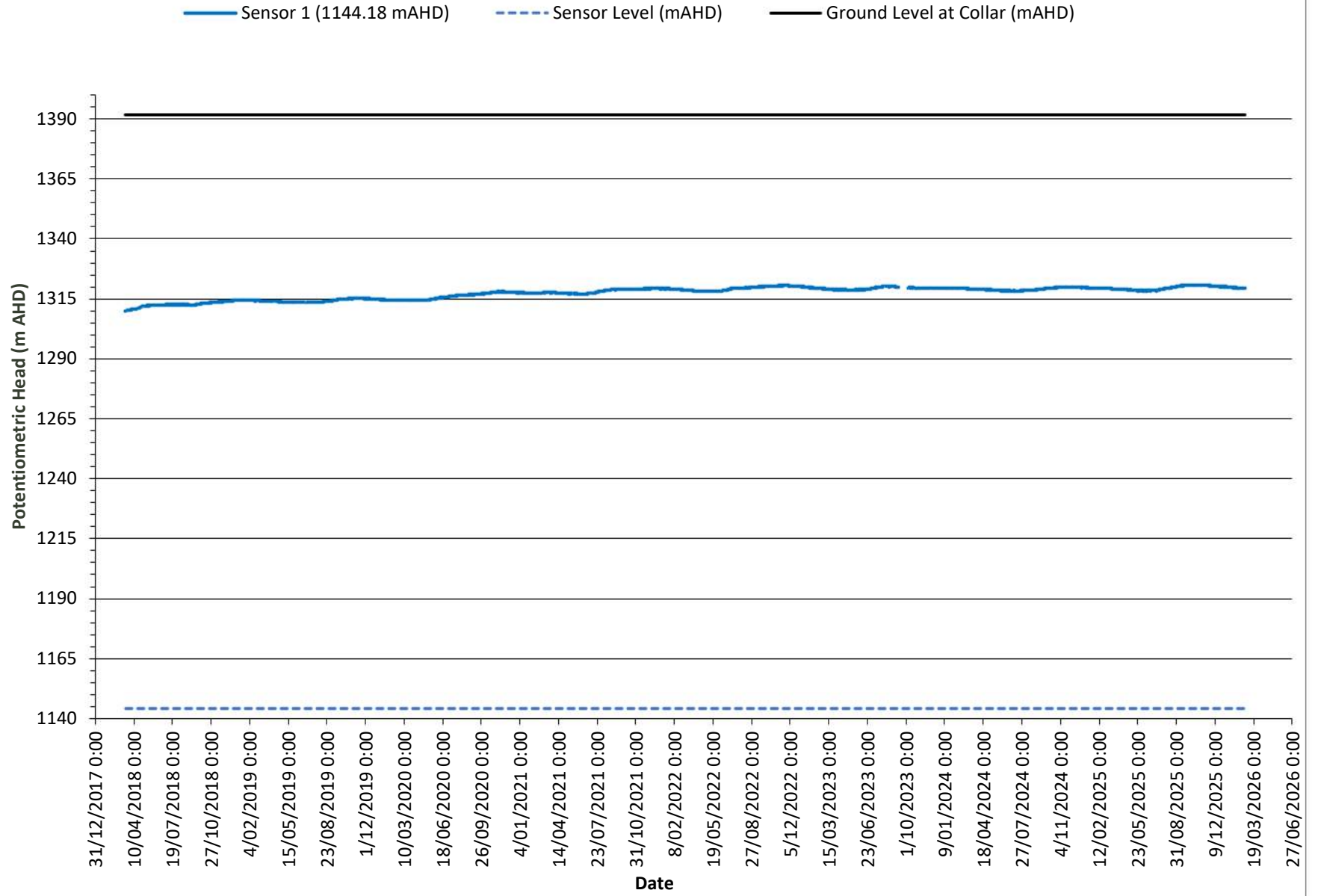
### BH5103 Potentiometric Surface



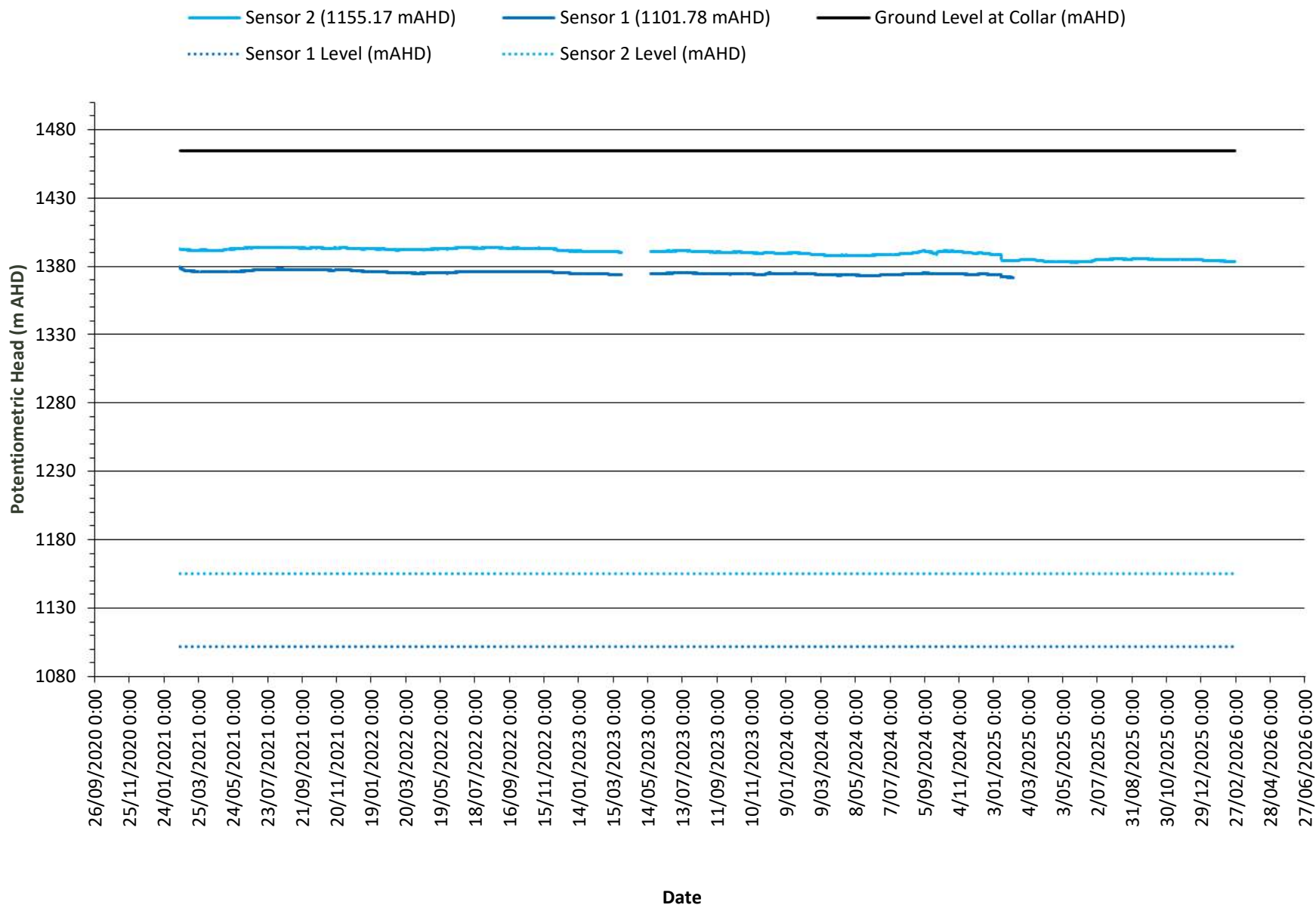
### BH5102 Potentiometric Surface



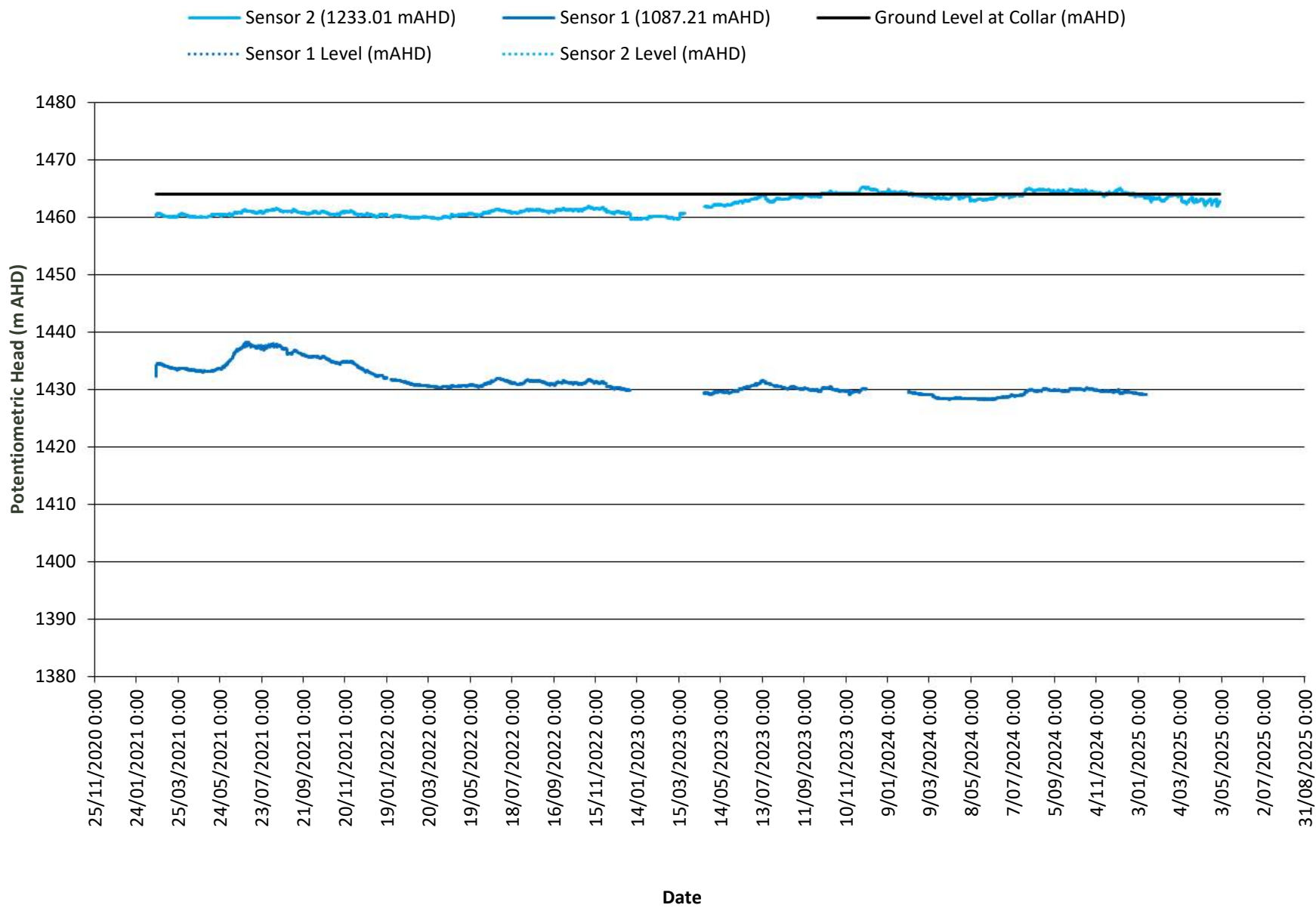
### BH5101A Potentiometric Surface



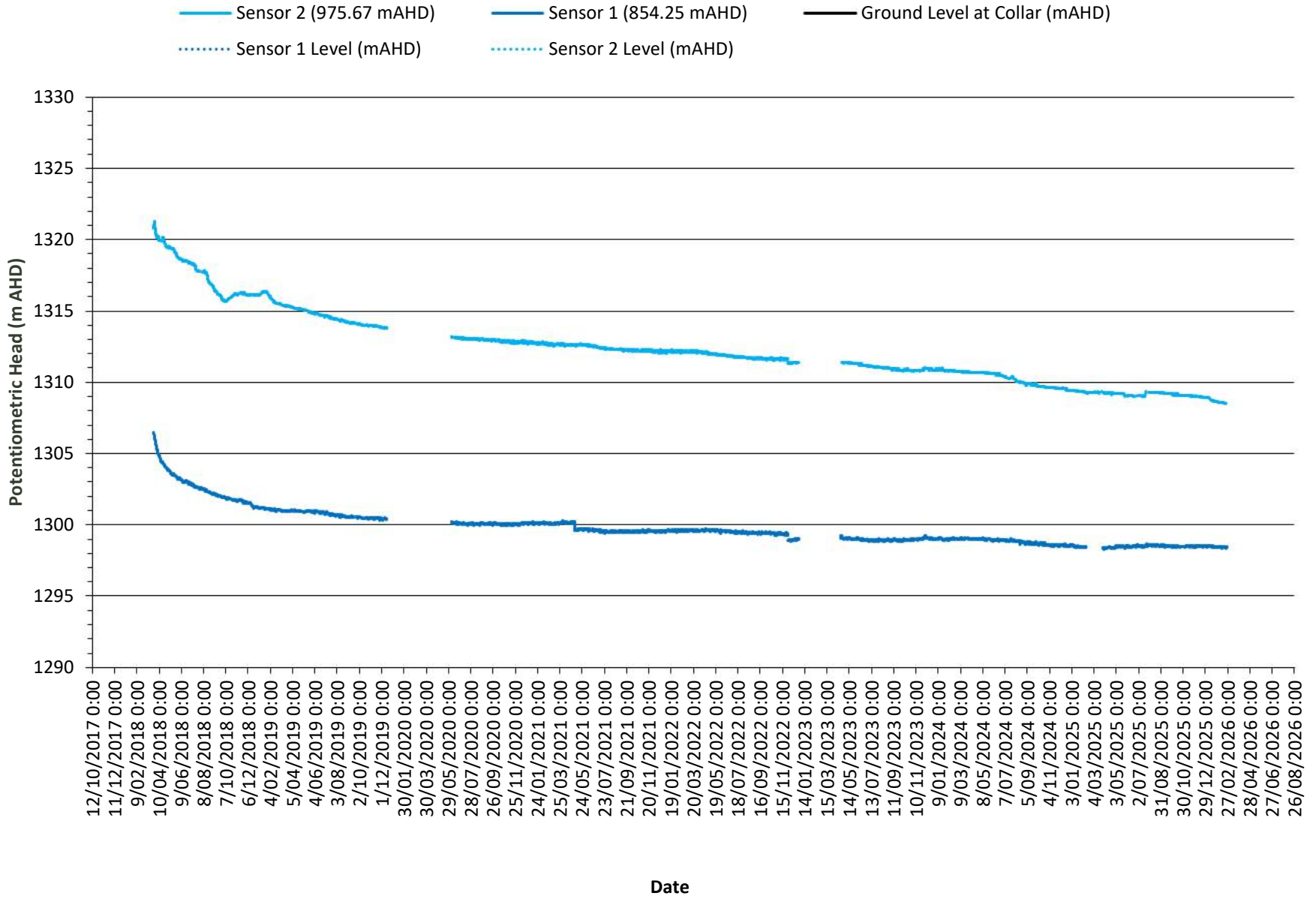
### BH4201 Potentiometric Surface



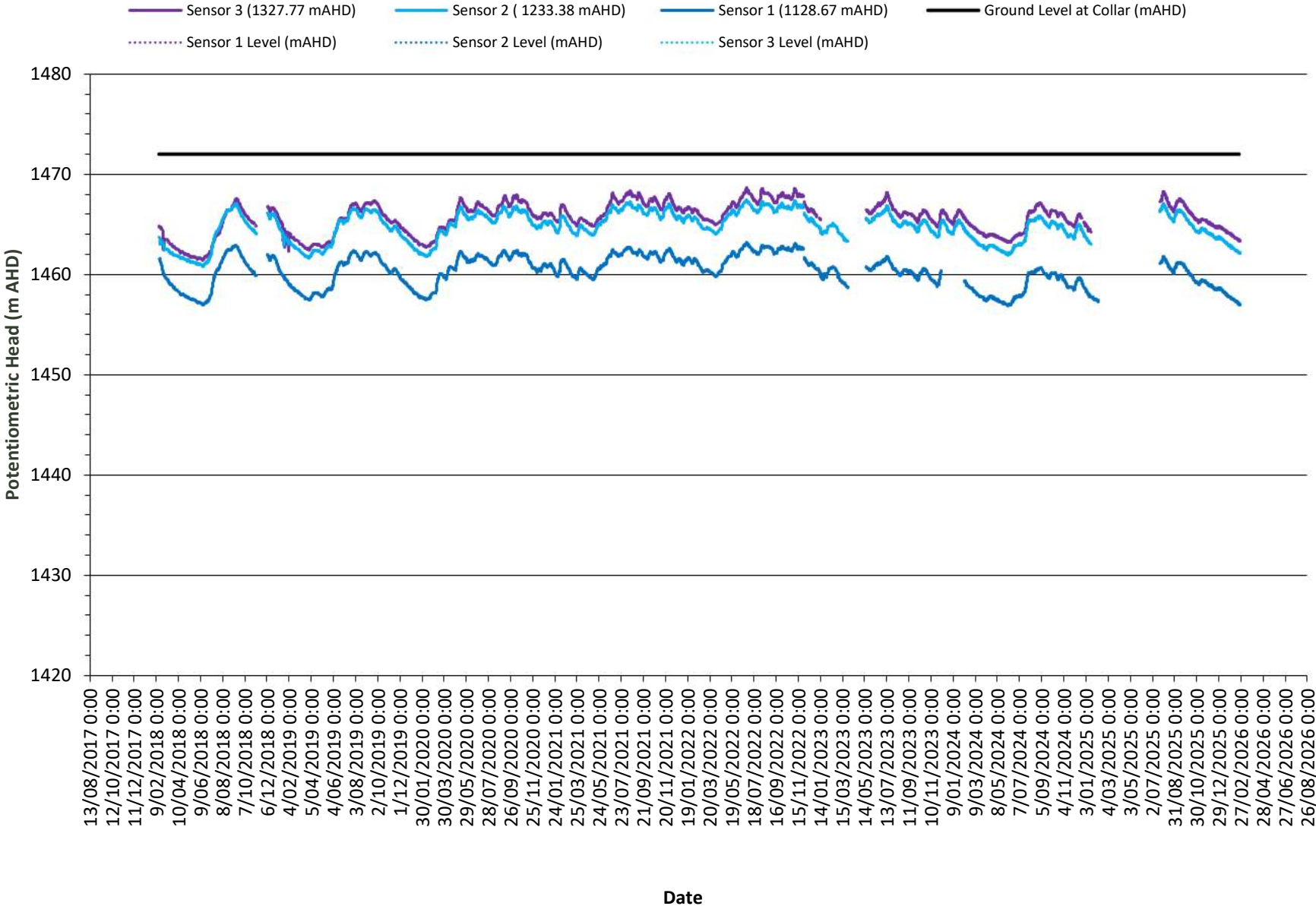
### BH4202 Potentiometric Surface



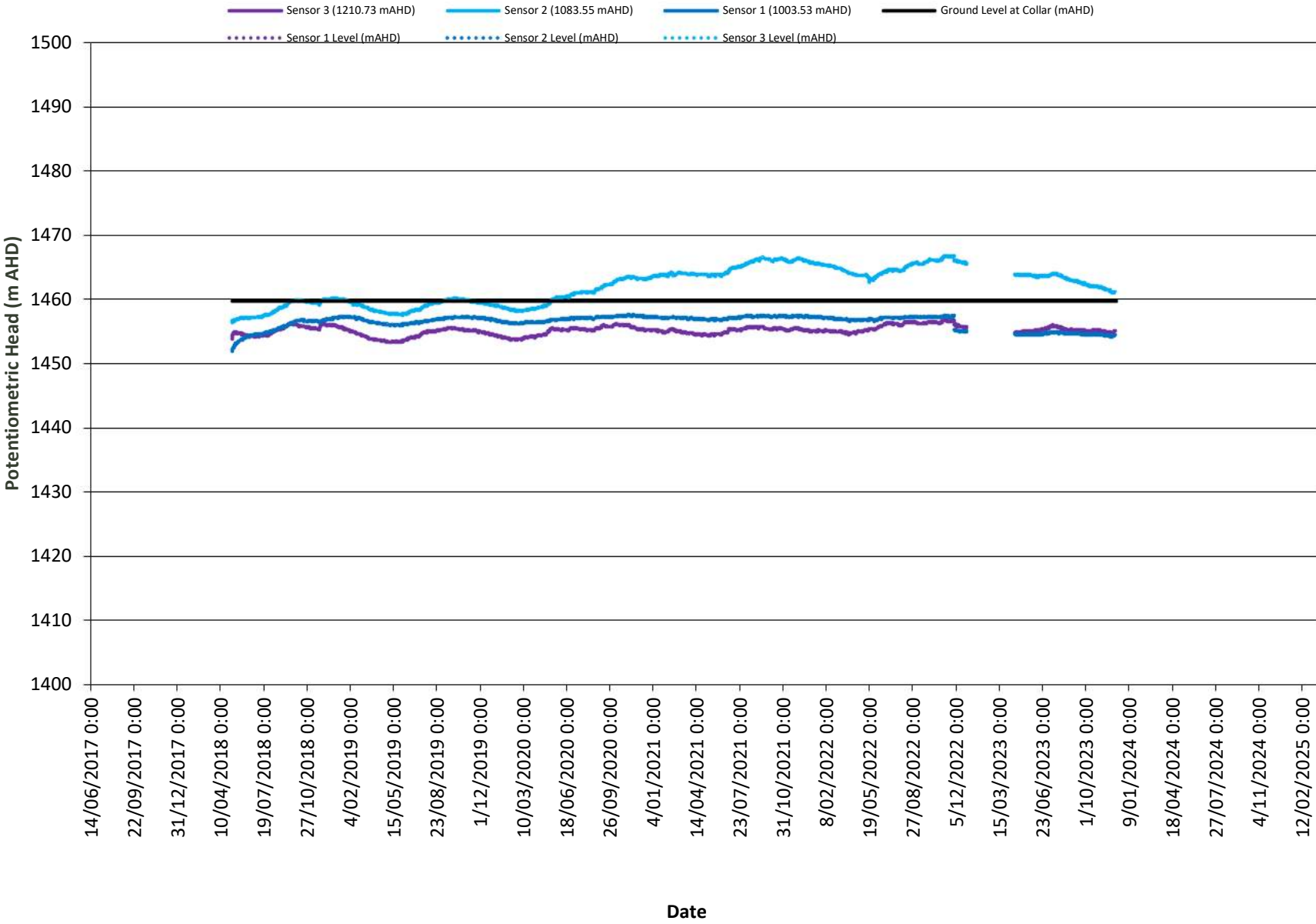
### BH4104 Potentiometric Surface



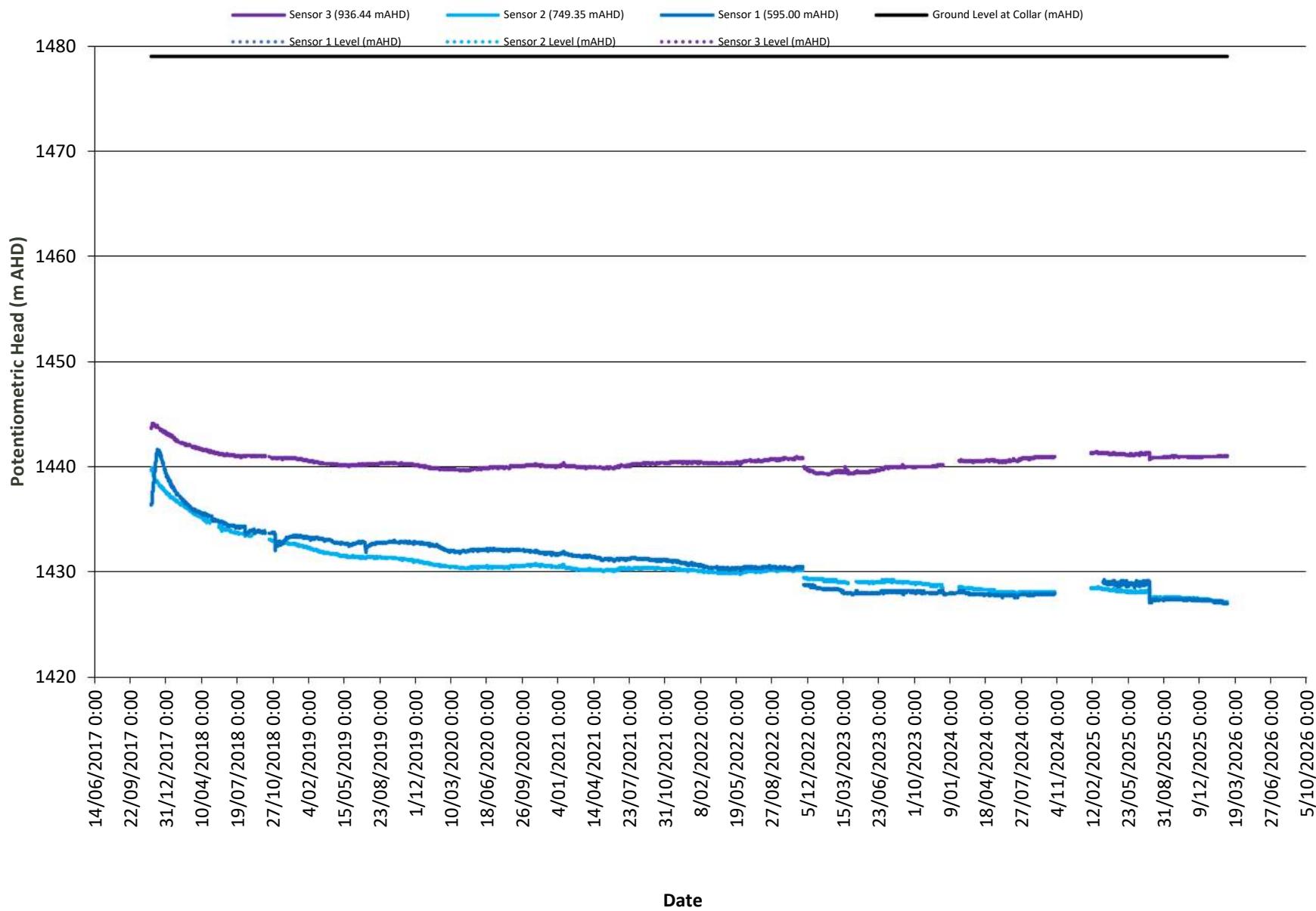
### BH4103 Potentiometric Surface



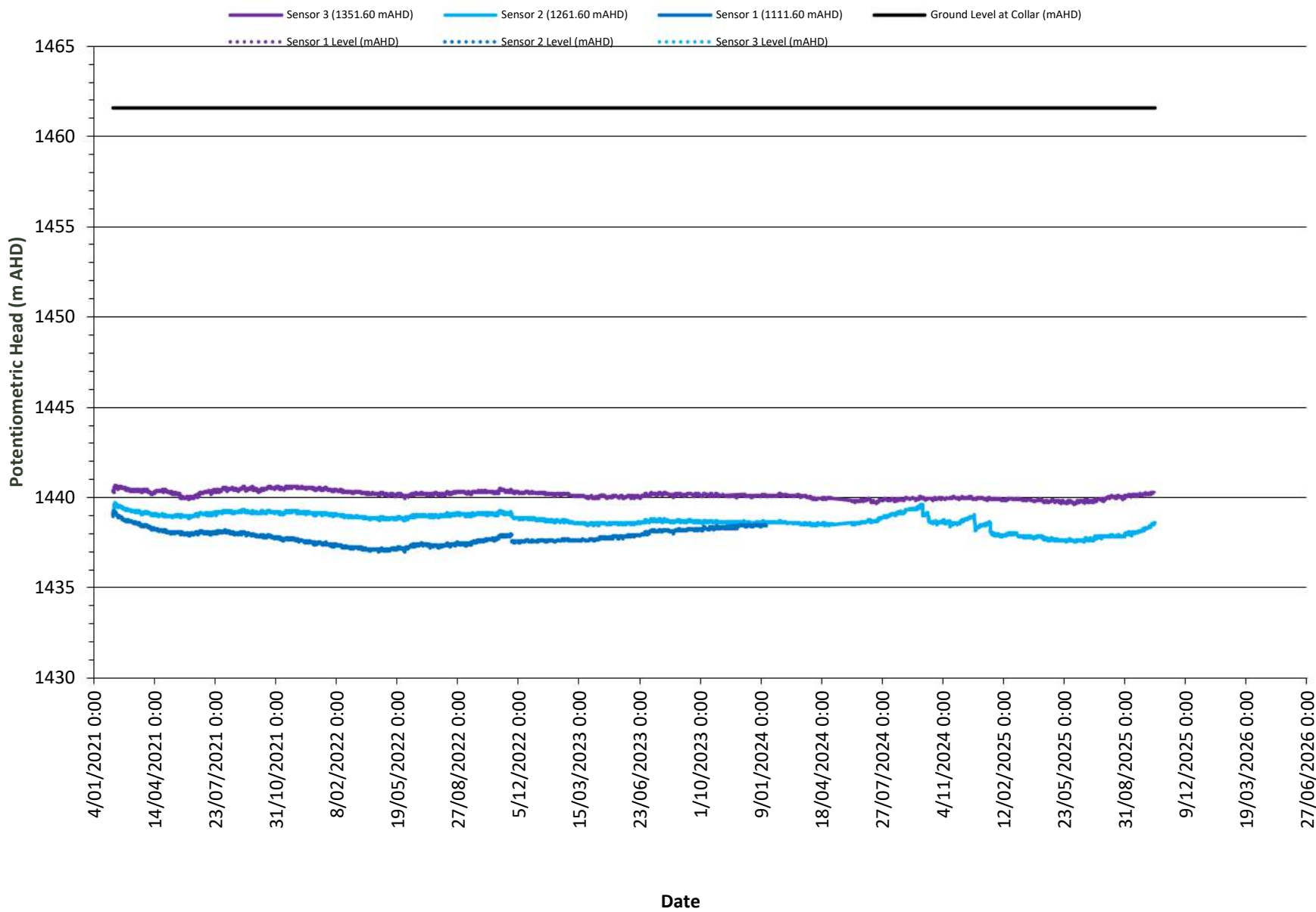
### BH4102 Potentiometric Surface



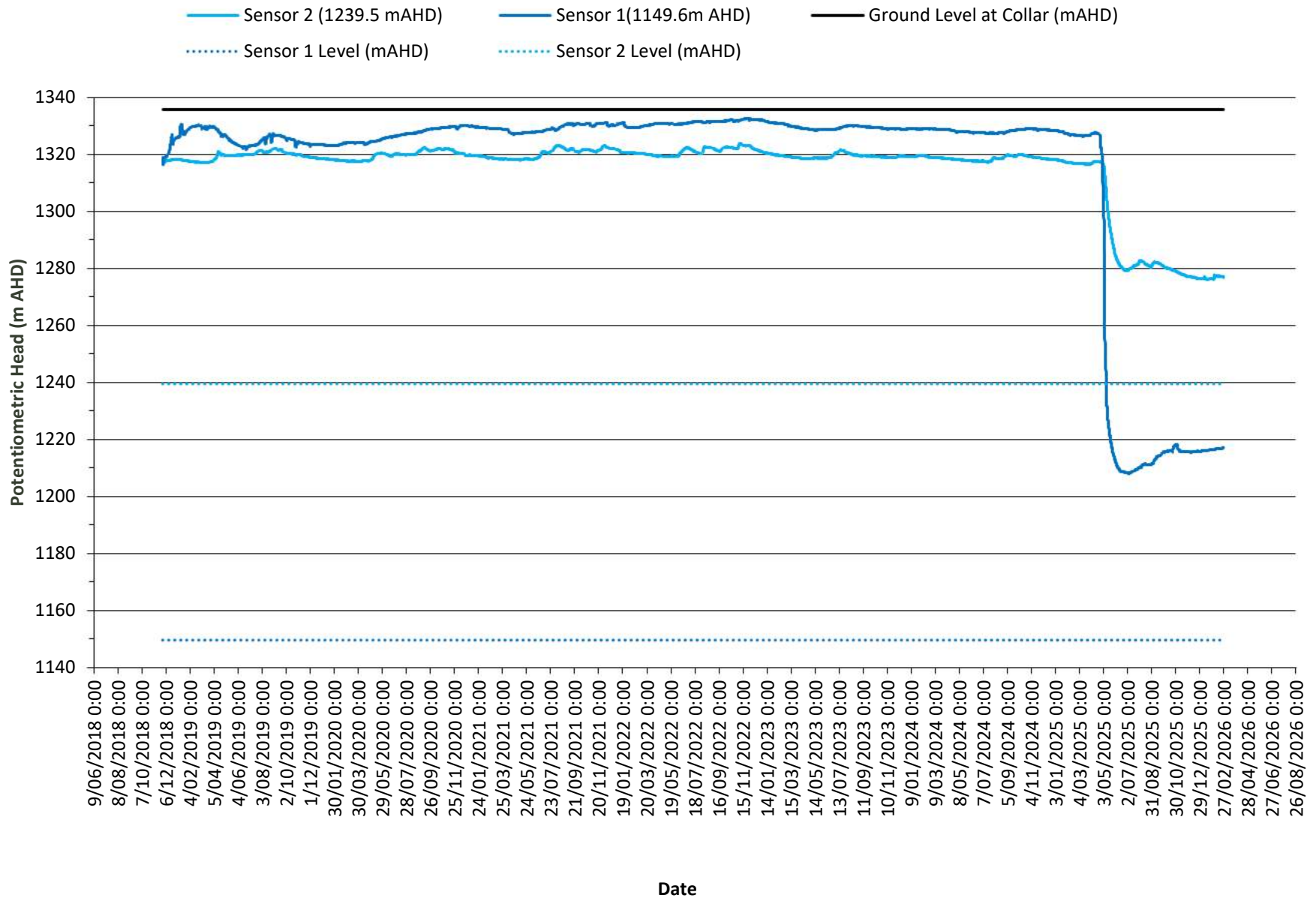
### BH4101 Potentiometric Surface



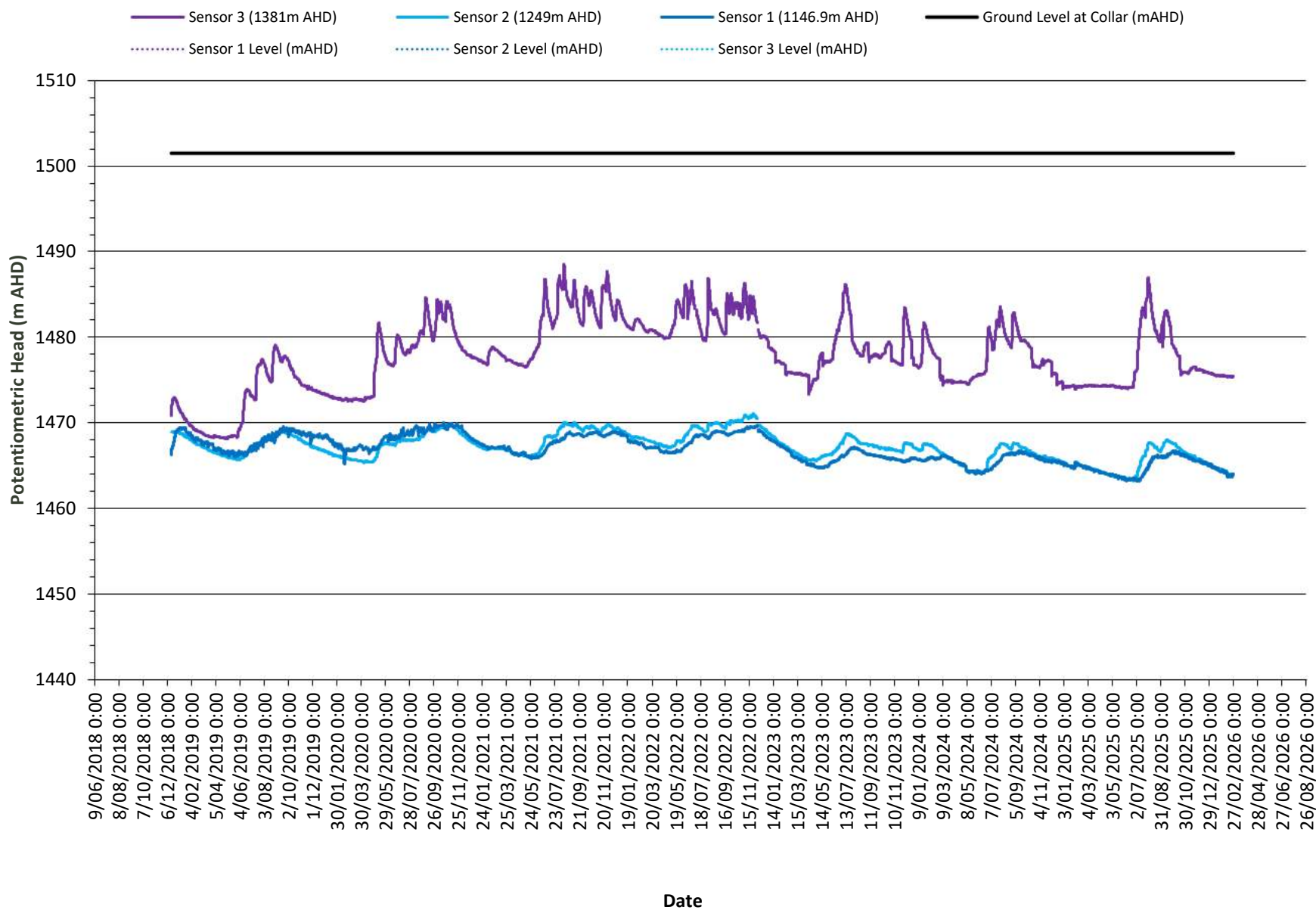
### BH3203 Potentiometric Surface



### BH3113 Potentiometric Surface



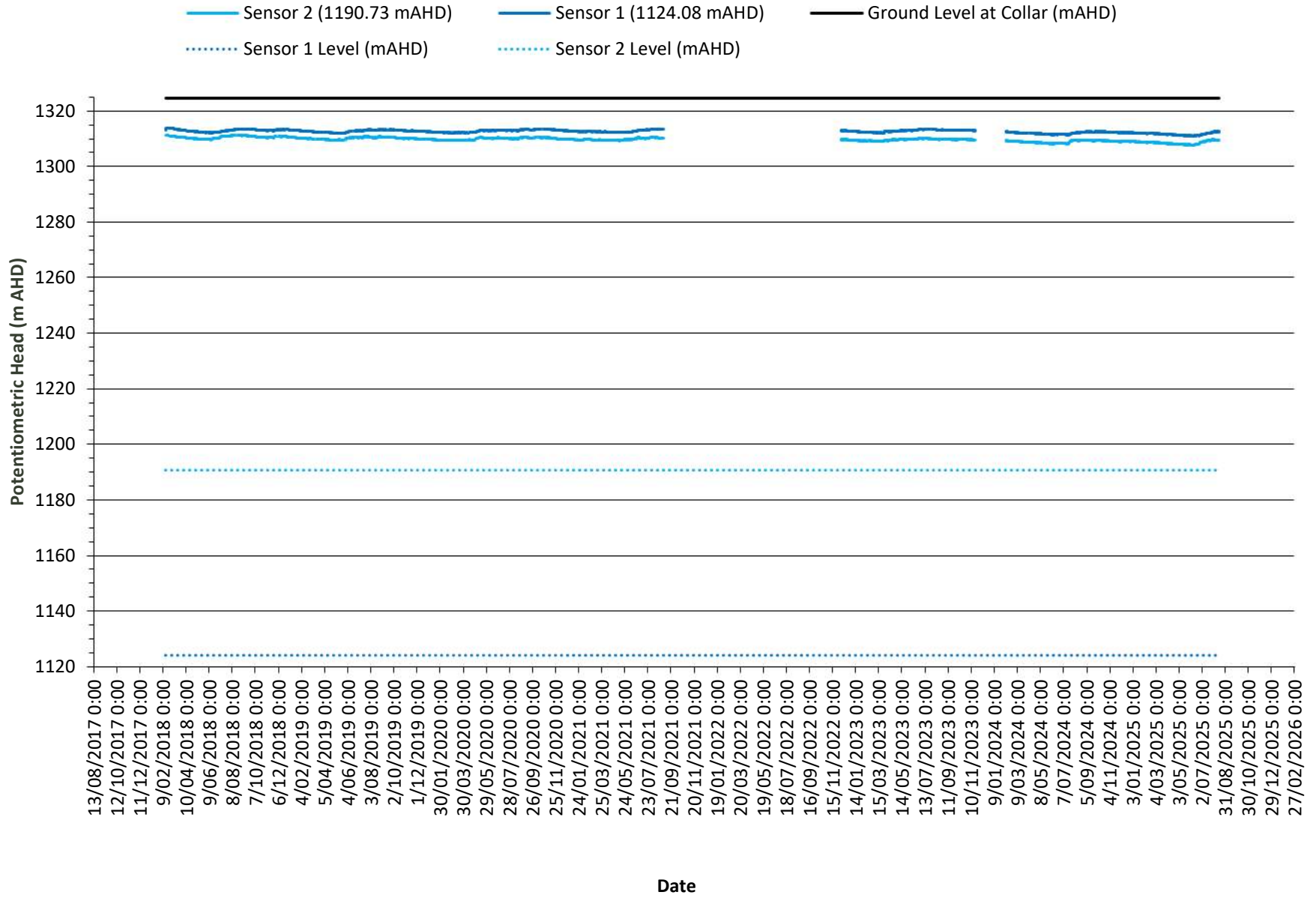
### BH3111 Potentiometric Surface



### BH3108 Potentiometric Surface



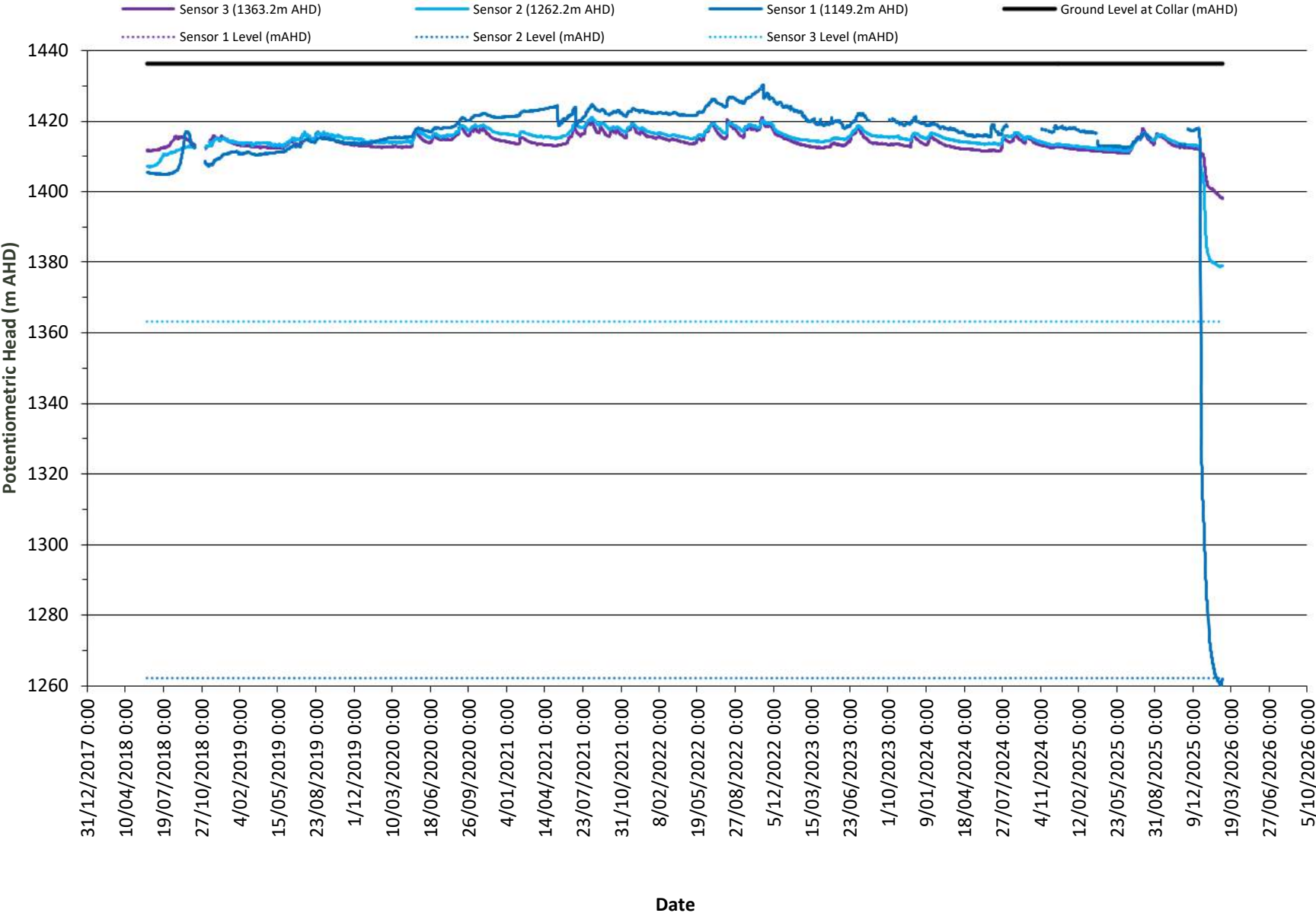
### BH3107A Potentiometric Surface



### BH3106 Potentiometric Surface



# BH3104 Groundwater Elevation



# BH2102 Potentiometric Surface

