



1 November 2024 – 1 February 2025 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"> • Submissions Report dated October 2018 and 4 October information provided to the Department on 17 October 2018, 19 November 2018 and 23 January 2019; • Modification Report dated 6 June 2019 and associated Submissions Report dated 2 September 2019 and determination dated 4 October 2019; and • Modification Report dated 17 October 2019 and associated Submissions Report dated 10 January 2020.
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"> • Preferred Infrastructure Report and Response to Submissions – Snowy 2.0 Main Works, dated February 2020; and • 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.
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 2024 and 1 February 2025.

1.3 Project Progress

Progress across the different work fronts for this reporting period is detailed in Table 1 and shown in Figures 1 to 5.

Table 1: Construction progress update

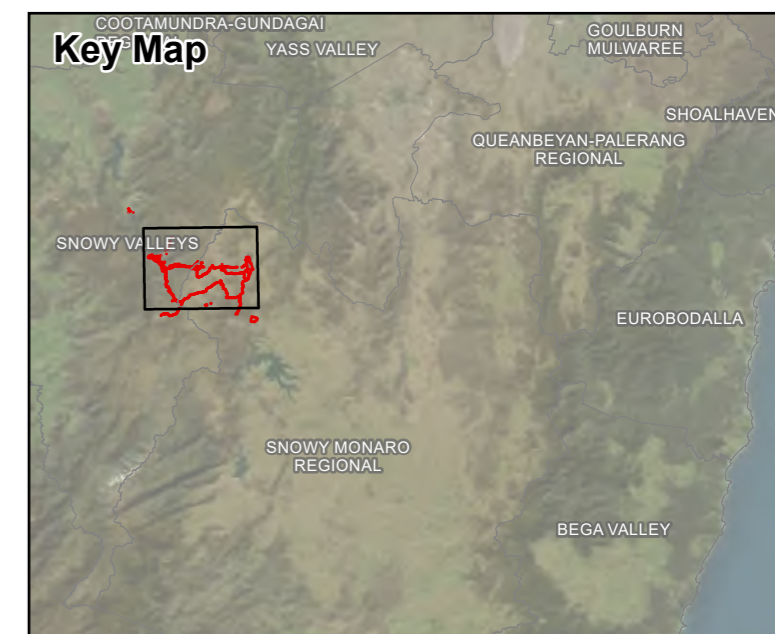
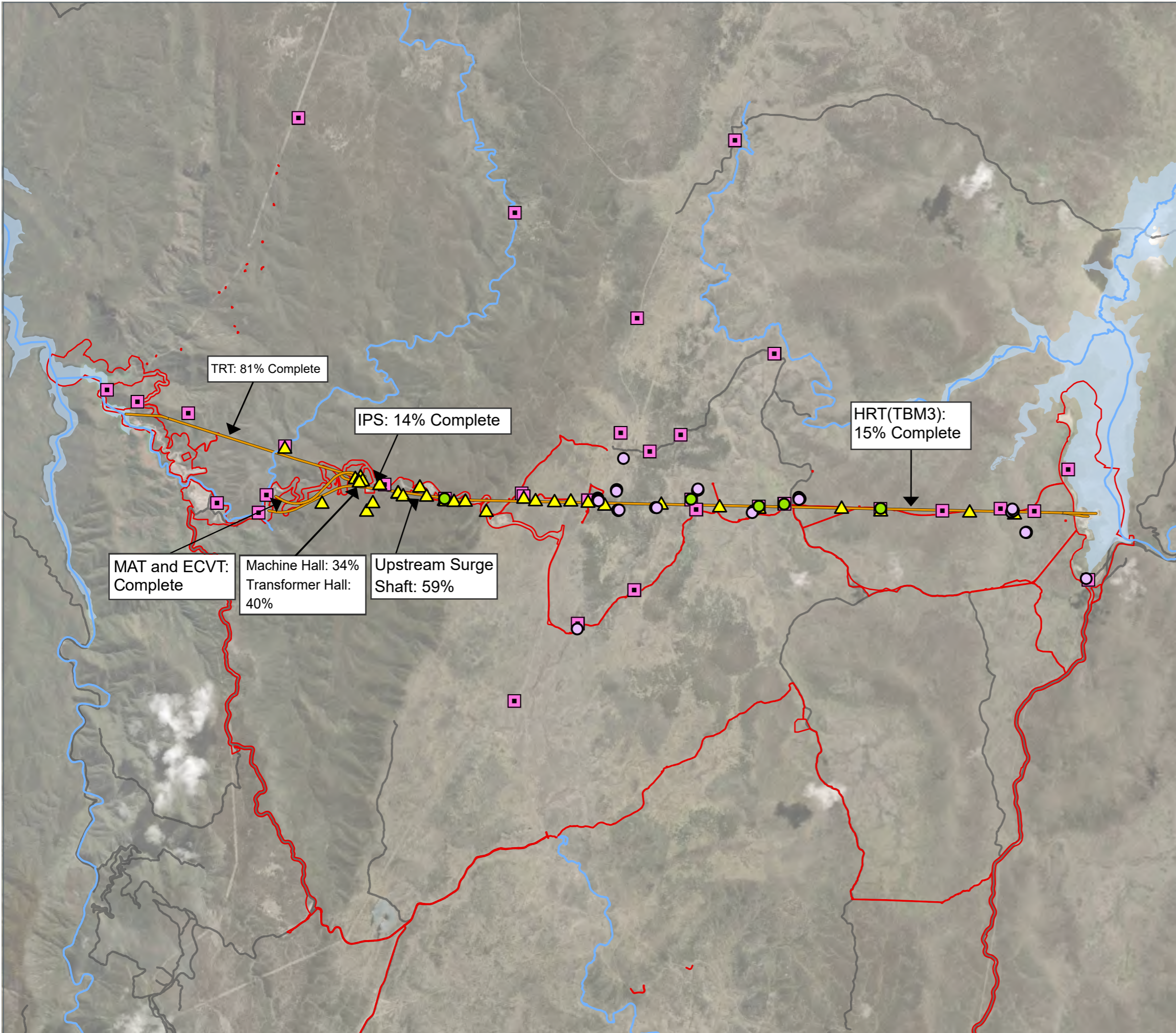
Work Area	Work Front	Status
The Plateau	Headrace Tunnel (TBM3)	Tunnel is 15% complete.
Marica	Inclined Pressure Shaft (TBM1)	Tunnel is 14% complete.
	Upstream Surge Shaft	Shaft is 59% complete
	Cavern	Machine Hall 34% and Transformer Hall is 40% complete.
Lobs Hole	Tailrace Tunnel (TBM2.2)	Tunnel is 81% complete.
	MAT	Complete
	ECVT	Complete

Snowy 2.0 Groundwater Monitoring - Construction Update

November 2024 - February 2025

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 6 to 8. Climate data has been reviewed over a 12-month span to highlight trends and cycles leading up to the reporting period.

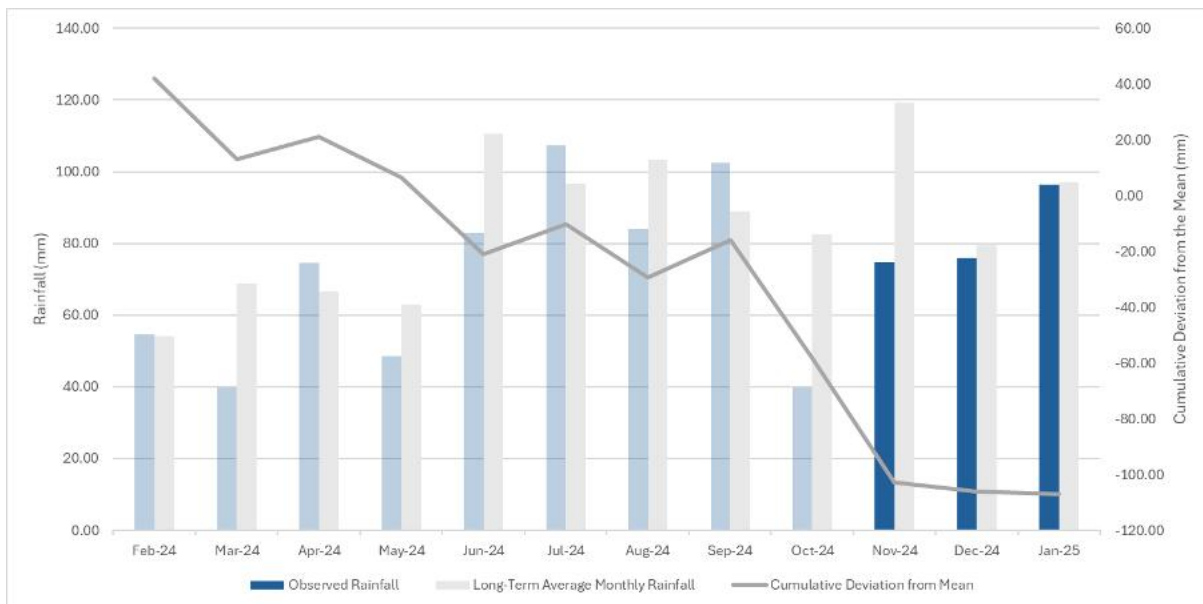


Figure 6: Monthly rainfall and cumulative deviation from mean rainfall at Tantangara weather station

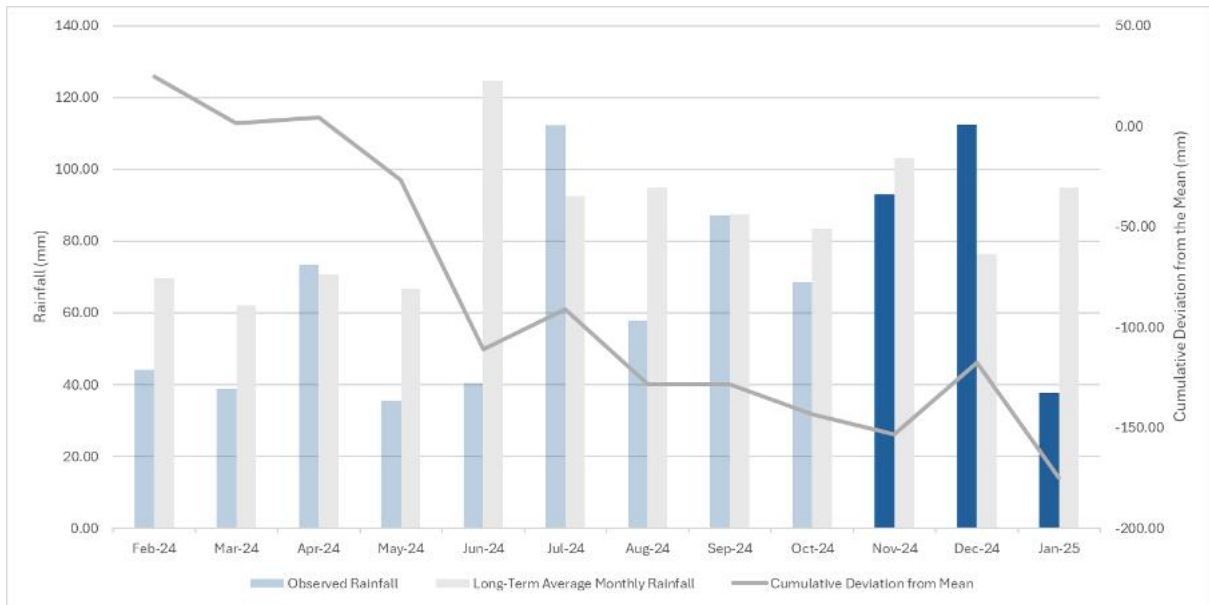


Figure 7: Monthly rainfall and cumulative deviation from mean rainfall at Lobs Hole weather station

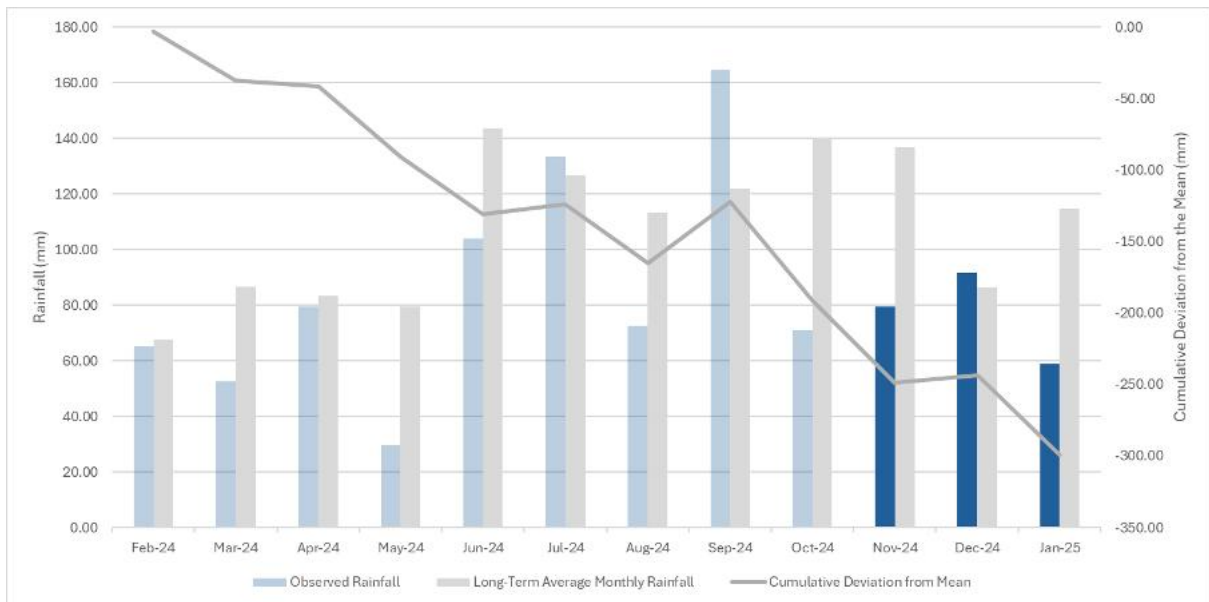


Figure 8: Monthly rainfall and cumulative deviation from mean rainfall at Cabramurra weather station (BoM: 072161)

2.2 Drainage and Catchments

The Project area’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 2025, the active groundwater monitoring sites included:

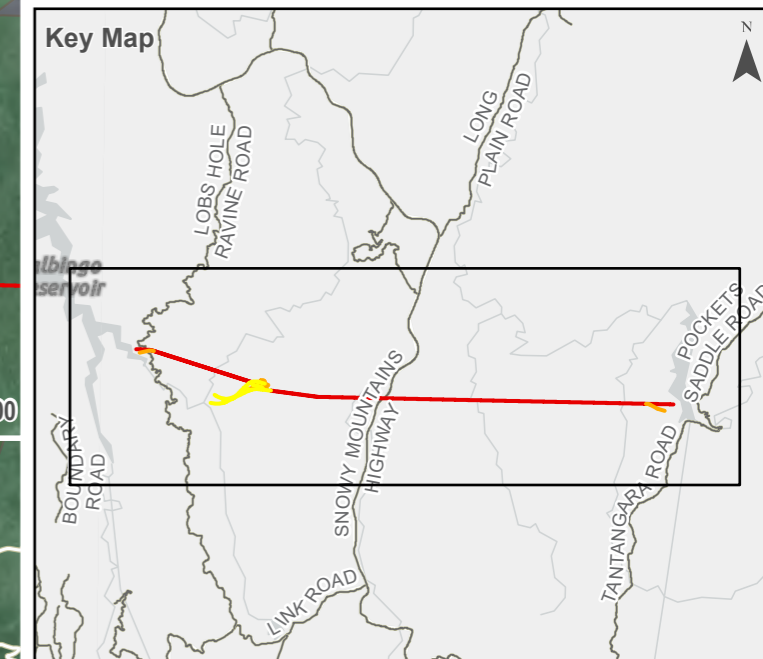
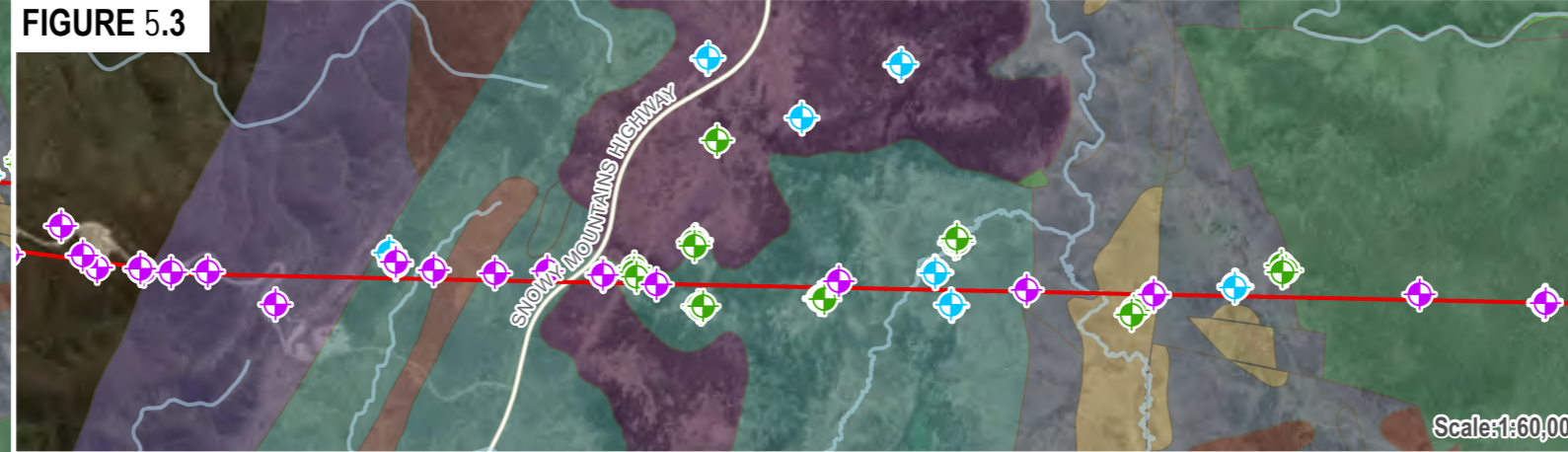
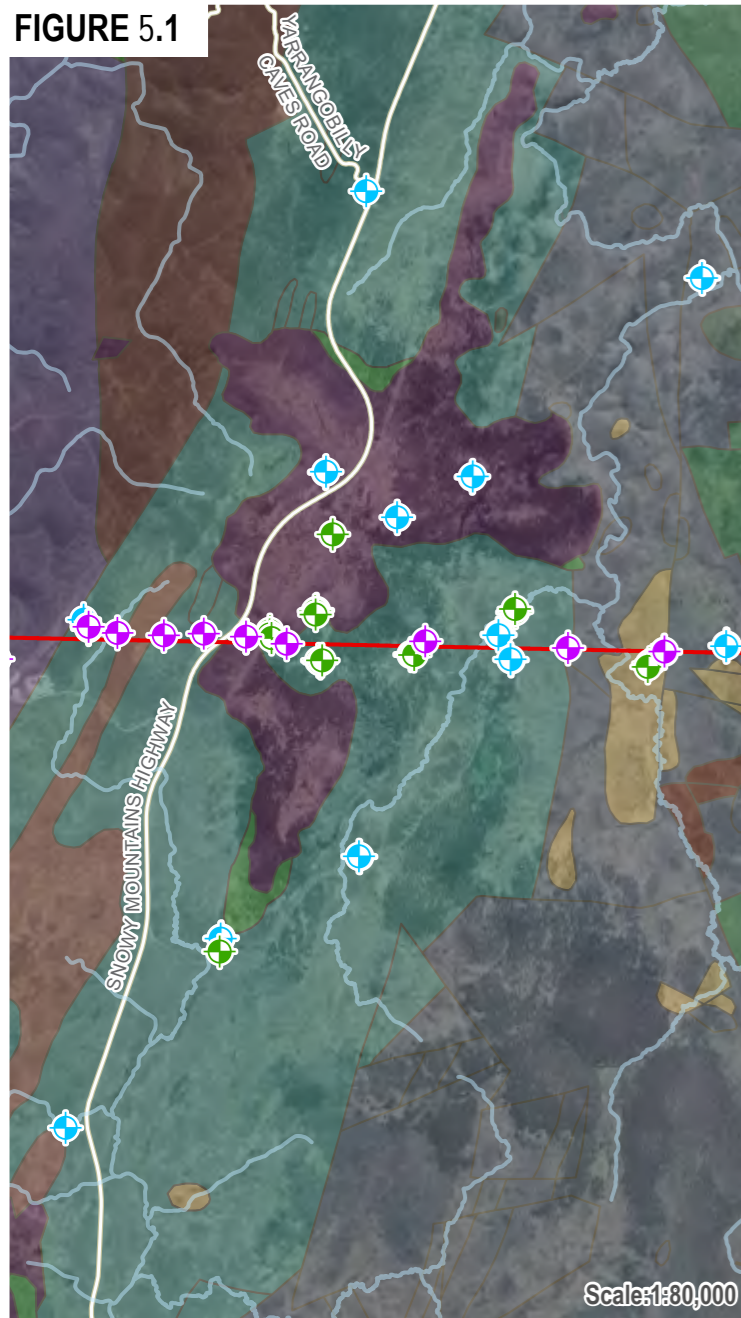
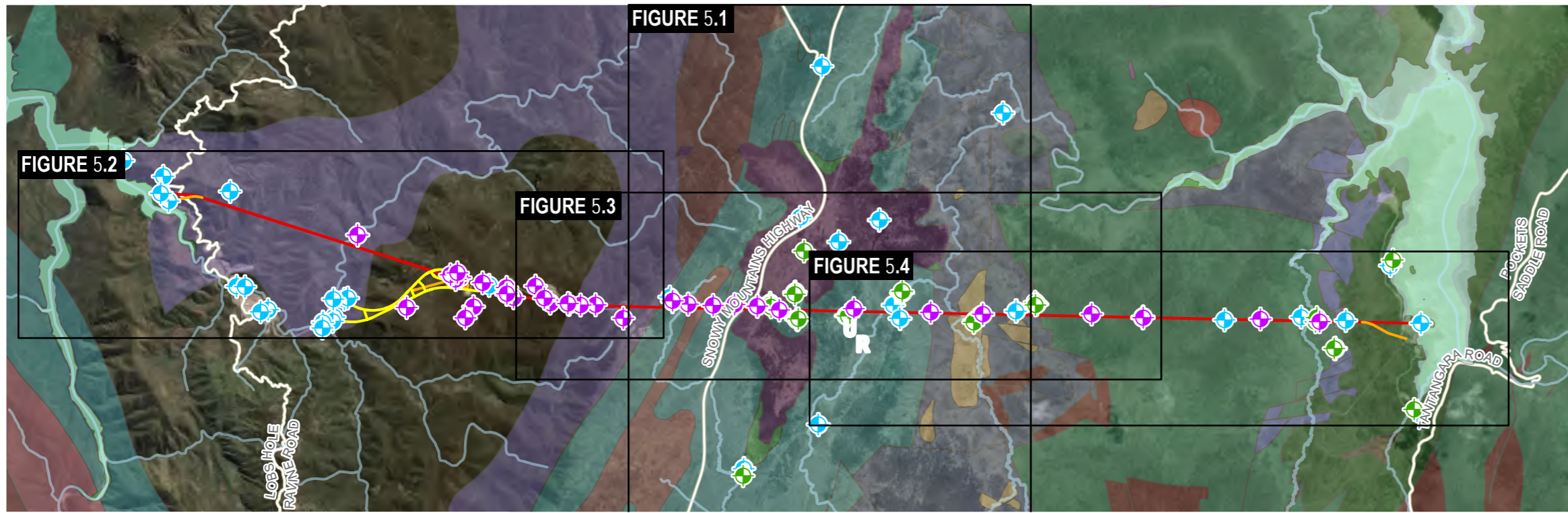
- 41 conventional groundwater monitoring bores. At some locations multiple monitoring bores are installed next to one another to varying depths (nested bores). These bores are suitable for both water level and water quality sampling.
- 3 test production bores used historically to assess indicative groundwater 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

Monitoring Network		Bogy Plain Suite - intrusion
VWP	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		
Surface Geology		
Abercrombie Formation	Alluvial sediments	
Anthropogenic stored water, pondage, reservoirs, canals	Bogy Plain Suite - cumulo-phyrlic textured intrusion	



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Date: 18/06/2025

Spatial Reference: GDA2020 MGA Zone 55

Groundwater Monitoring Network

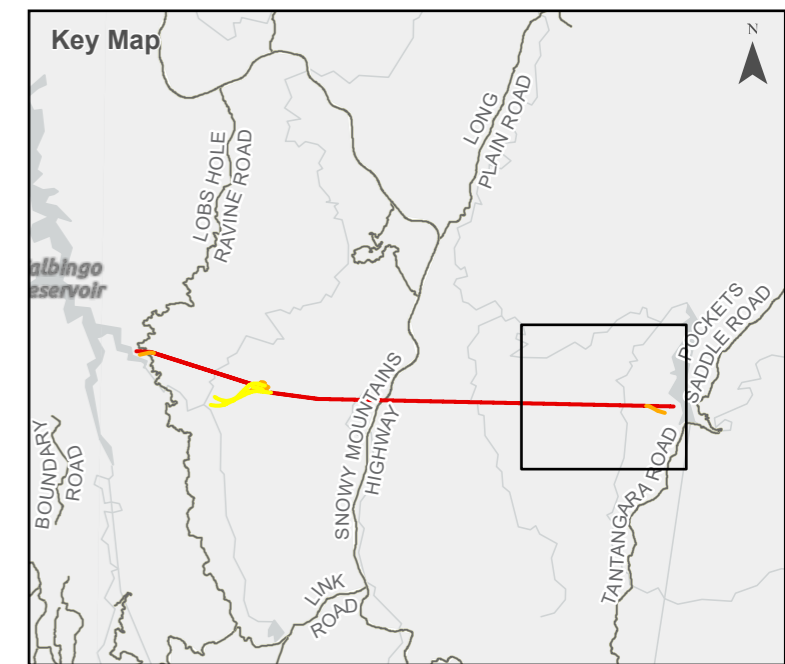
Figure 6 - Tantangara and Zinc Ridge

Legend

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

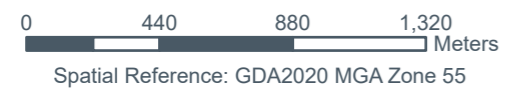
Surface Geology

- 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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Date: 18/06/2025

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Groundwater Monitoring Network

Figure 7 - Goandra

Legend

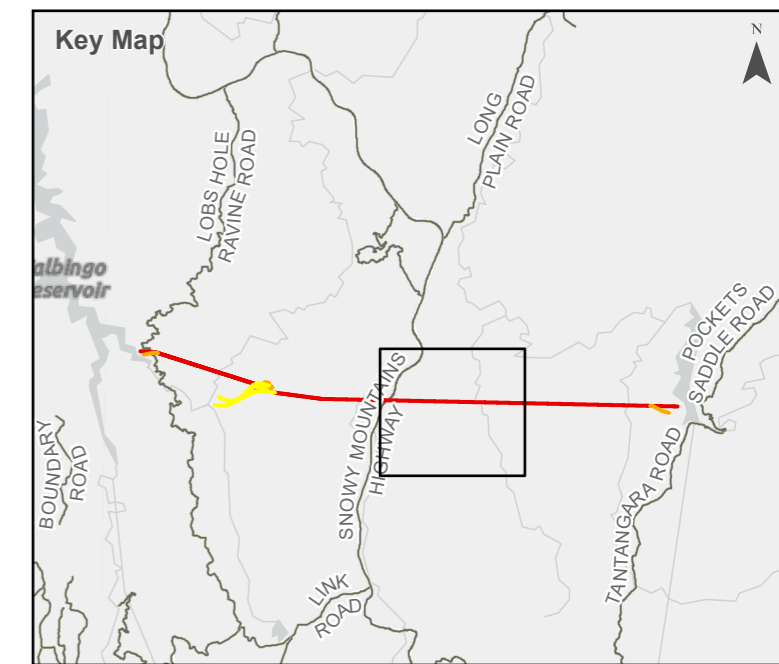
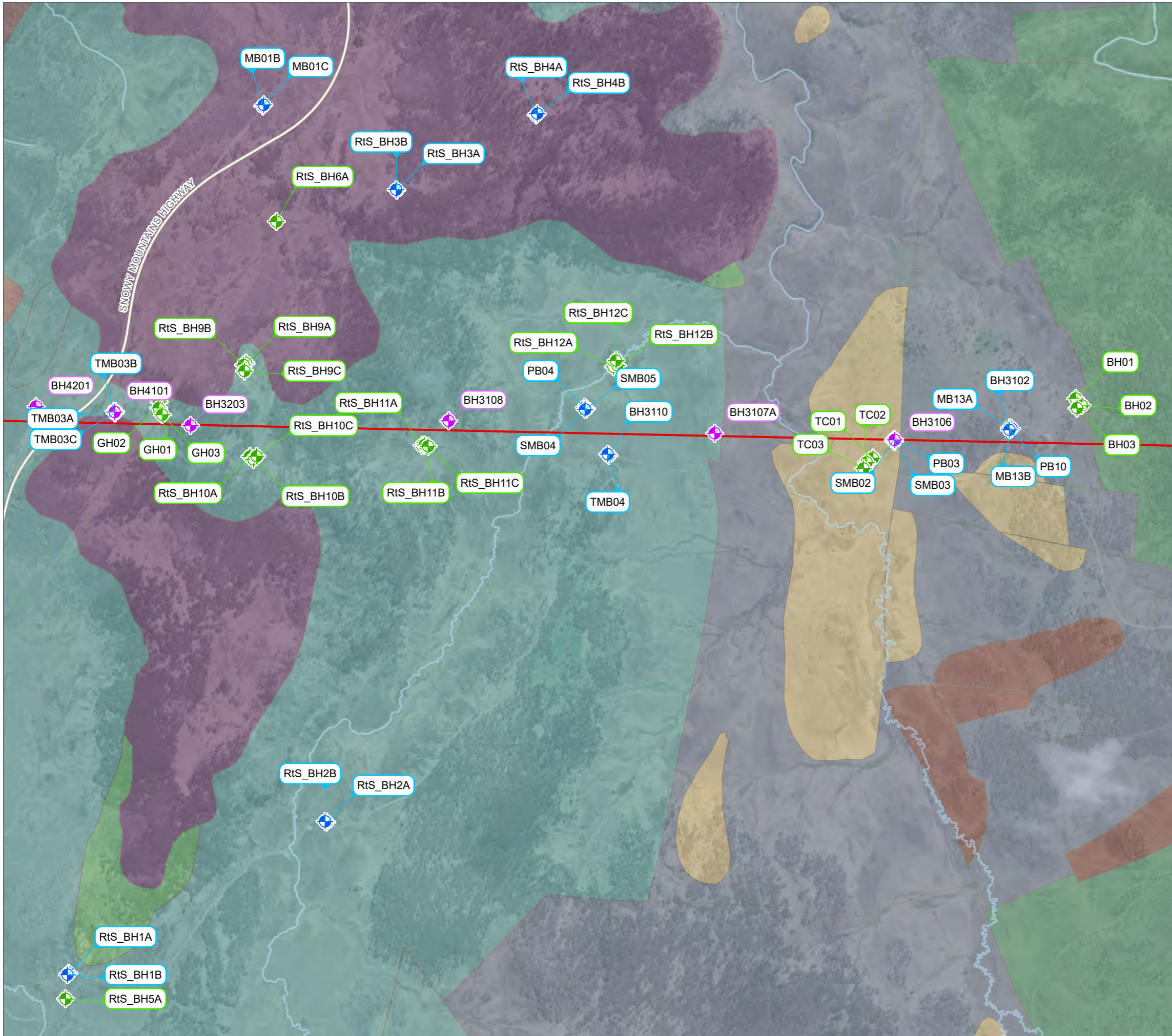
- Hydraulic Tunnels
- Major Road
- Watercourse

Monitoring Network

- WVPs
- Shallow Bog Piezometers
- Open Stand pipes

Surface Geology

- Abercrombie Formation
- Alluvial sediments
- Boggy Plain Suite - intrusion
- Cabramurra Basalt
- Goandra Volcanics
- Goobarragandra Volcanics
- Shaw Hill Gabbro
- Tantangara Formation
- Temperance Formation



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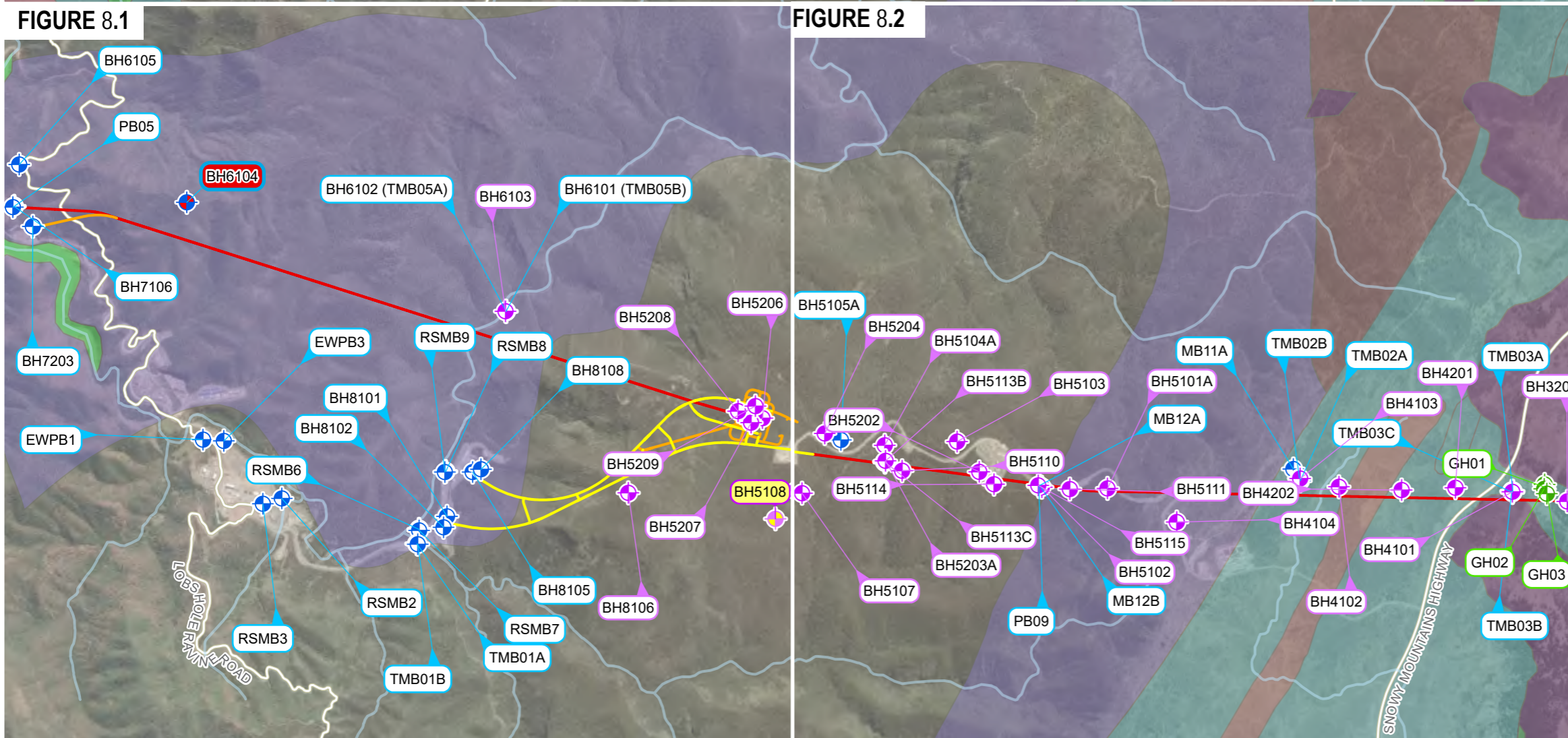
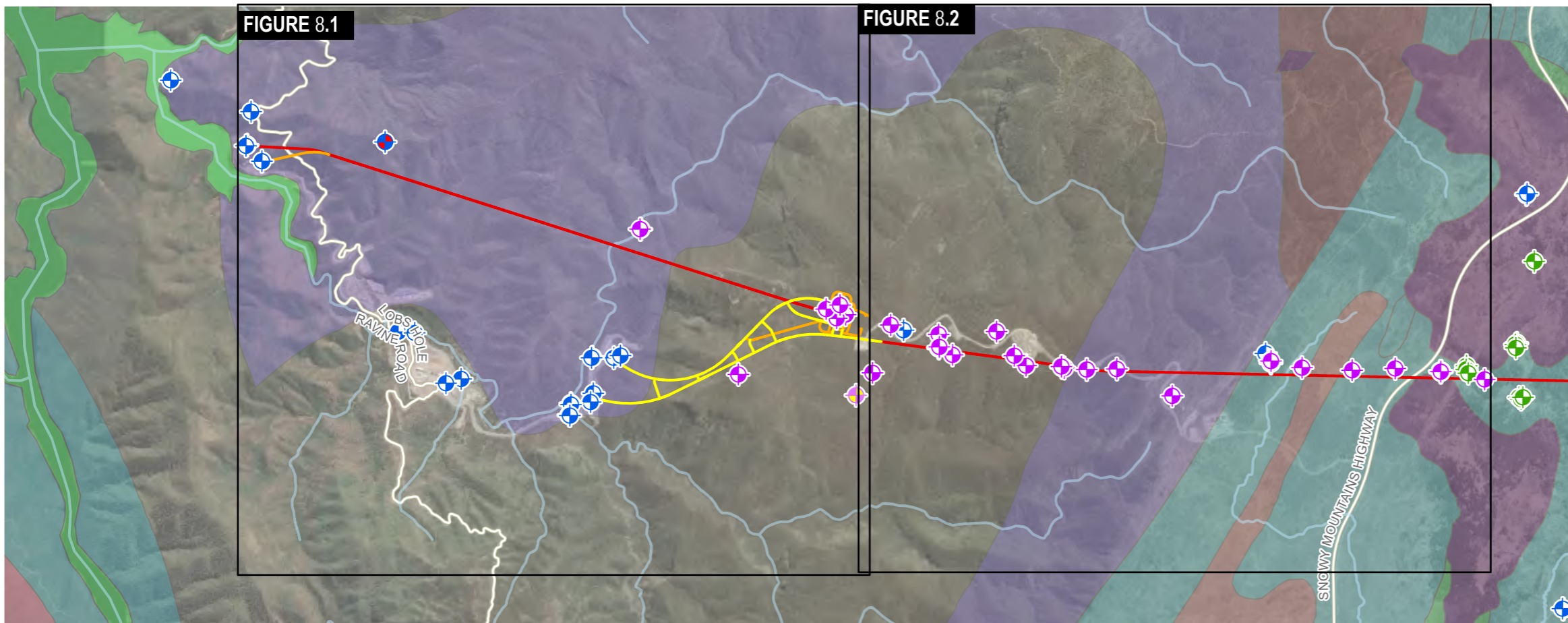


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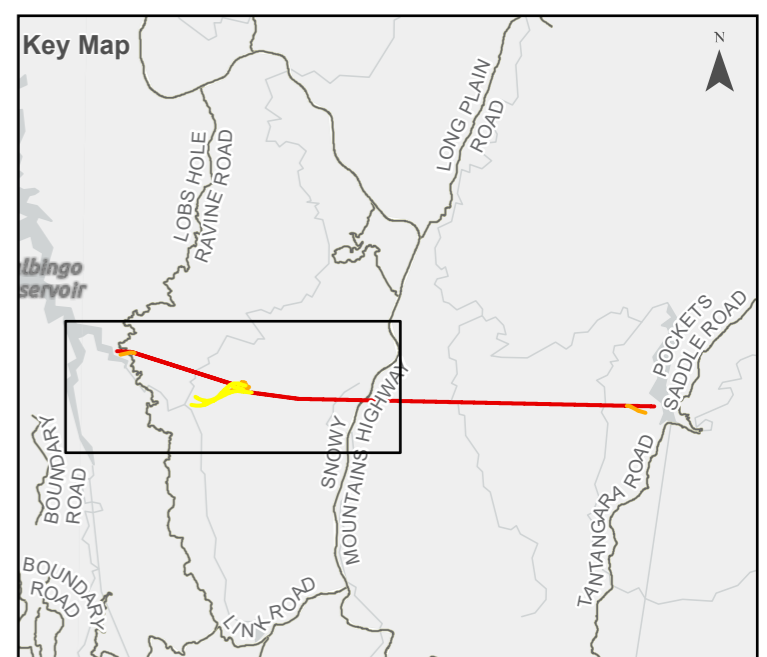
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Groundwater Monitoring Network

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

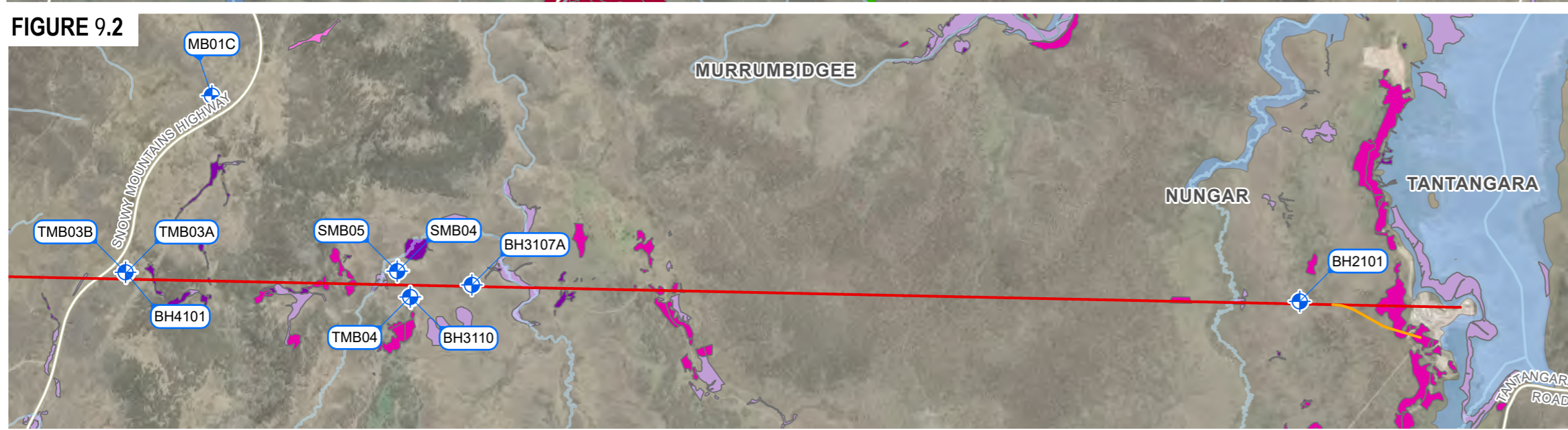
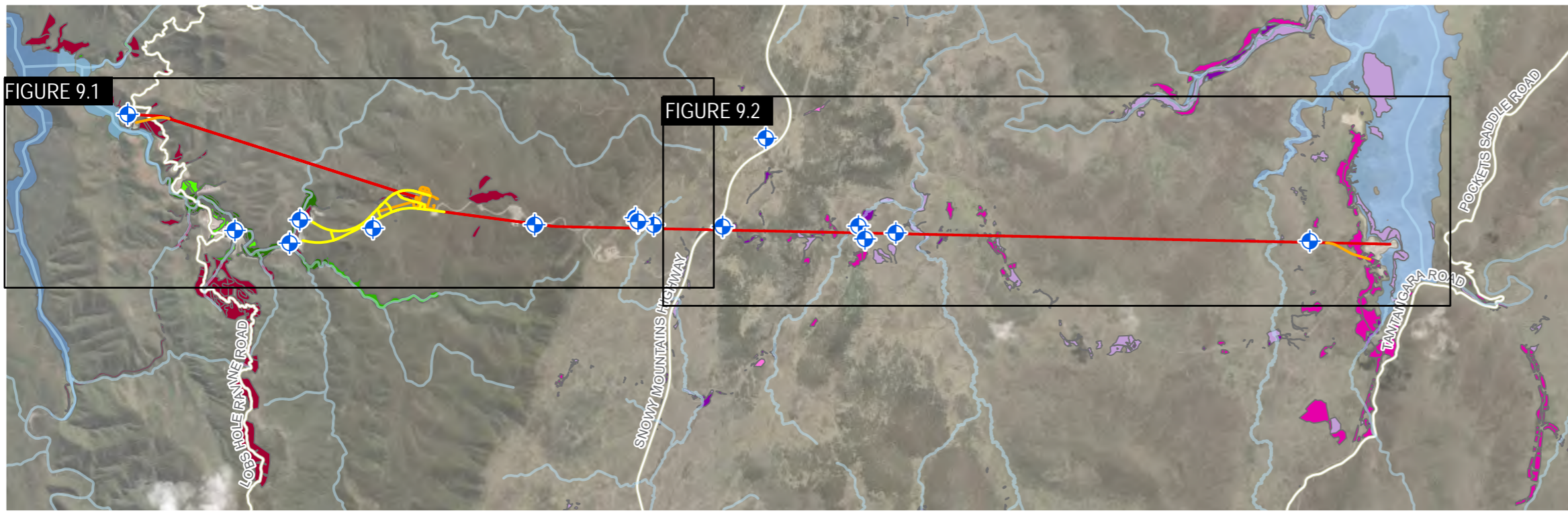


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Groundwater Monitoring Network

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

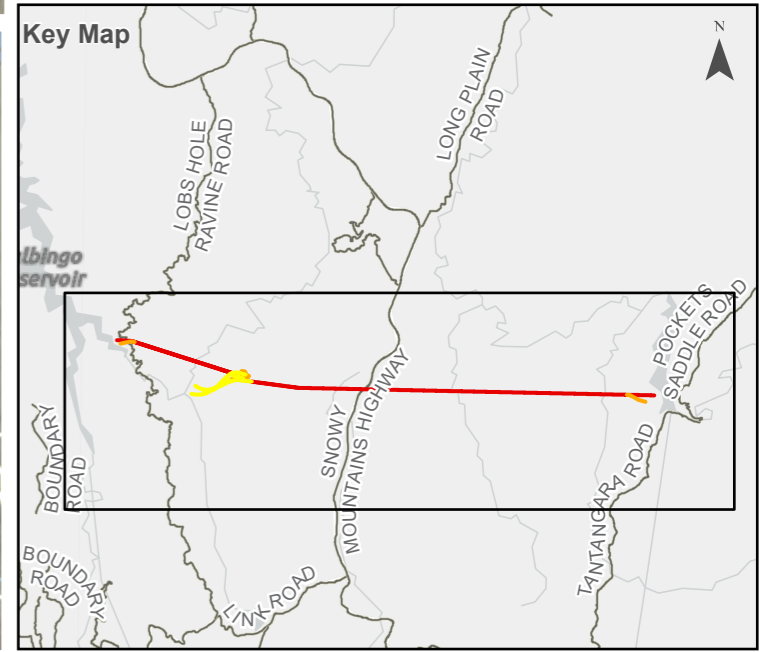
- PCT 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion
- PCT 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes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

Other Bioregions:

- 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

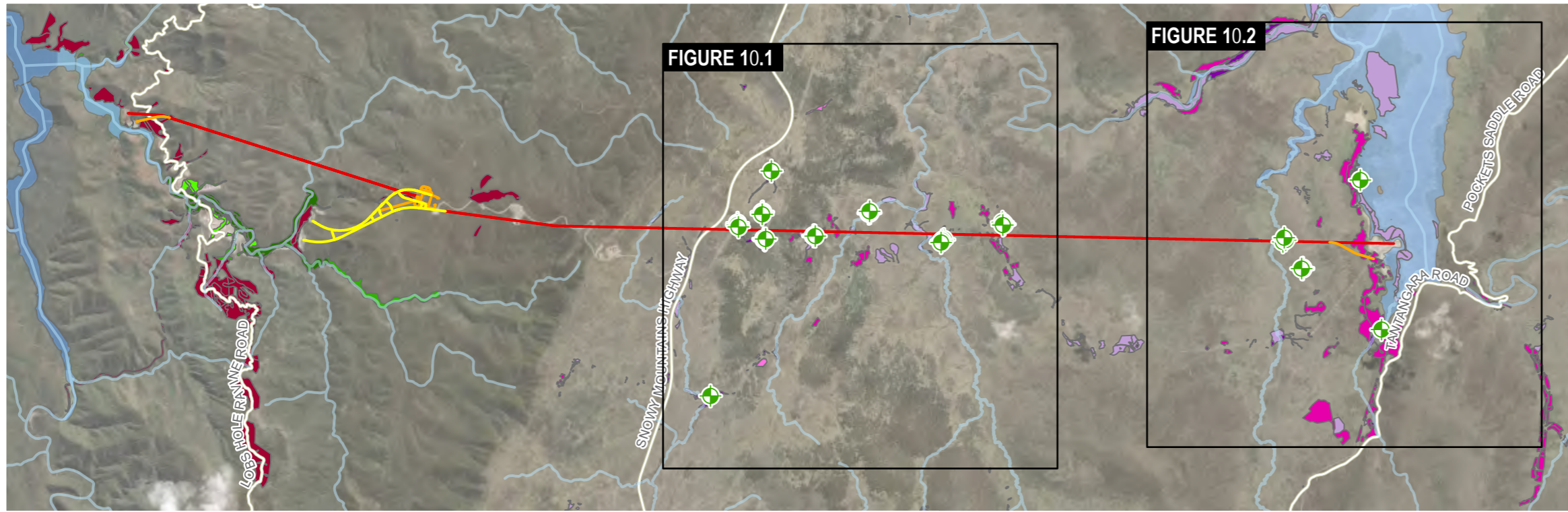


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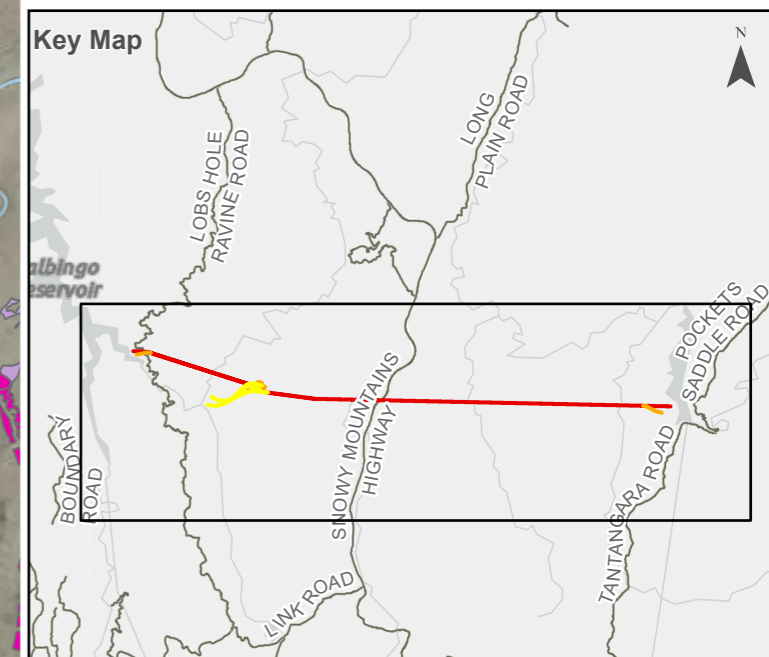
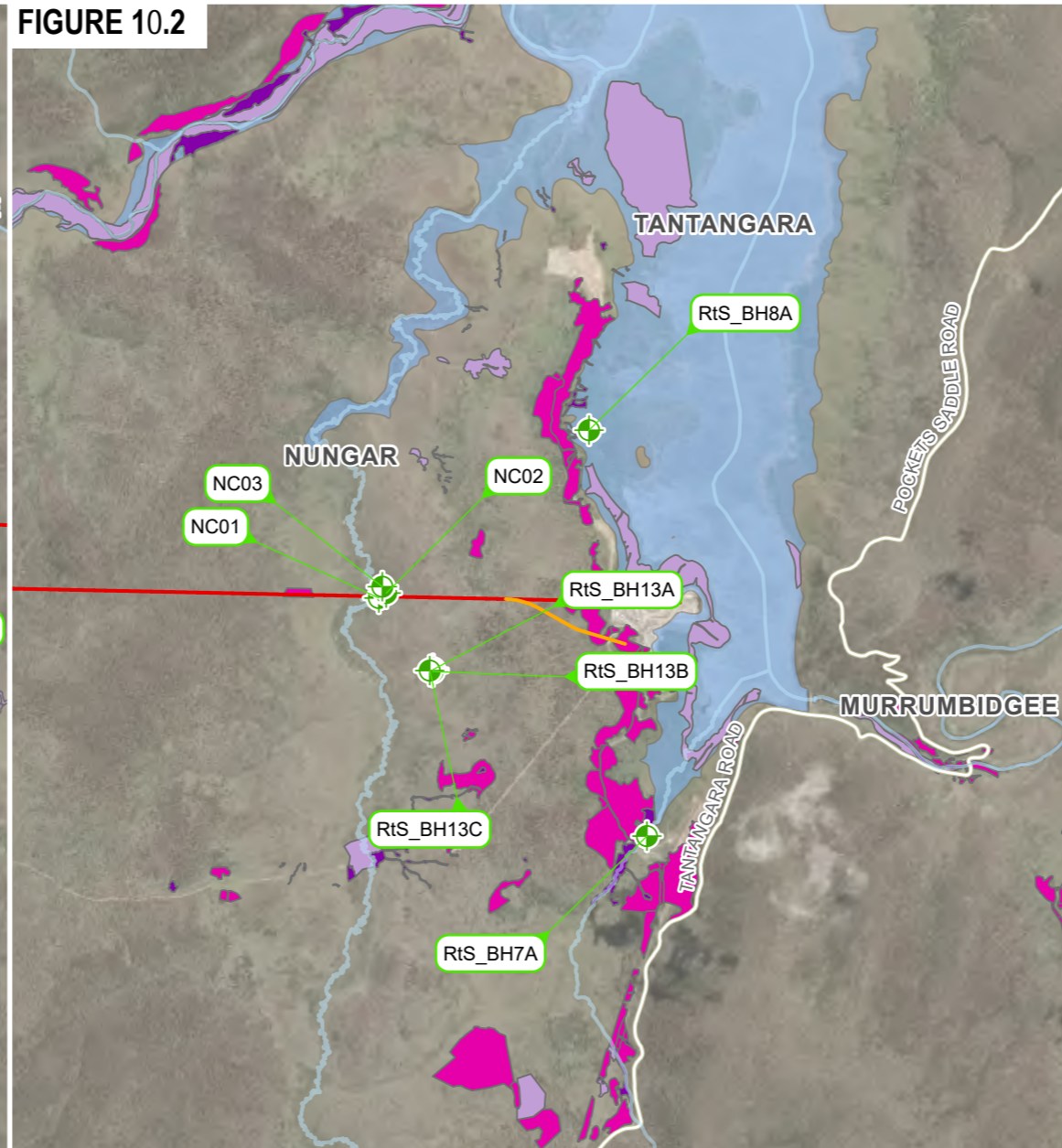
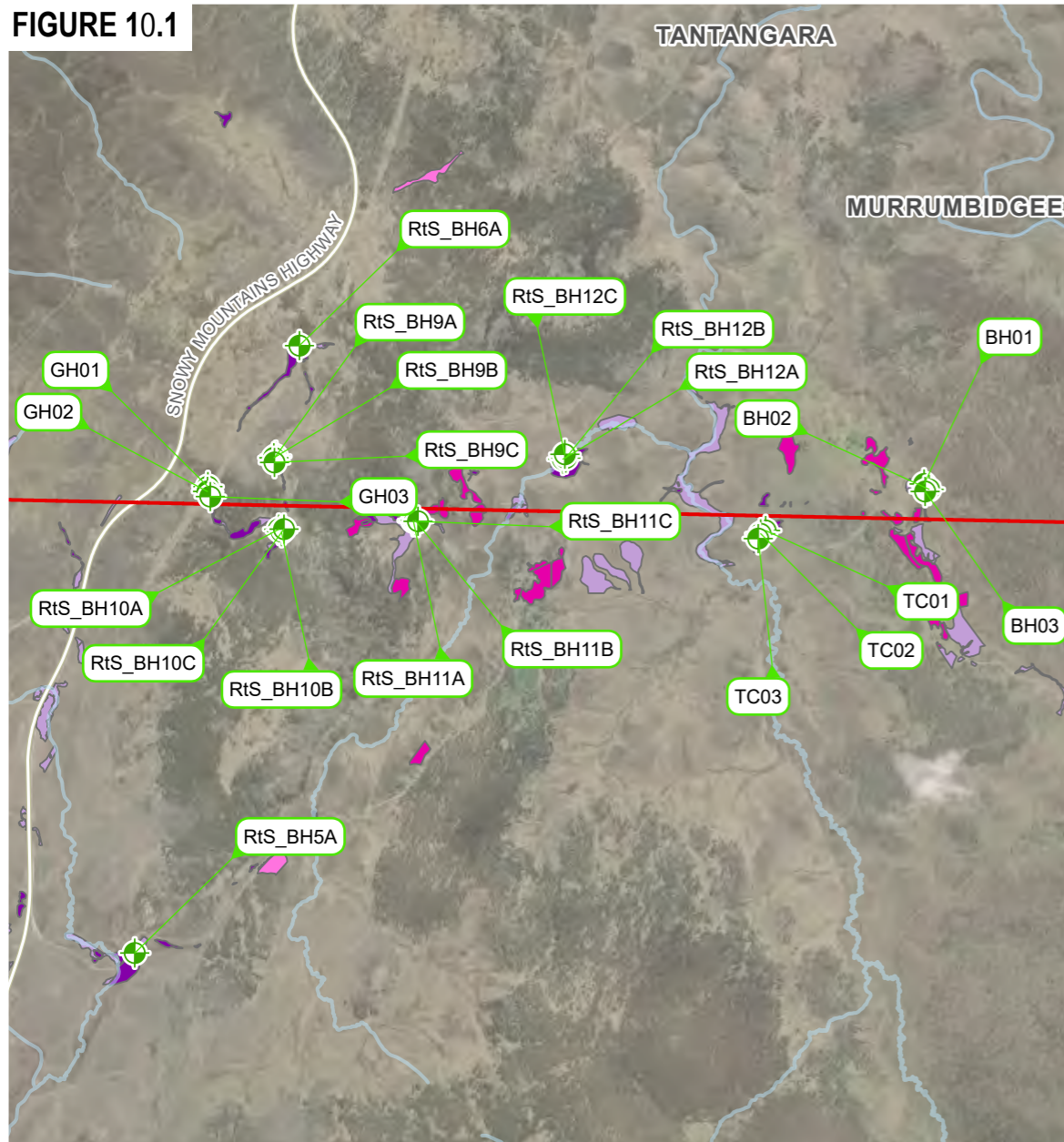
Groundwater Monitoring Network

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
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 - 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

4.3.1 BH2101

Between 12 September and 5 November 2024, monitoring bore BH2101 exceeded both the 80% and 100% model-predicted drawdown thresholds of 1239.75 mAHD and 1227.41 mAHD, respectively. 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 subsequently prepared by EMM (E230052_R8.2_TER2101_v2). The report identified the following key findings:

- Groundwater drawdown exceeded the predicted level in BH2101, resulting from excavation of the project headrace tunnel.
- Nearby bores, such as BH2102, indicated potential groundwater drawdown propagation along the tunnel alignment. There are no piezometers north or south of the tunnel alignment to confirm whether the impact is more regional.
- Bog and fen piezometer groundwater level data, associated with Nungar Creek, showed no impacts to the shallow groundwater regime
- Grouting efforts effectively reduced the groundwater inflow reporting to the excavated headrace tunnel, and no further action was required.

The report recommended the following:

- Groundwater levels continue to be monitored
- An ecologist should be engaged to assess potential impacts on Nungar Creek and PCT 637.
- BH2101 and nearby bores should be sampled quarterly and results compared to baseline SSTVs. If no changes are observed after 12 months, sampling can cease.
- The numerical groundwater model will be recalibrated

The recommendations of this report are being actively implemented: quarterly monitoring is underway, an ecologist has been engaged to monitor bogs and fens at Nungar Creek (see Section 5), and updates to the groundwater model have commenced.

4.3.2 BH2103

On 9 January 2025, BH2103 recorded a drawdown that exceeded 100% of the model-predicted drawdown thresholds. BH2103 is not identified in the GMP as a Level 1 groundwater monitoring site and did not require external notification. These bores will continue to be monitored closely during the next reporting period.

4.4 Groundwater Level Triggers from Previous Reporting Periods

There were no groundwater level trigger exceedances recorded prior to this reporting period.

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

In accordance with the GMP, groundwater level triggers at GDE sites (bog and fen piezometers) are not assessed during this reporting period. They are only evaluated against trigger values from autumn through spring (May to October), as baseline assessments have shown that drying during summer is a normal occurrence and part of the natural ecosystem function.

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). Following the 2025 monitoring period (May to October), shallow groundwater assessments at recognised GDEs in this area will be undertaken to compare with established baseline conditions. The remaining GDE groundwater monitoring locations continue to collect baseline data.

5.4 GDE Ecology Surveys

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) were monitored in February 2025. As the monitoring of GDE health was not completed at the commencement of work on the Snowy 2.0 project, the February 2025 assessment will be used as baseline data to monitor the changes to both floristic composition and peat depth in the future.

GDE monitoring will involve field mapping, using random meander surveys to verify Plant Community Type (PCT) boundaries to assess vegetation and ground cover. Surface level rods will track peat depth changes over time and will also be flagged and GPS-recorded. PCTs will be classified into condition zones (poor, moderate, high), and a qualitative assessment of ecological health will be included, noting past impacts from ungulates, introduced herbivores, and weeds in Kosciuszko National Park.

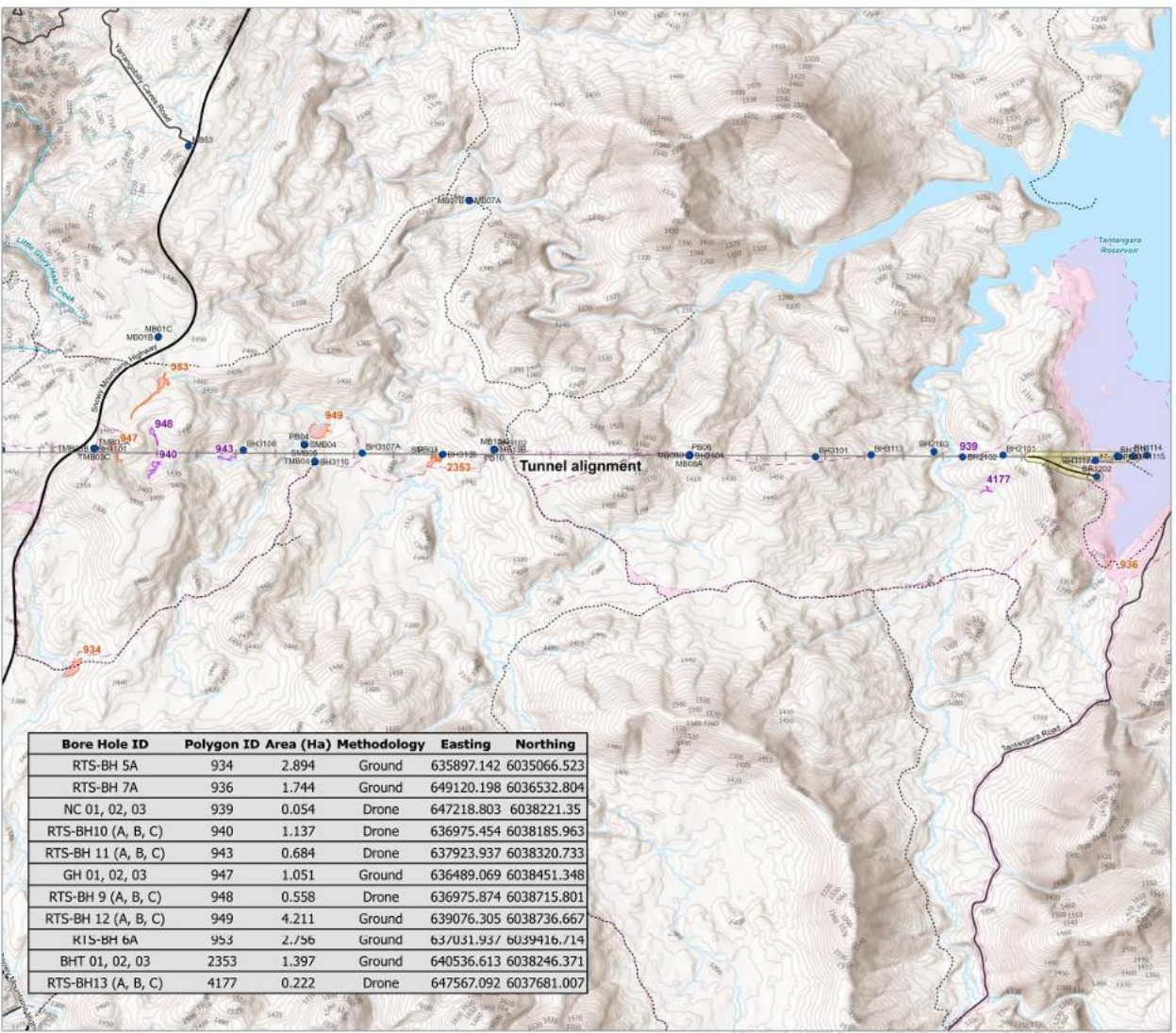
The Groundwater Management Plan for Snowy 2.0 identifies a PCT that is characterised as entirely obligate Terrestrial Groundwater Dependent Ecosystems (GDEs). This PCT requires ongoing monitoring, adaptive management and potentially offsetting if impacted. The PCT of relevance is:

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

A map of the GDE survey is shown in Figure 15.



GDE 637 Proposed
Monitoring Sites
Drone & Ground Monitoring
Methodology



Legend

- Borehole Location
- Headrace Audit (HAD)
- Headrace Tunnels
- Highway
- Main road
- Track
- Creek
- Drainage
- Contour (10m)
- Construction Envelope
- EIS Blast Offset Zones
- Waterbody
- Monitoring Methods
 - Drone
 - Ground

Credits: Borehole Location, SHL, 2024; Tunnels, SHL, 2024; Construction Envelope, SHL, 2024; Road Name Extent, TNBIV, 2023; NSW Hydrography, DCS, 2024; Topographic Maps, DCS, 2022; Vegetation Communities, SHL, 2022.
 HighRes photo: Esri, GeoEye, Australia, NASA, NGA, USGS, Vieregg, Esri, TomTom, Garmin, Foursquare, METI, NASA, USGS



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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

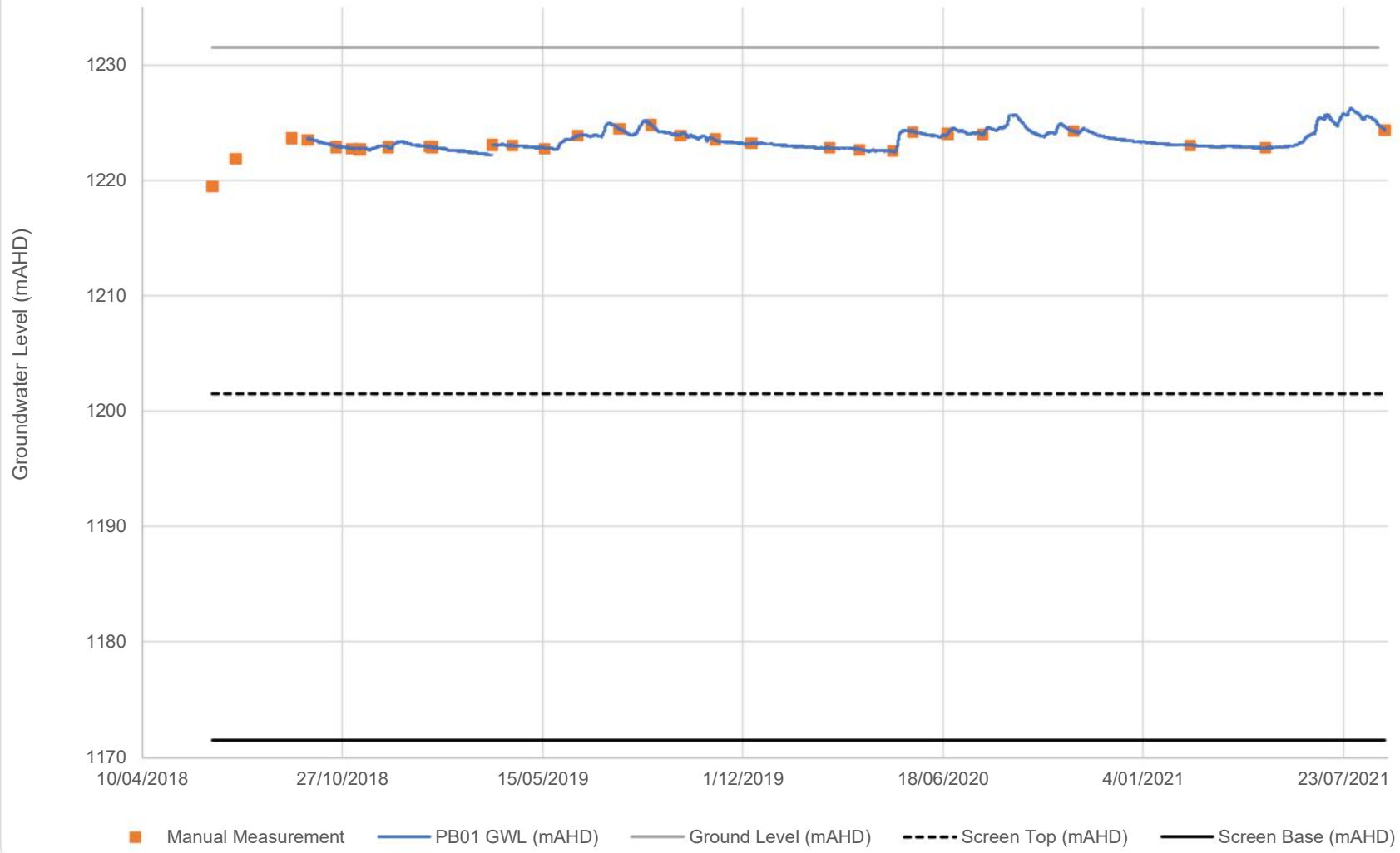
6 Conclusions

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. Construction remains largely outside recognised GDEs, and baseline ecological surveys were completed in February 2025 to support future assessments.

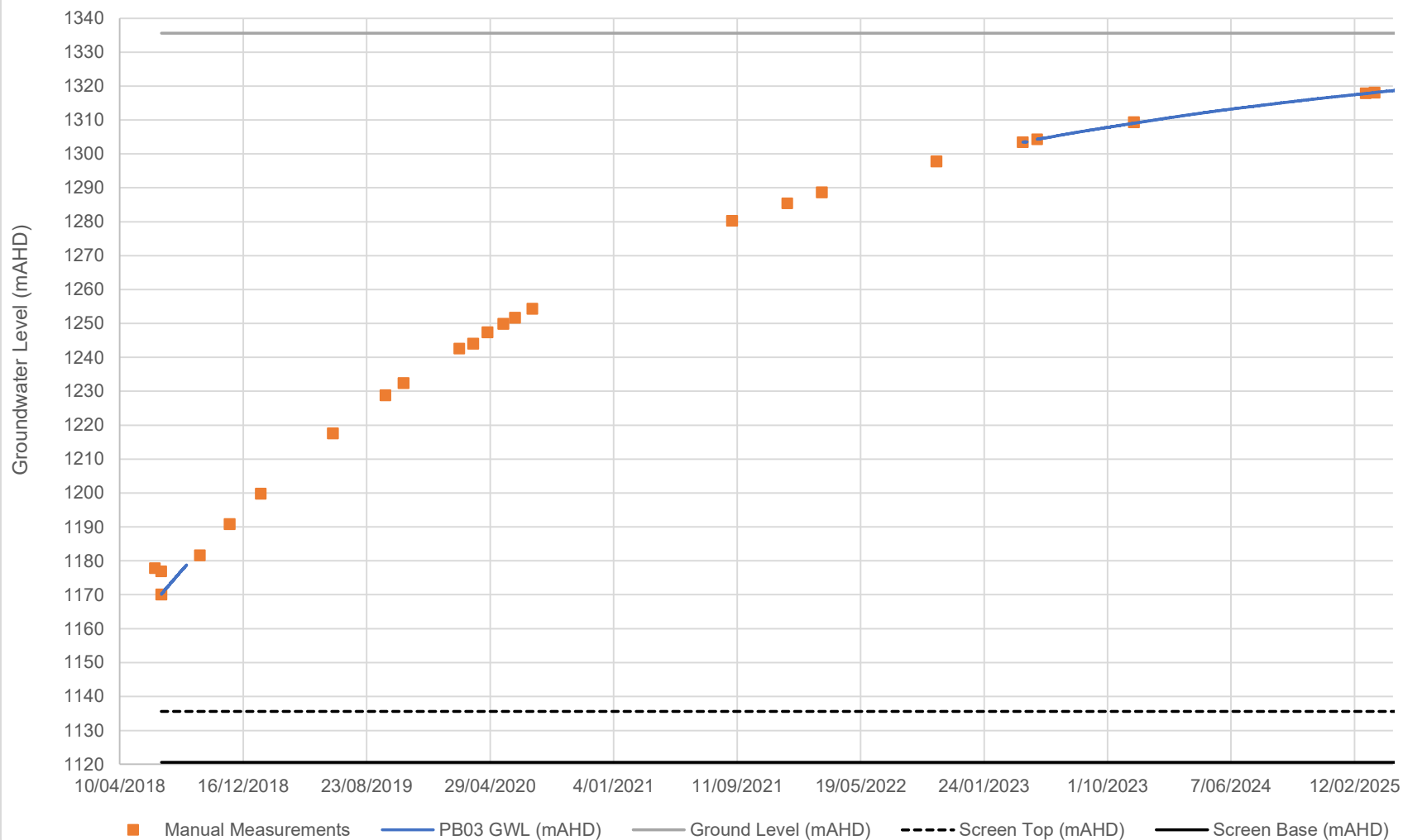
Appendix A - Conventional Monitoring Bores Hydrographs



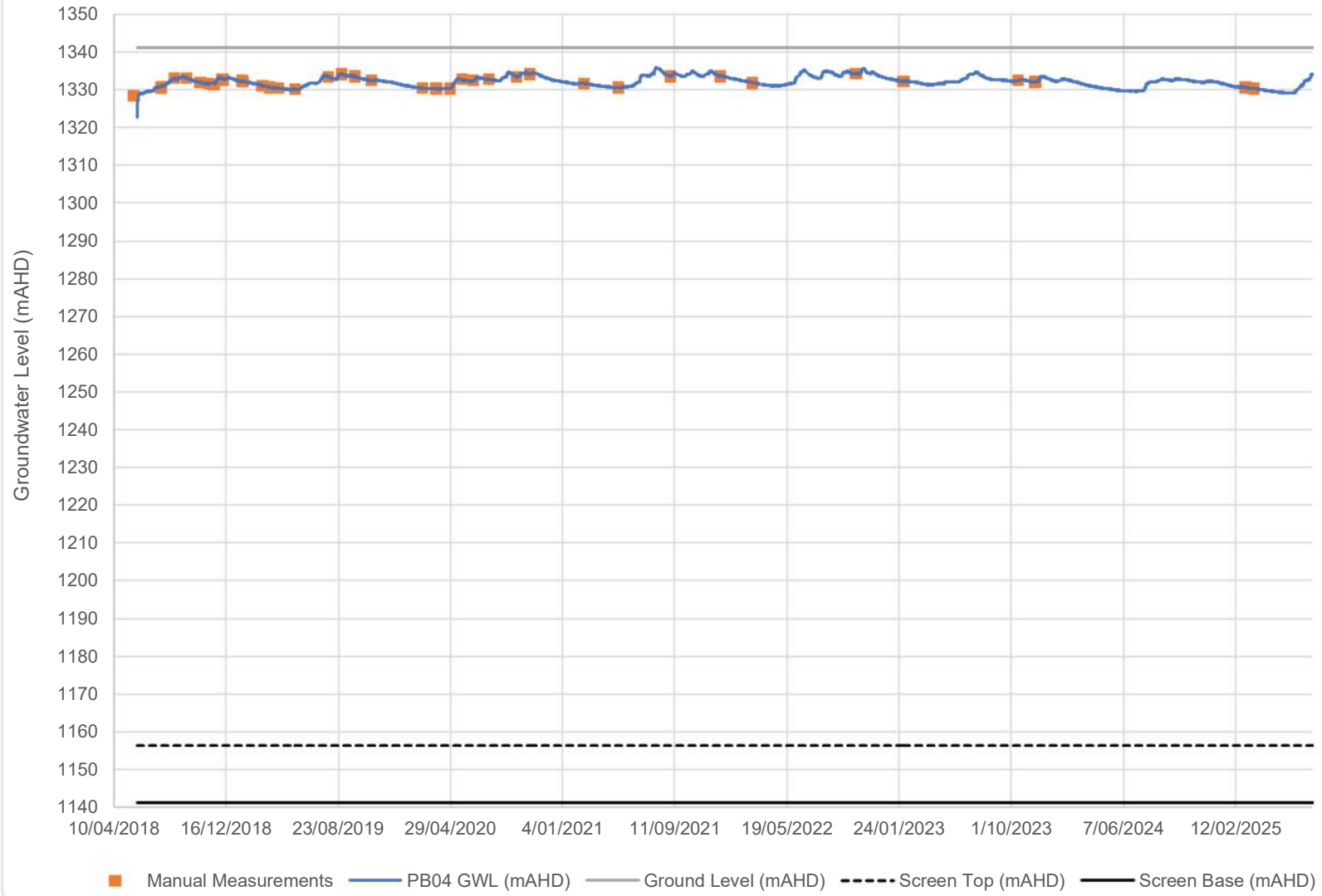
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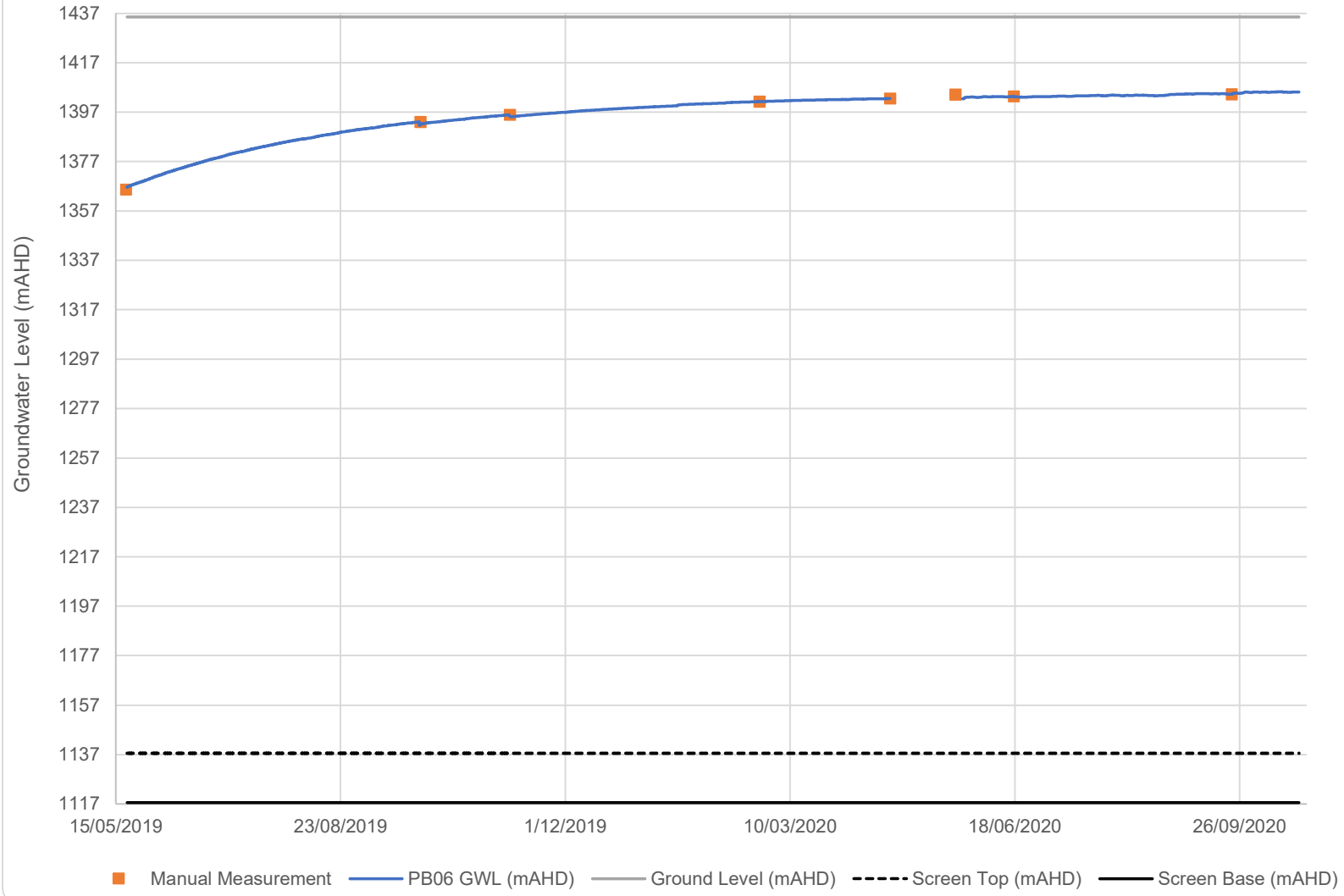
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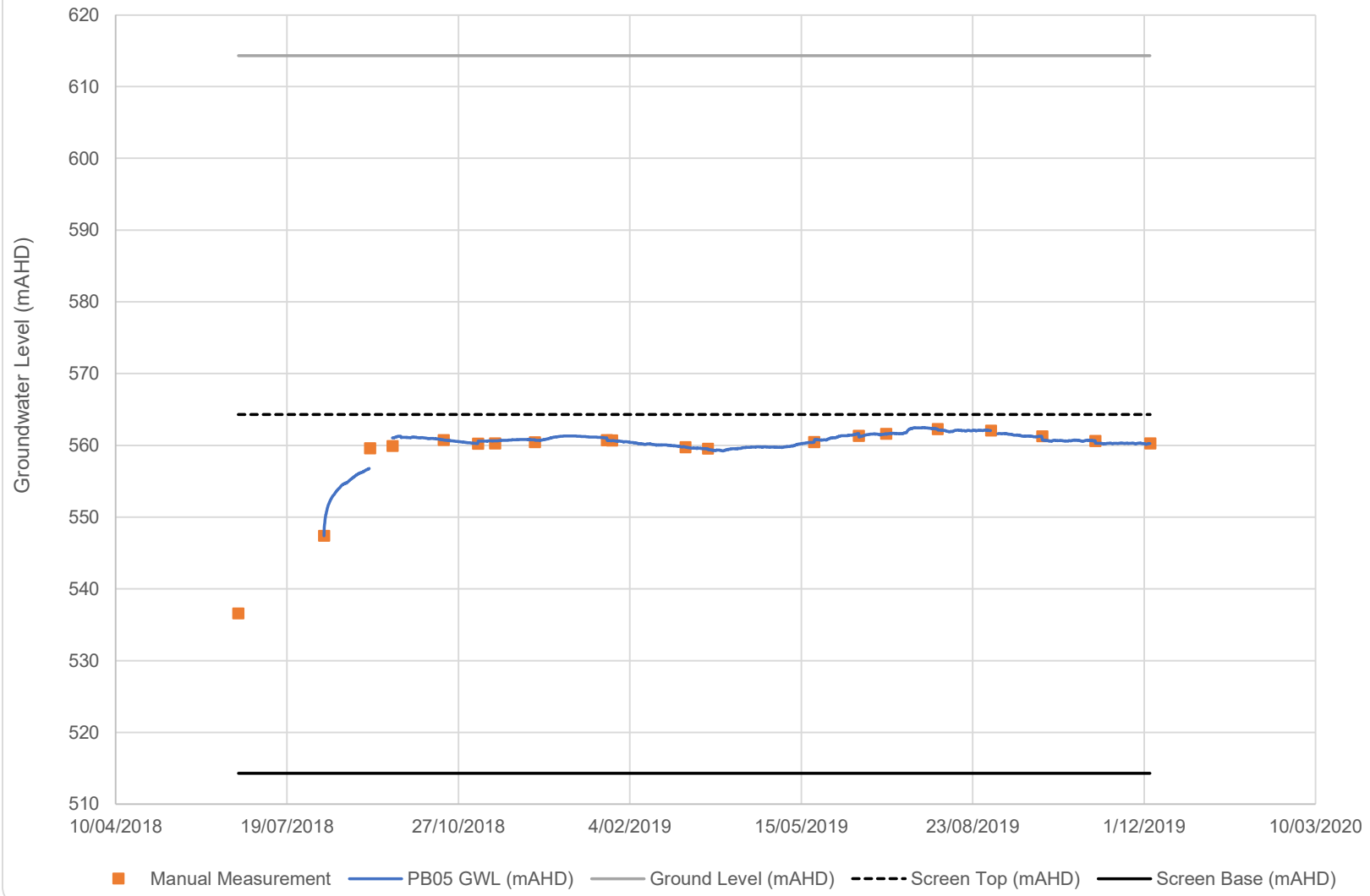
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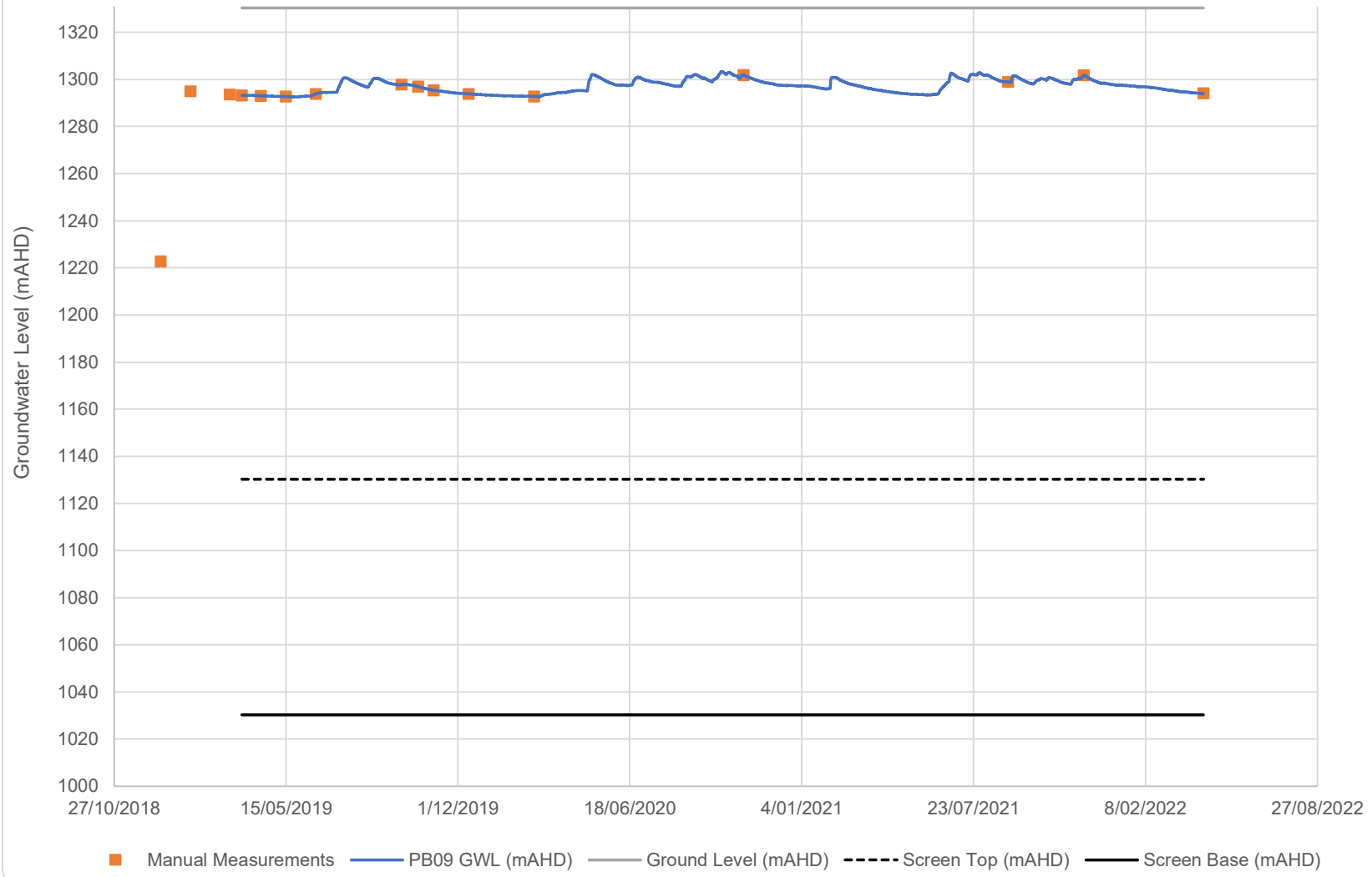
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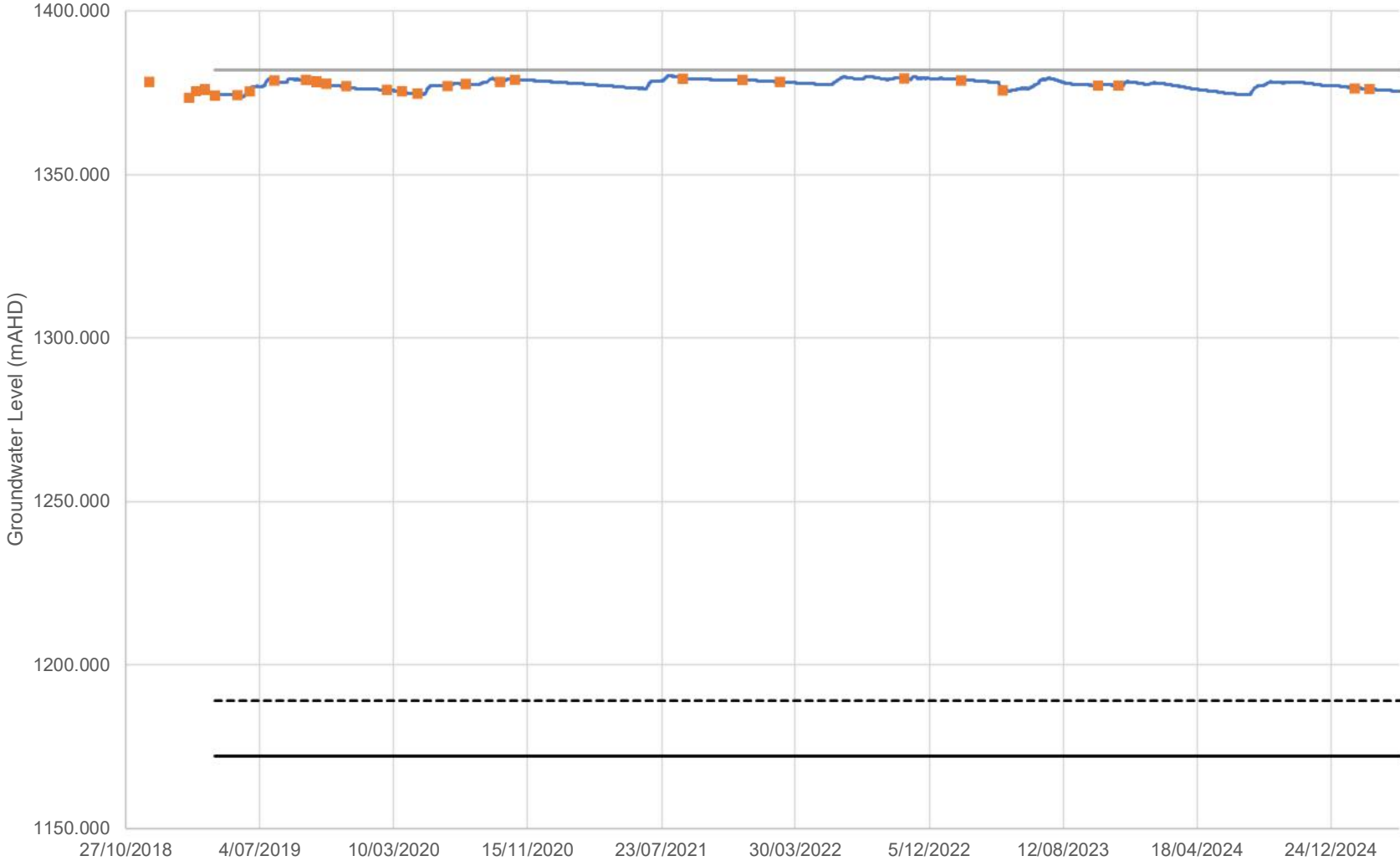
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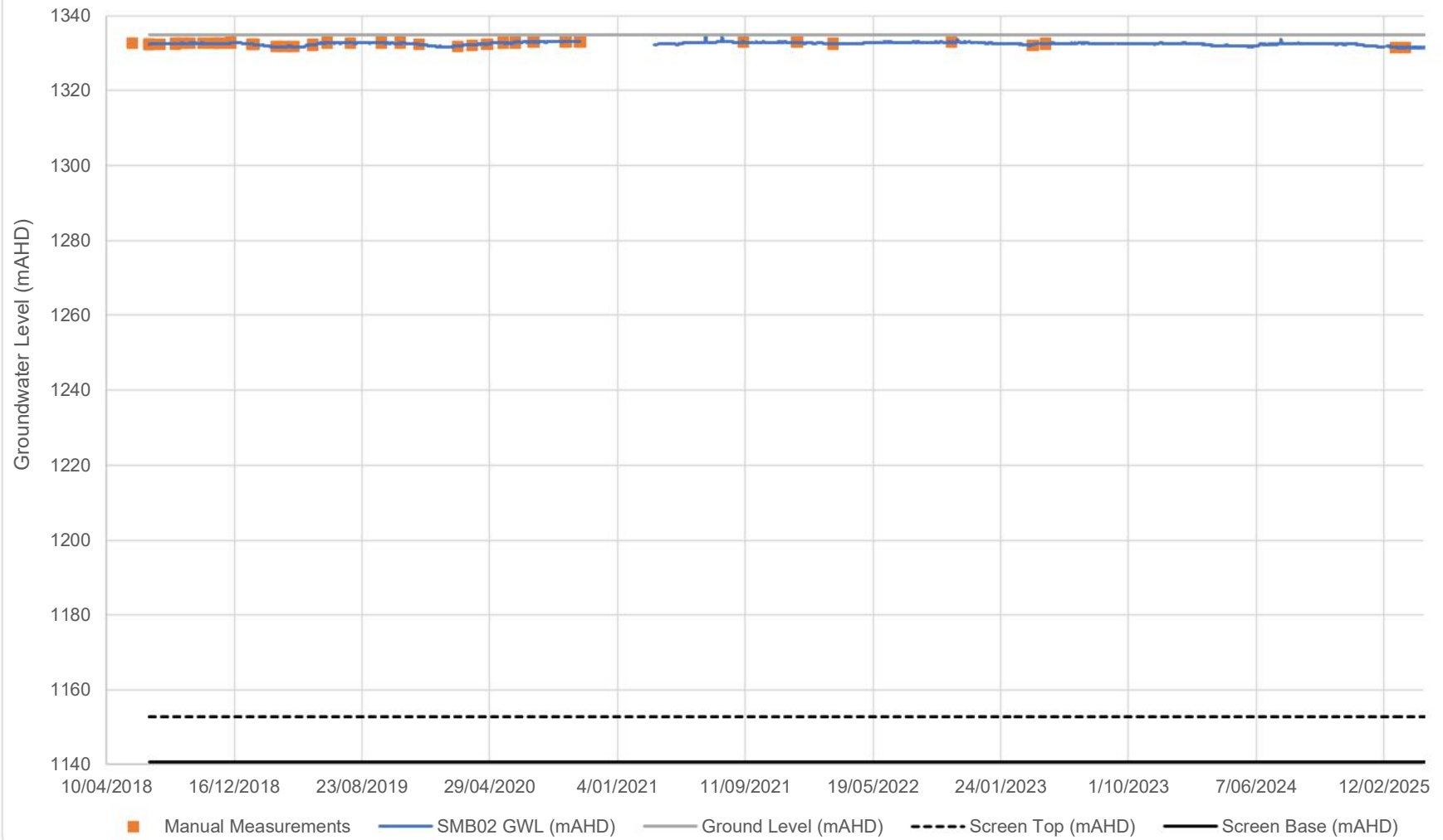


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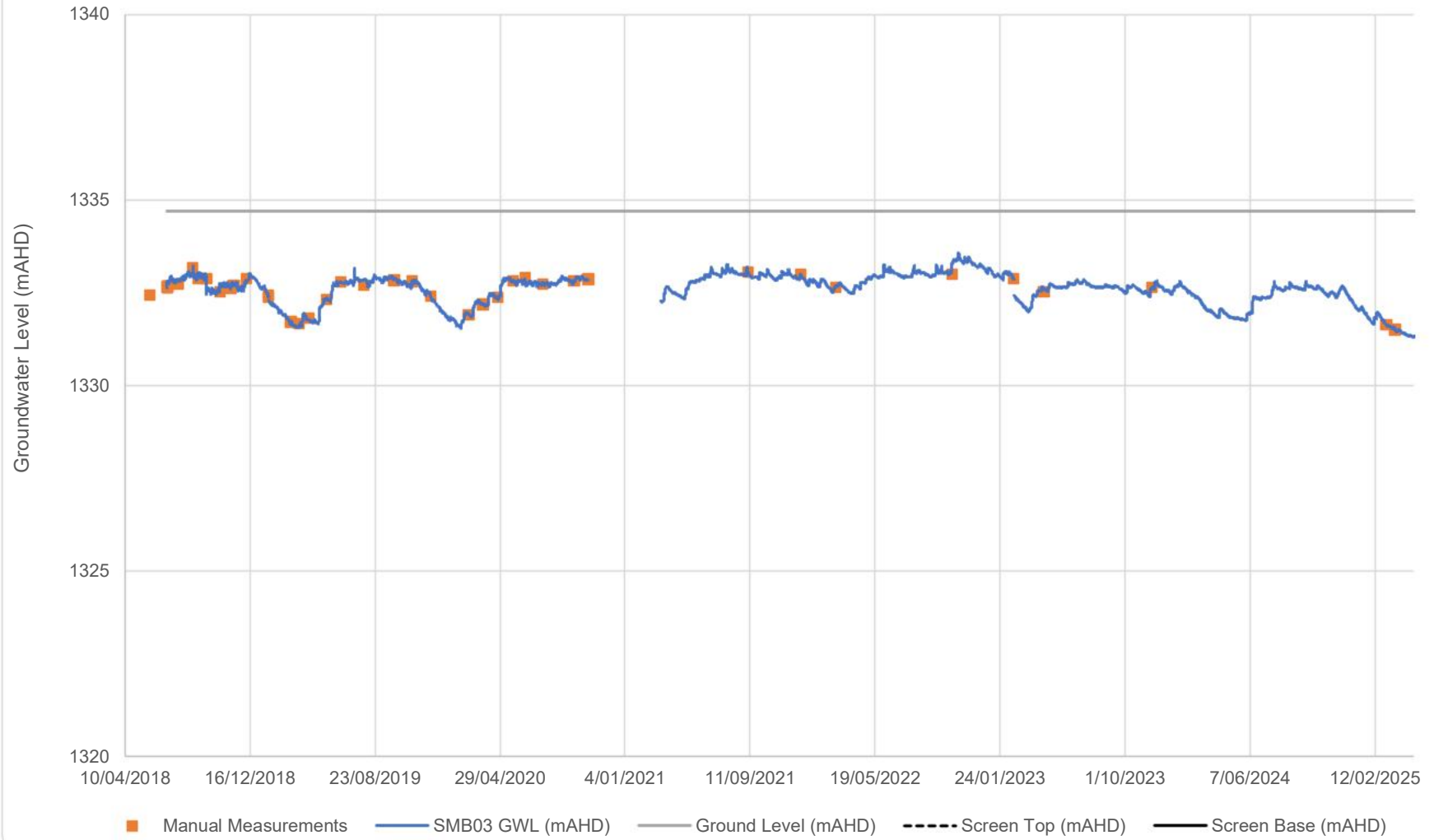


— PB10 GWL (mAHD) ■ Manual Measurements — Ground Level (mAHD) - - - Screen Top (mAHD) — Screen Base (mAHD)

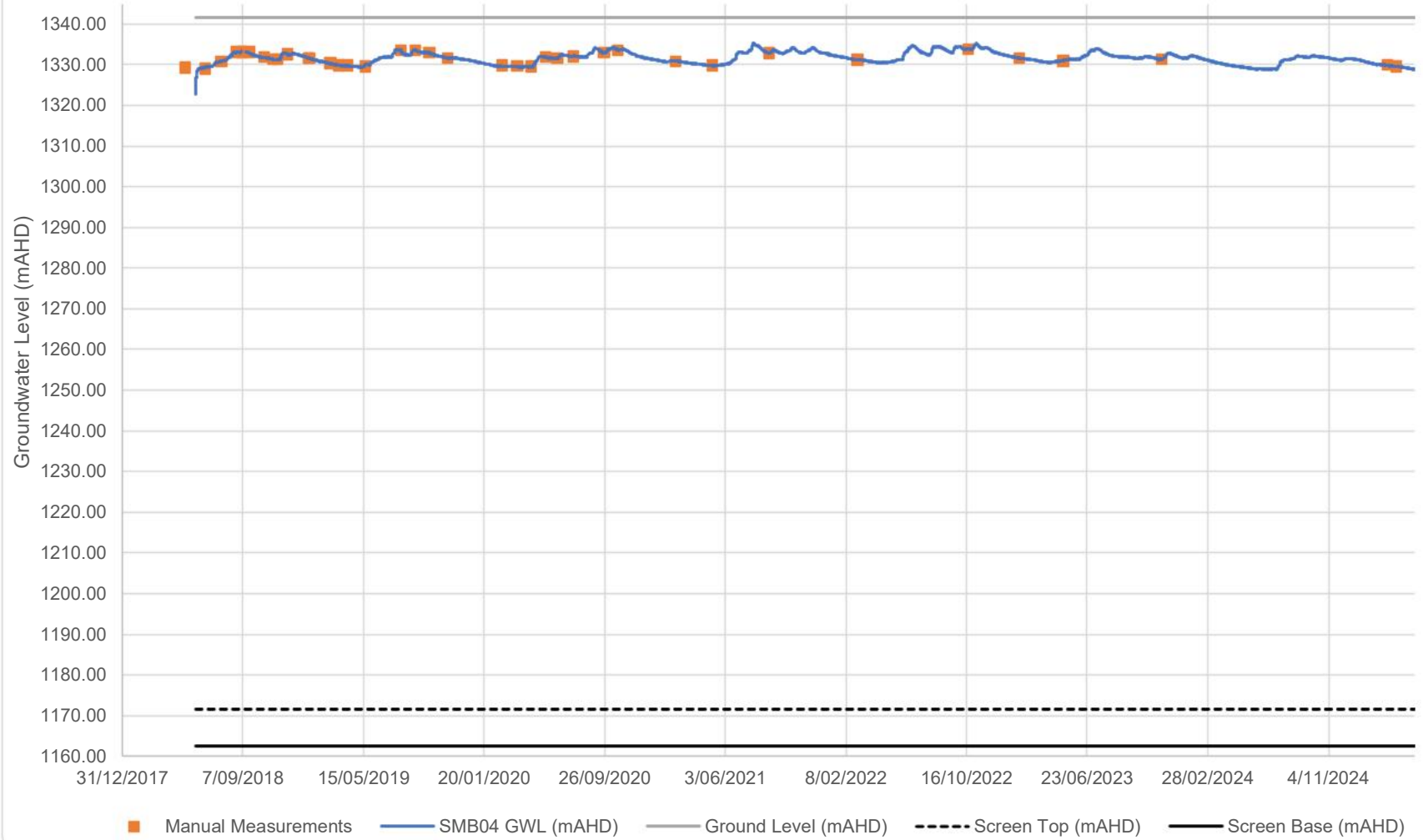
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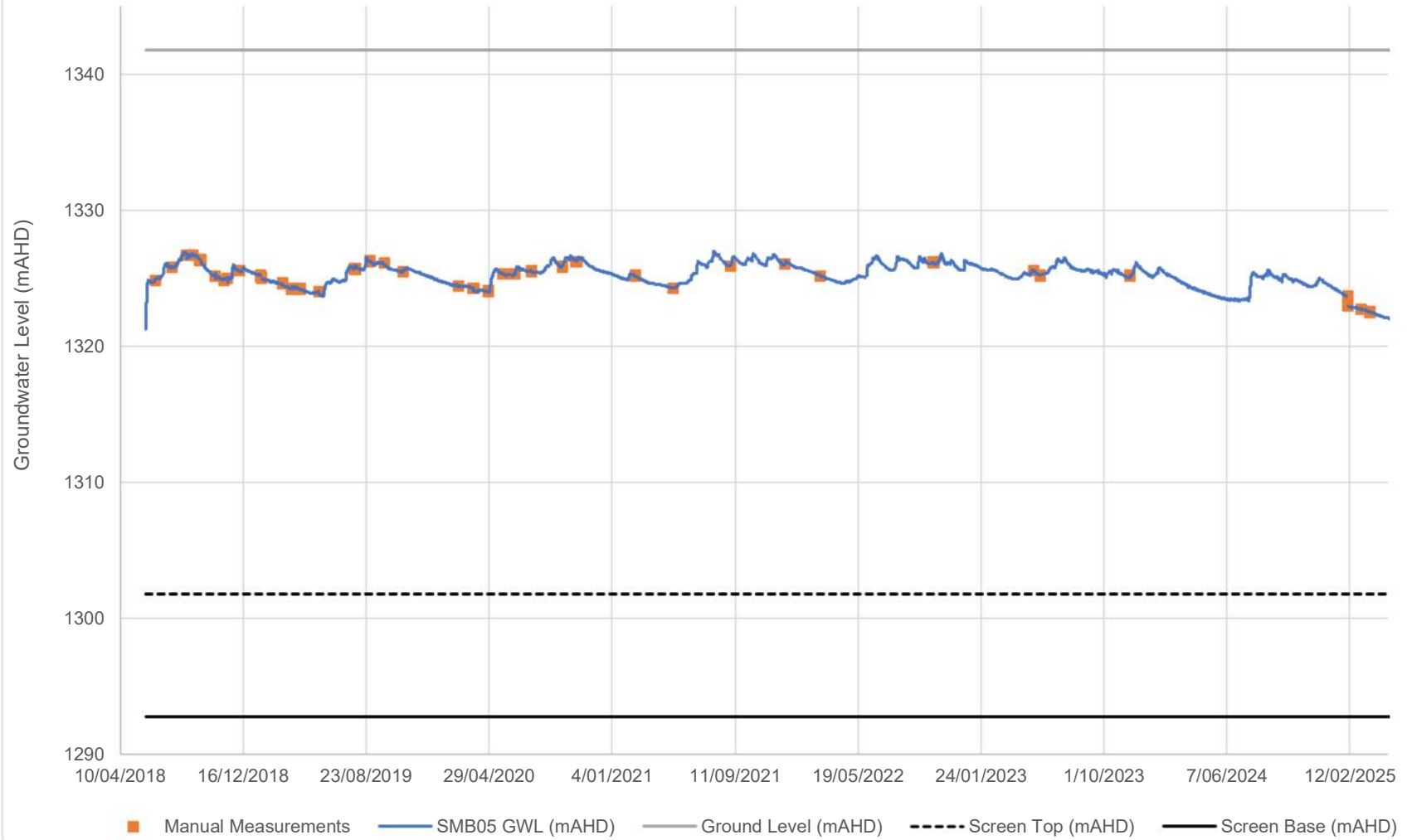
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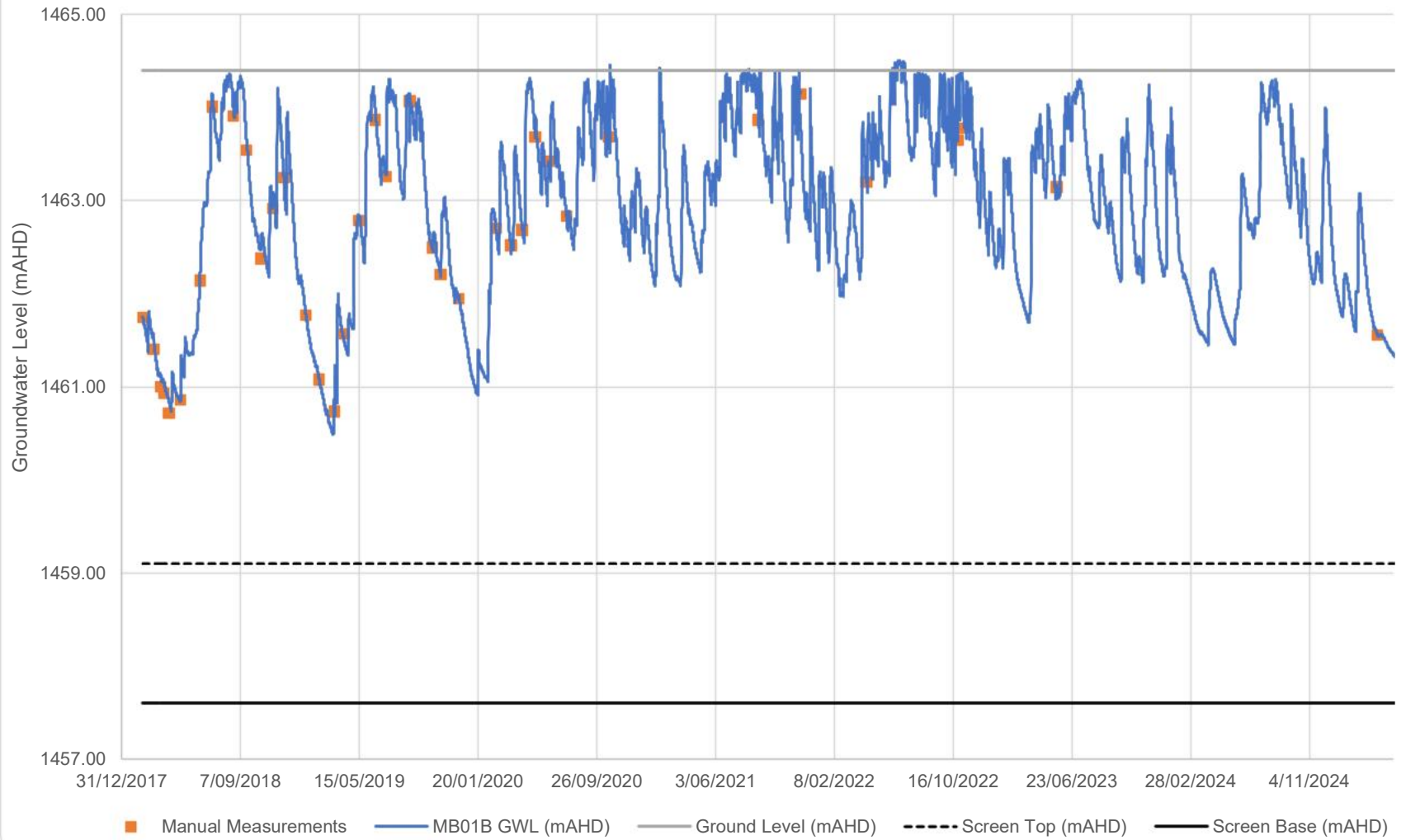
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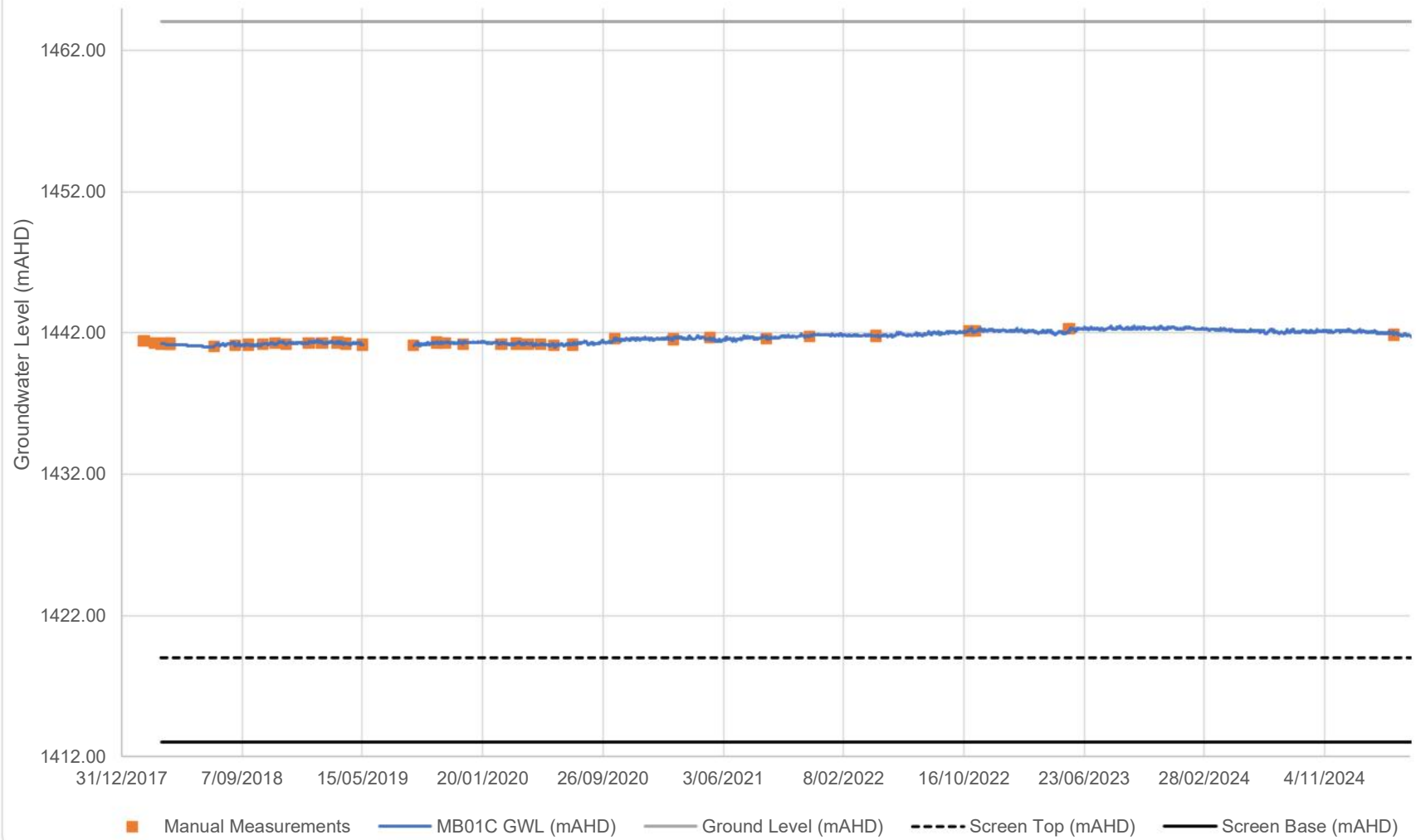
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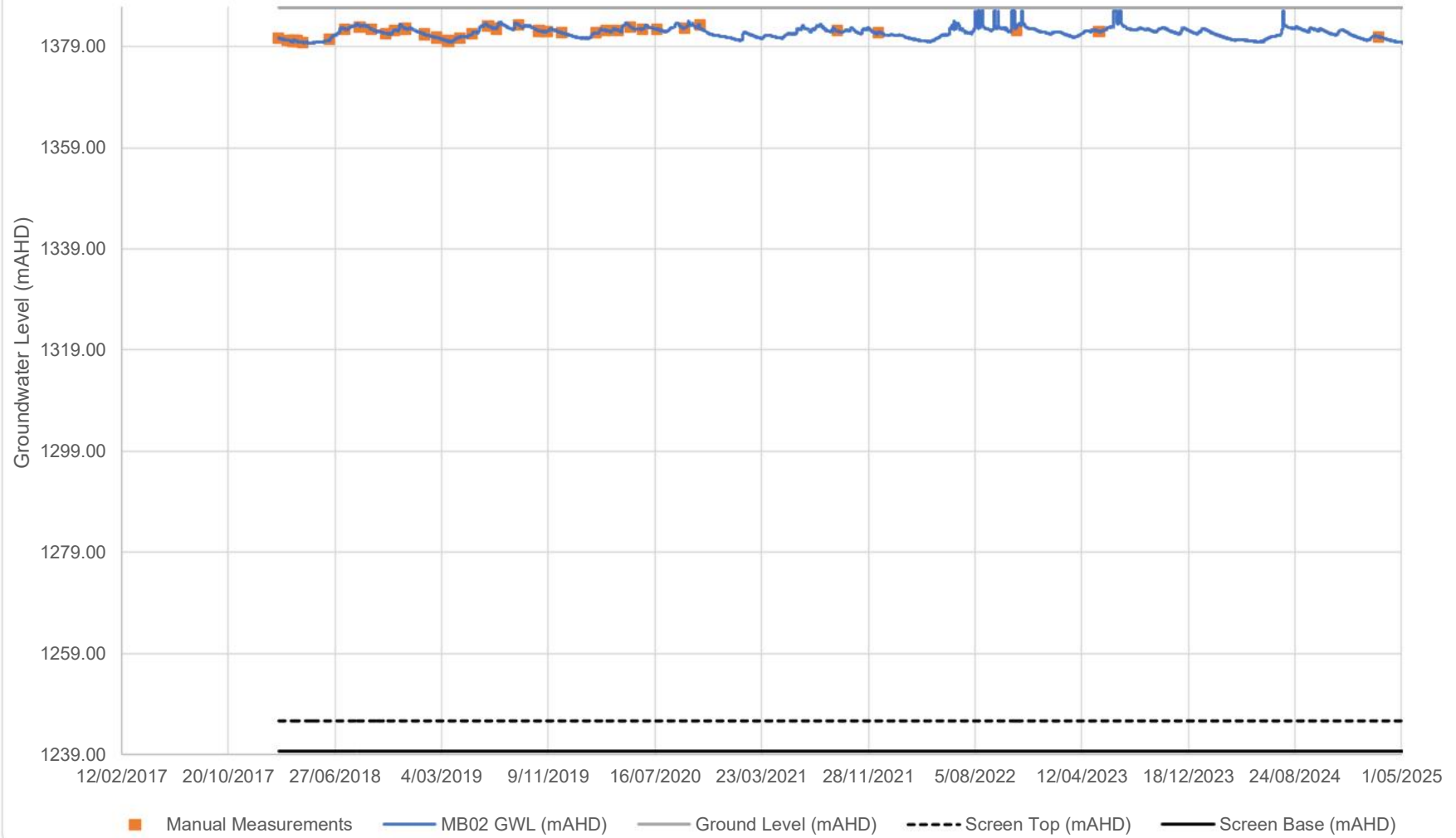
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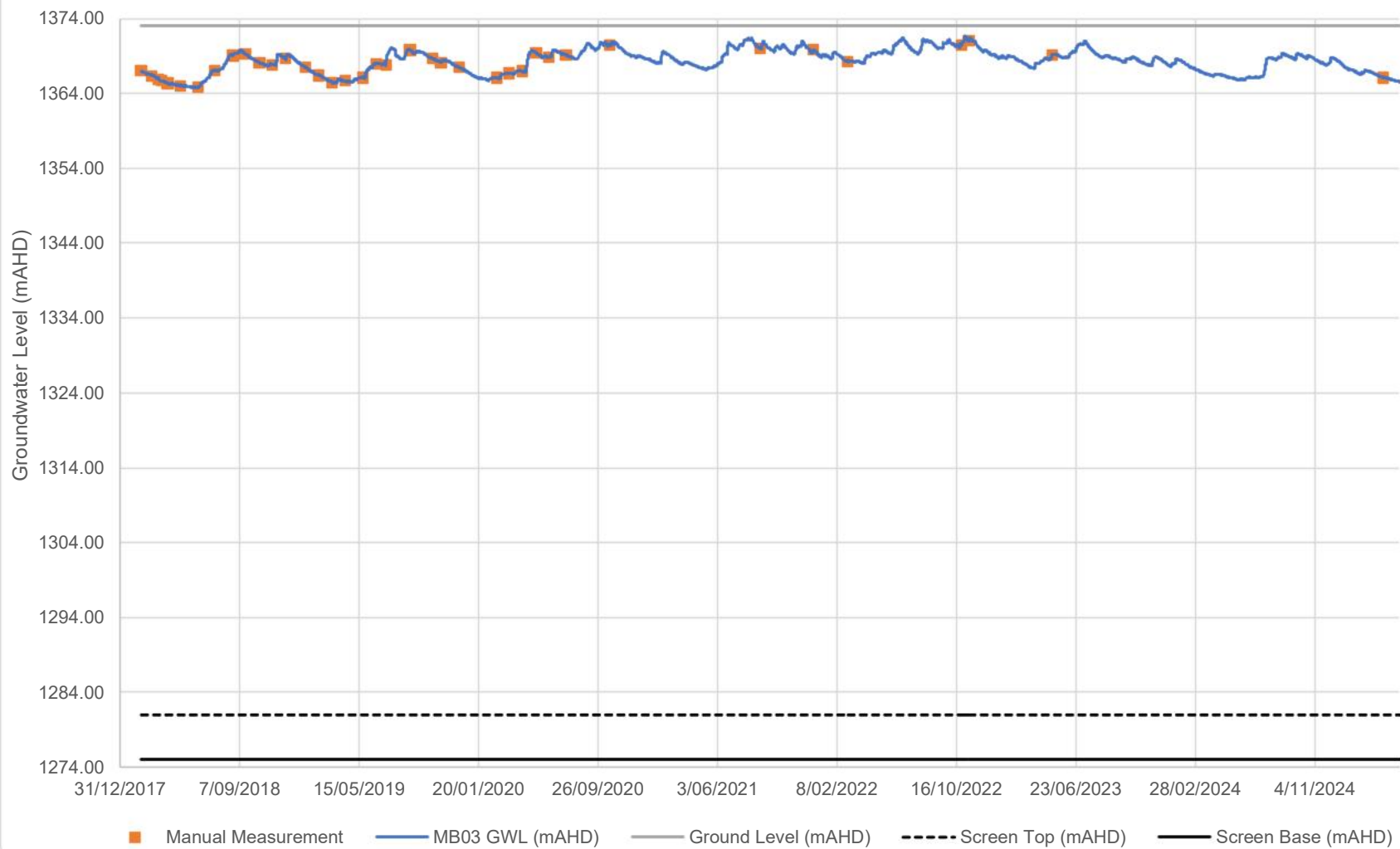
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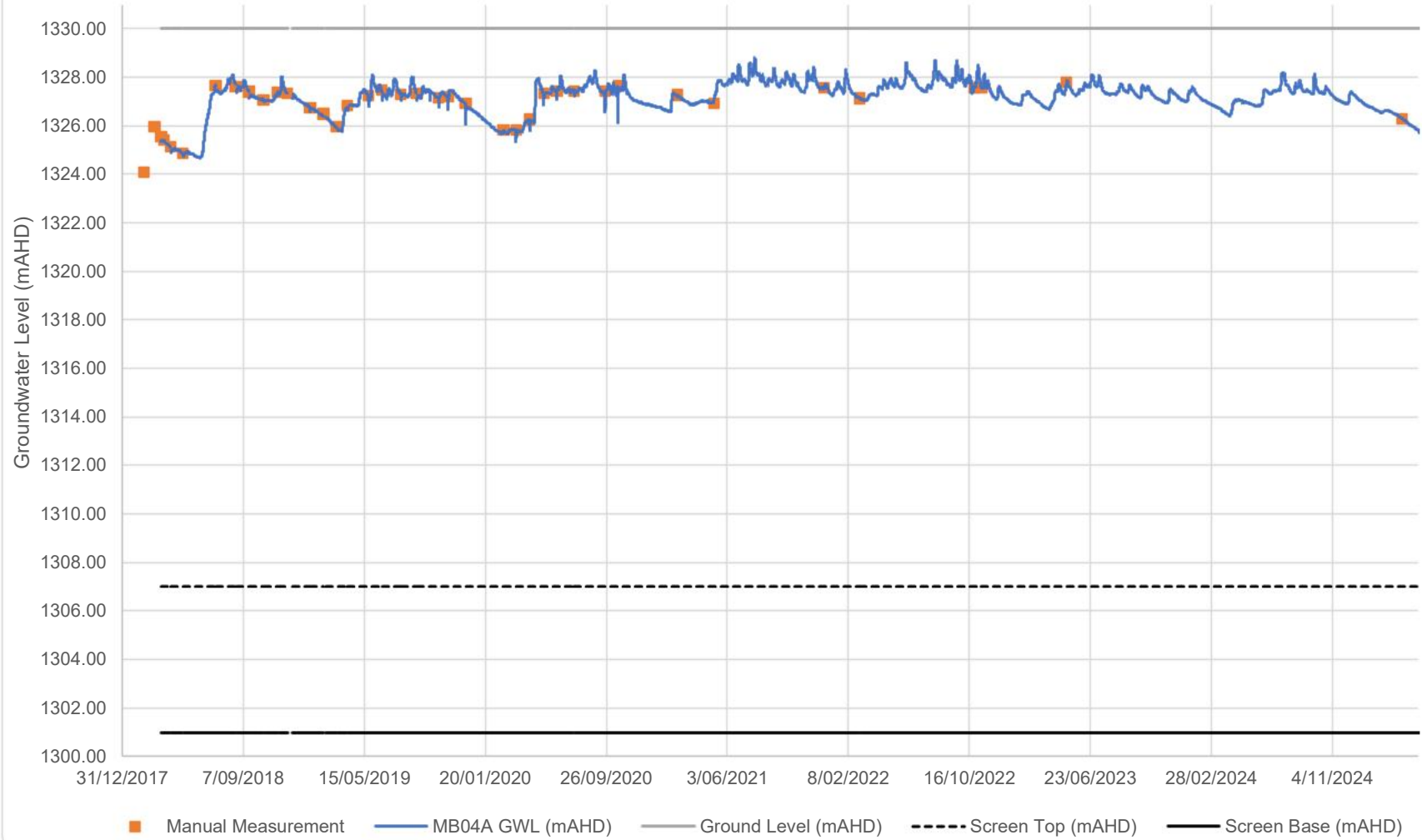
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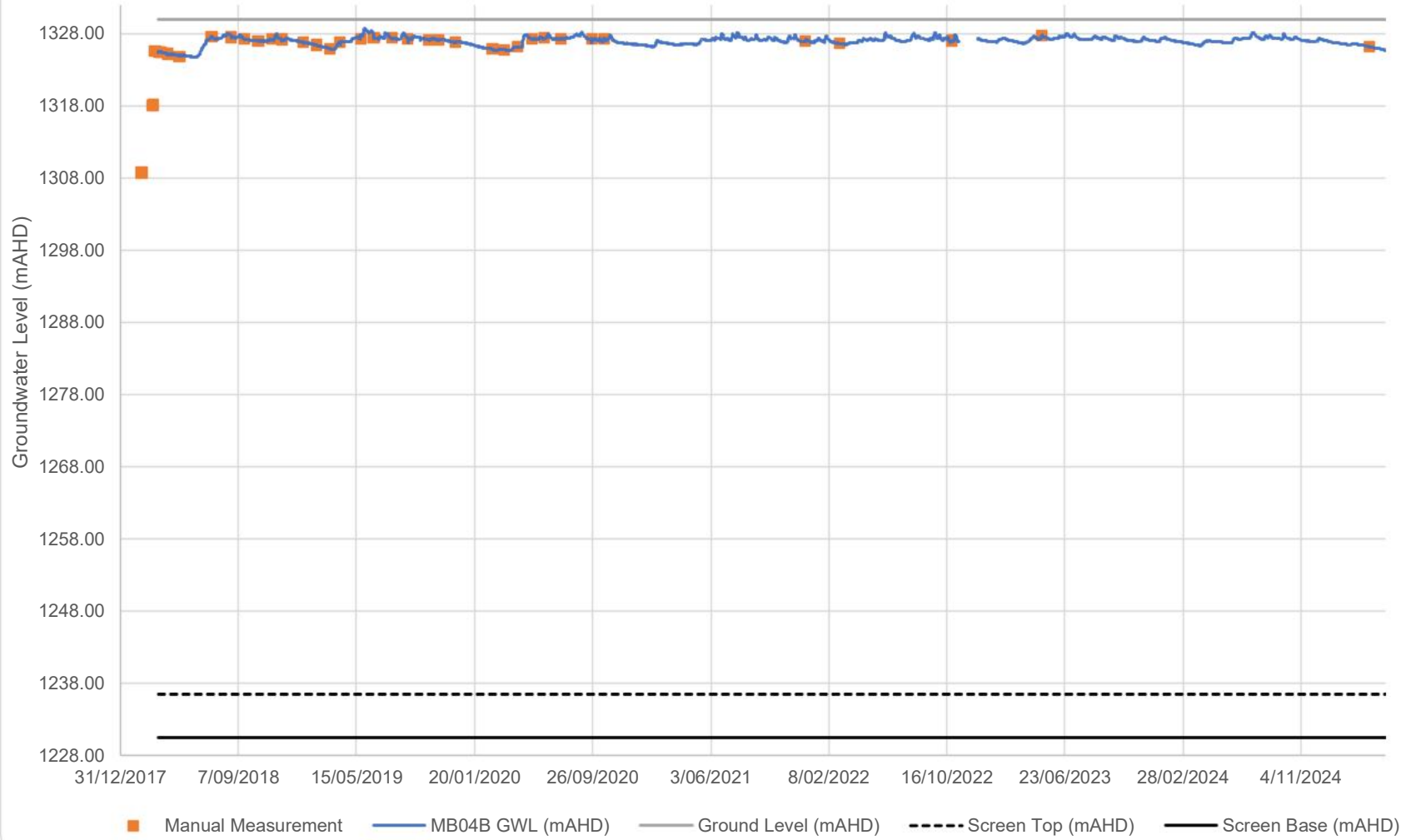
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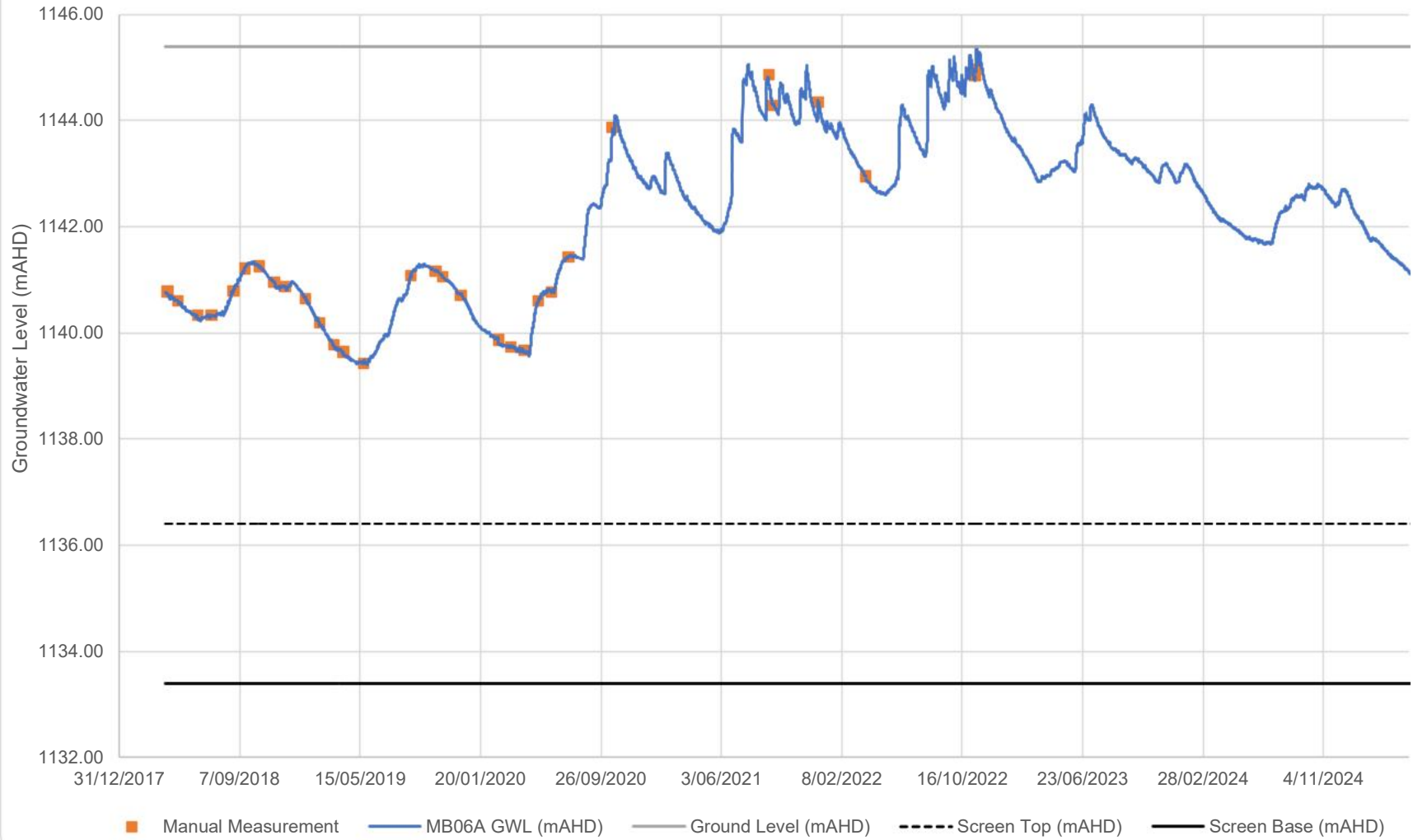
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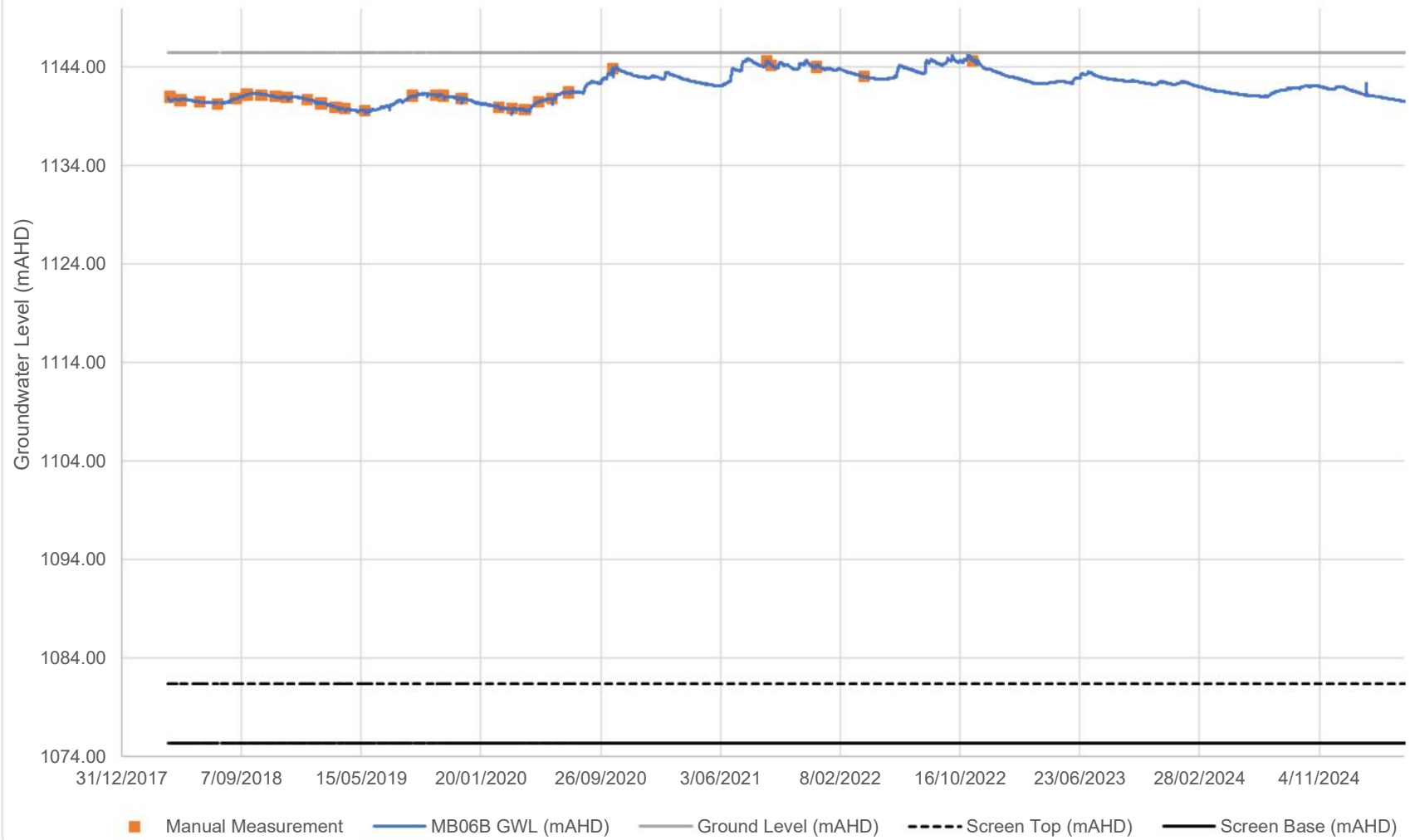
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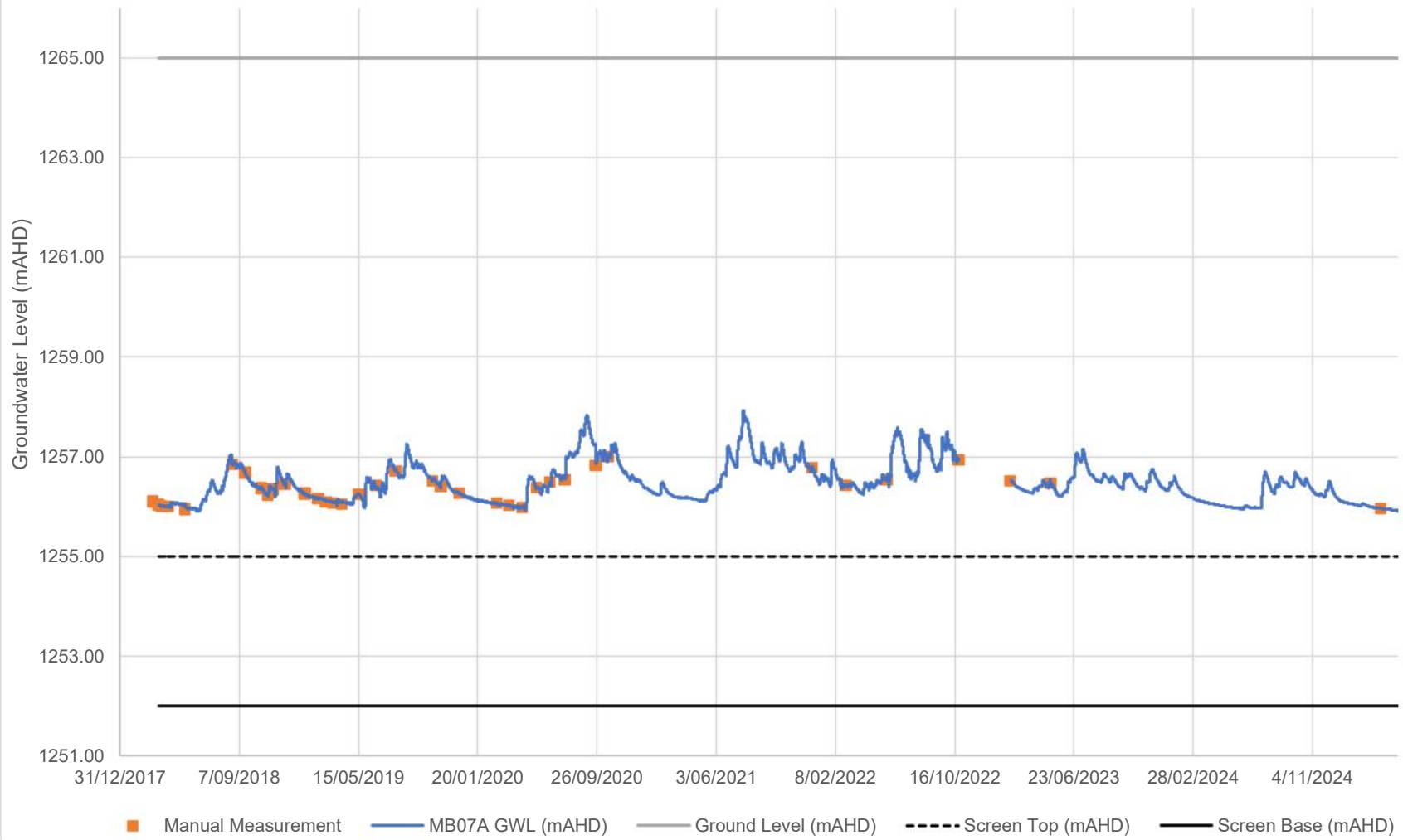
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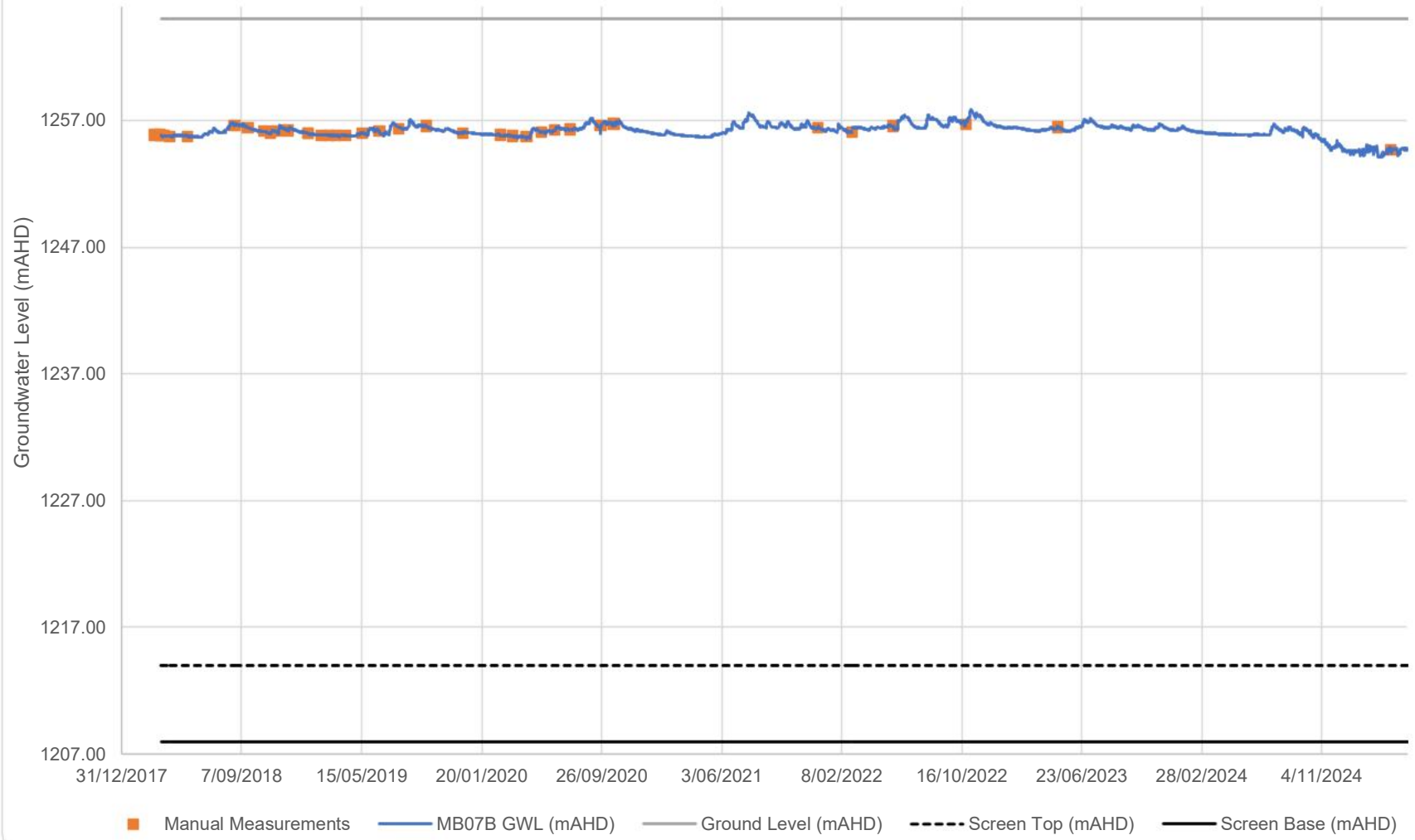
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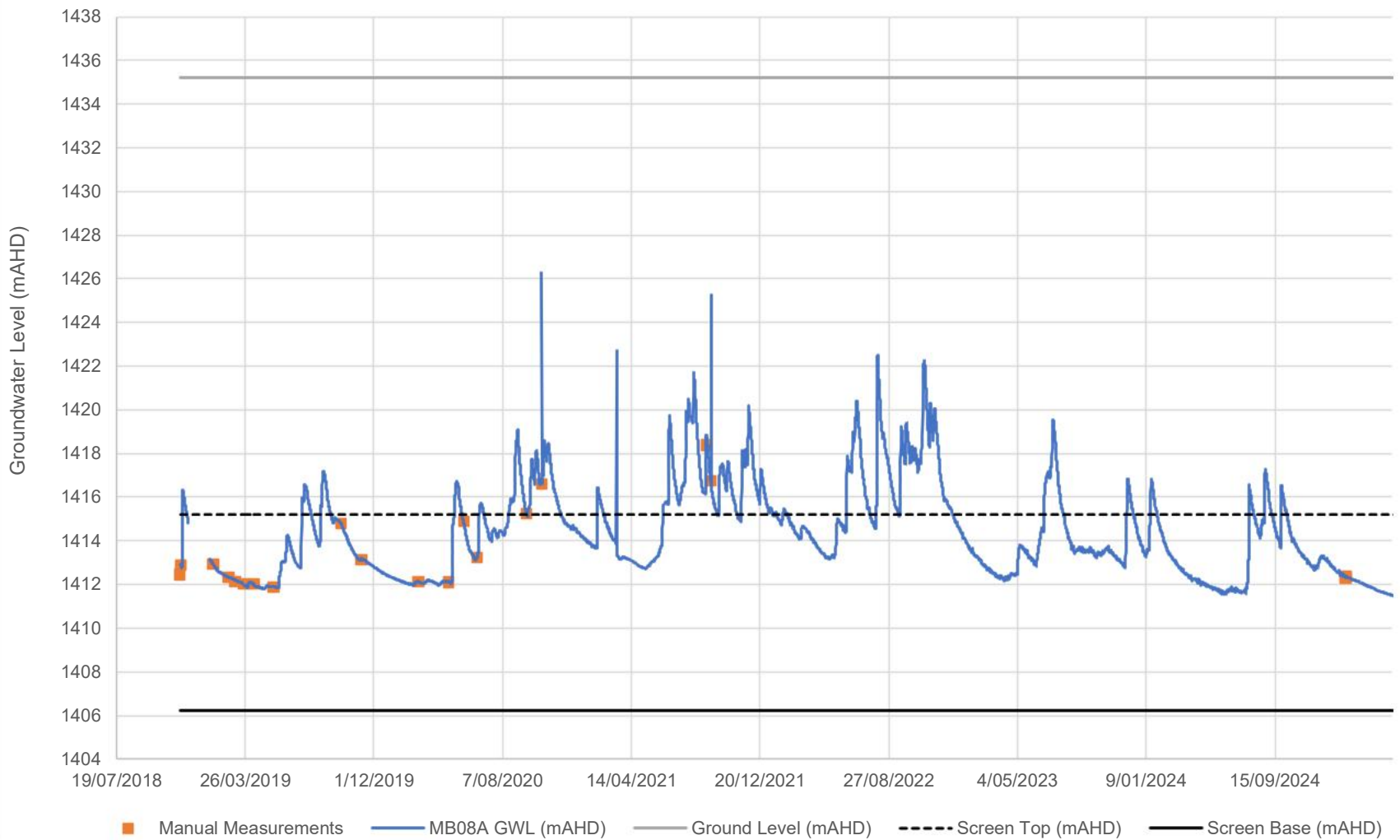
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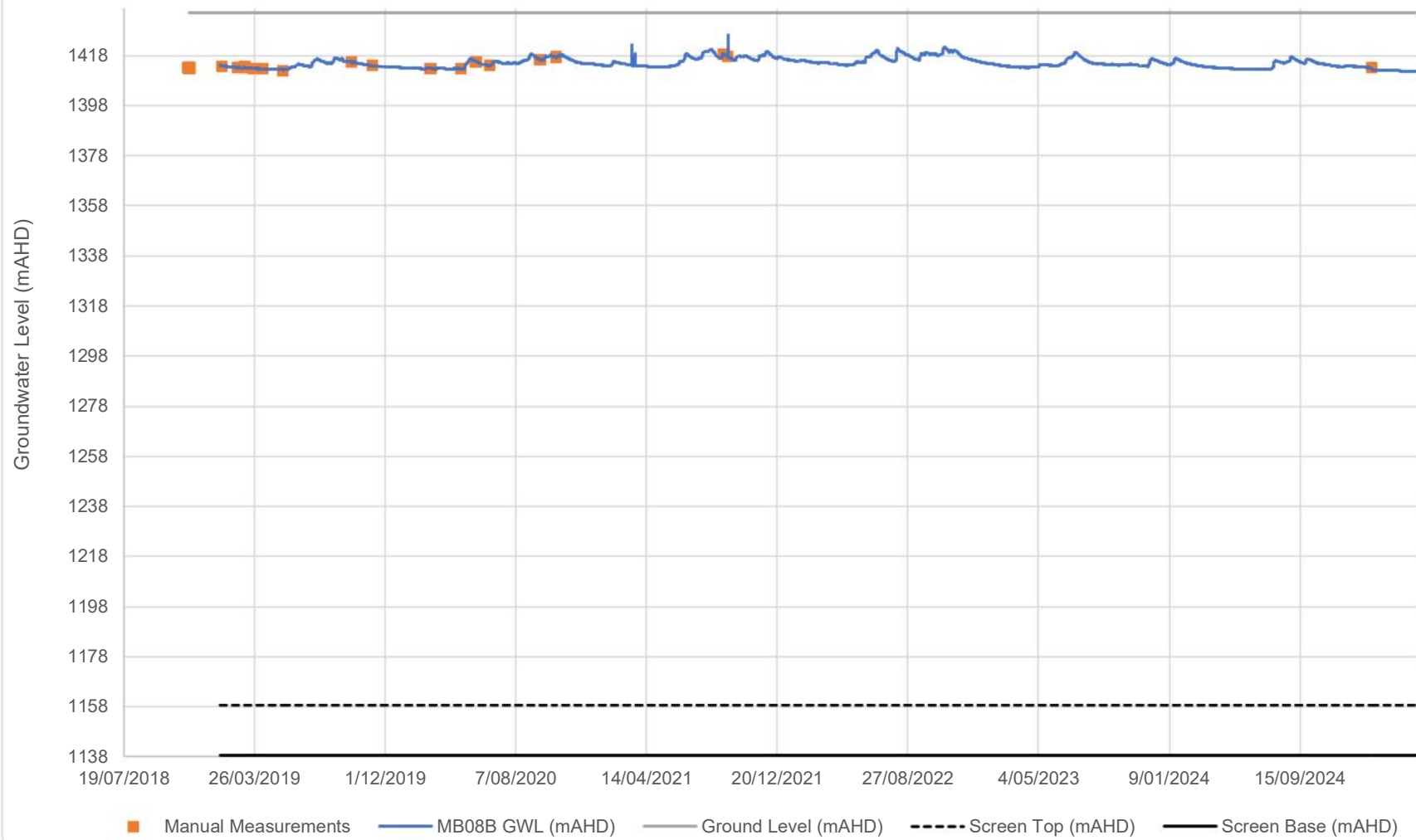
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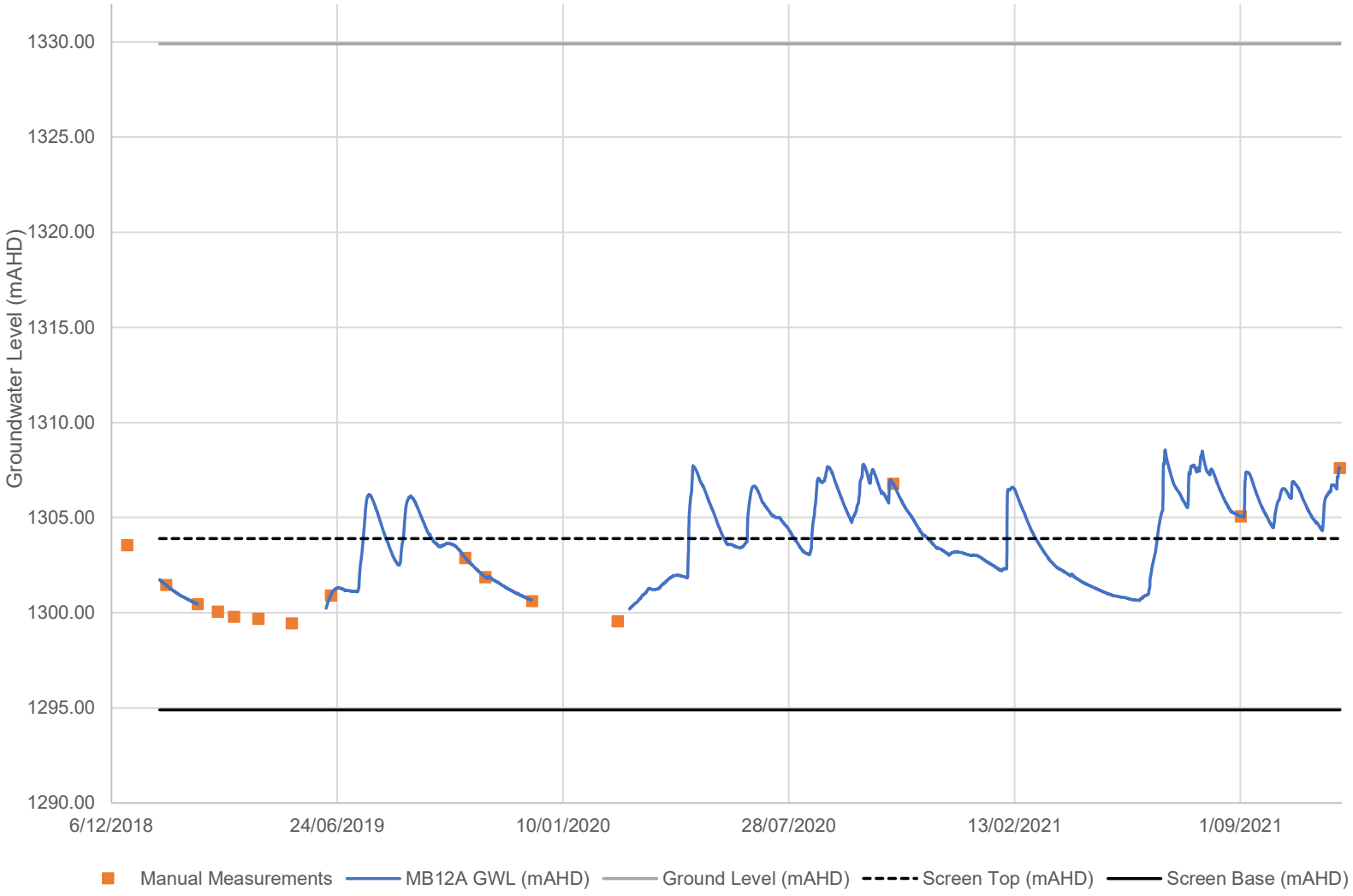
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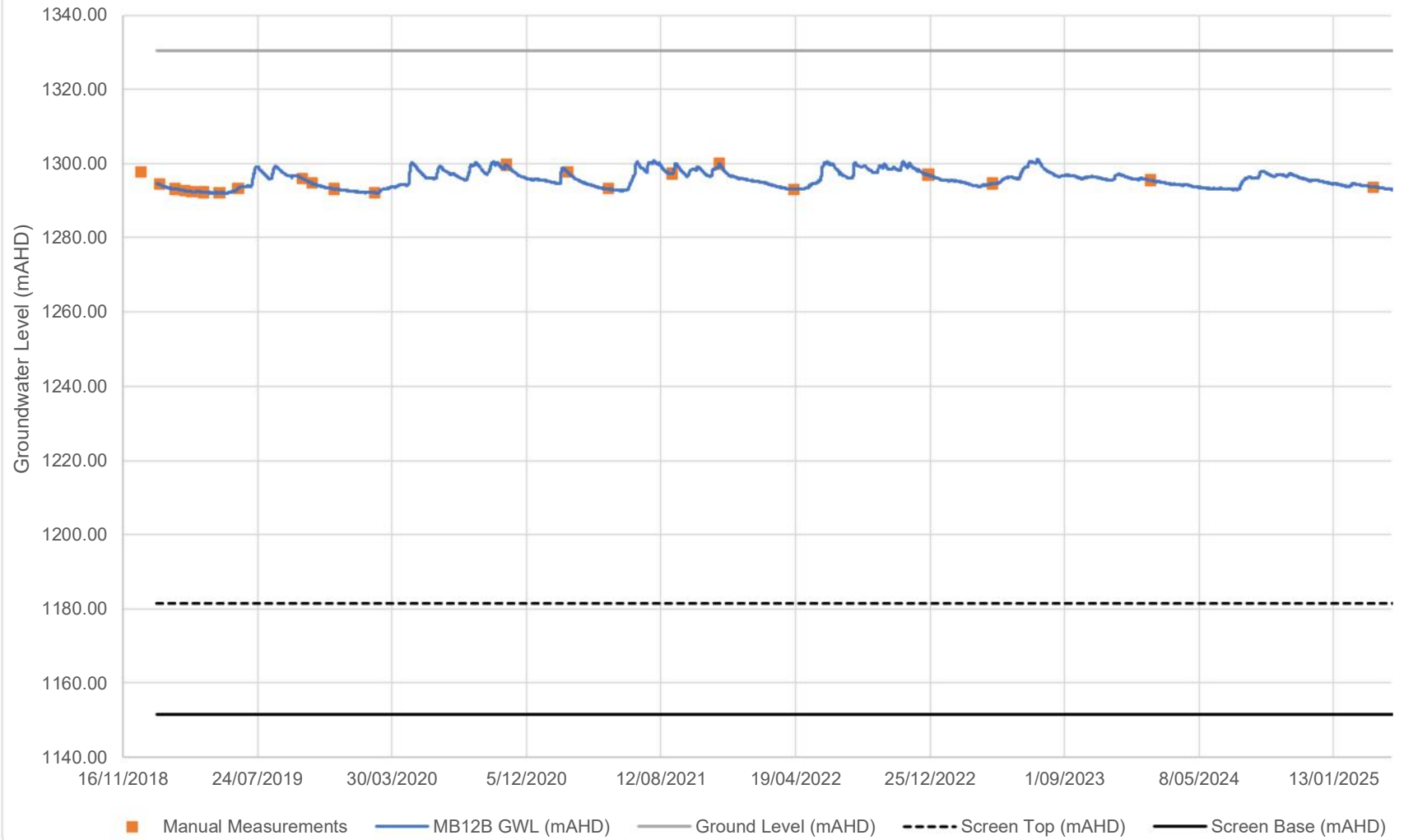
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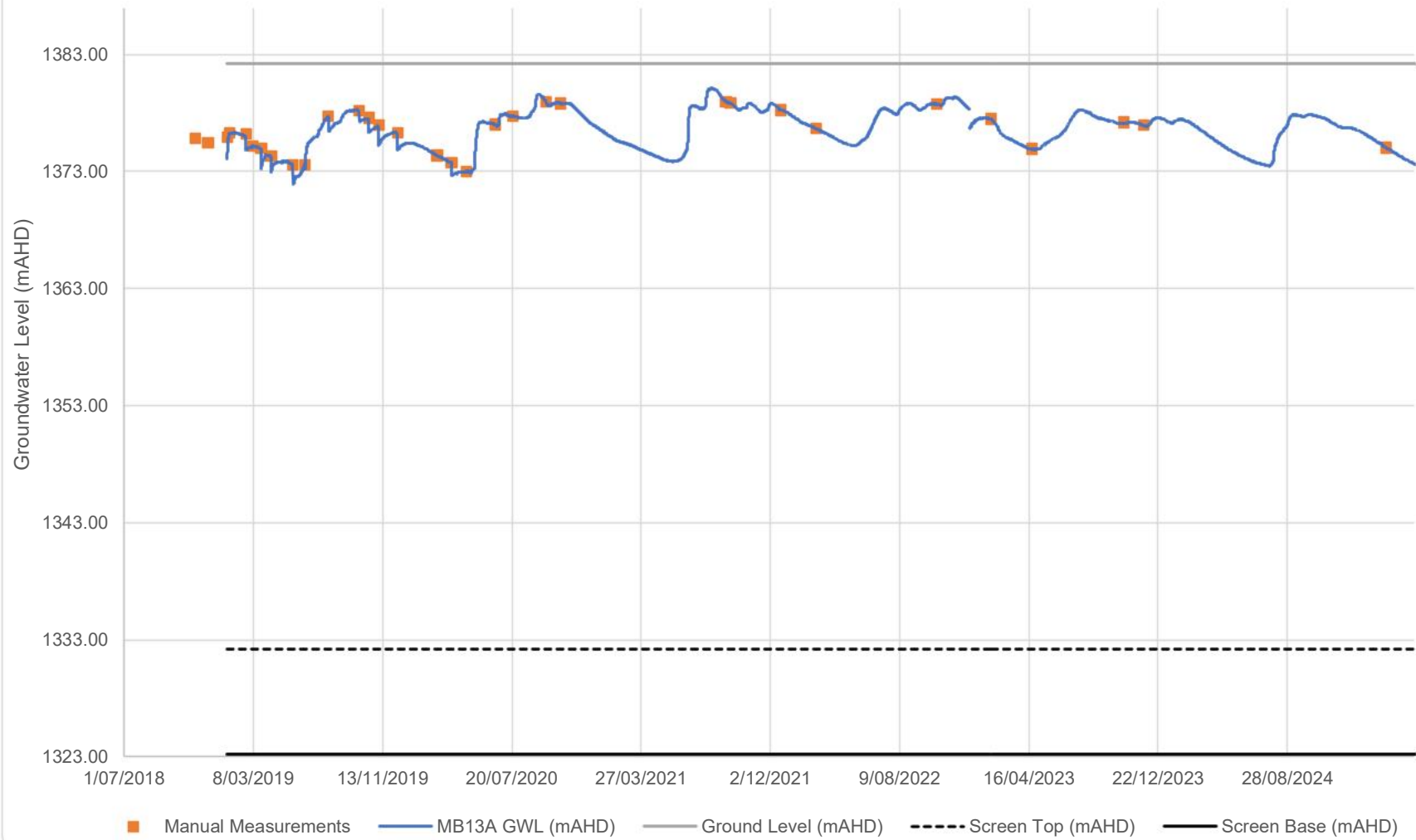
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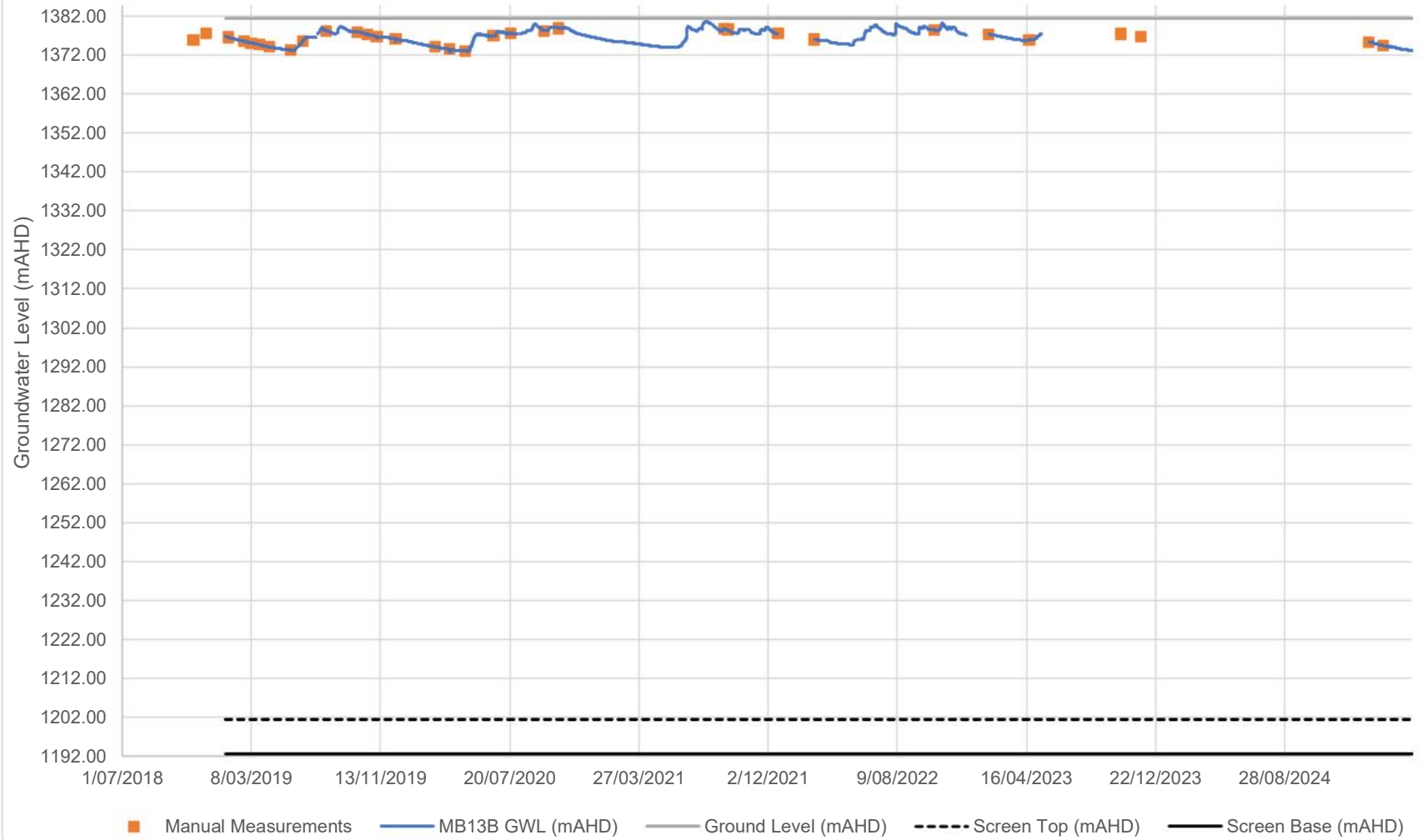
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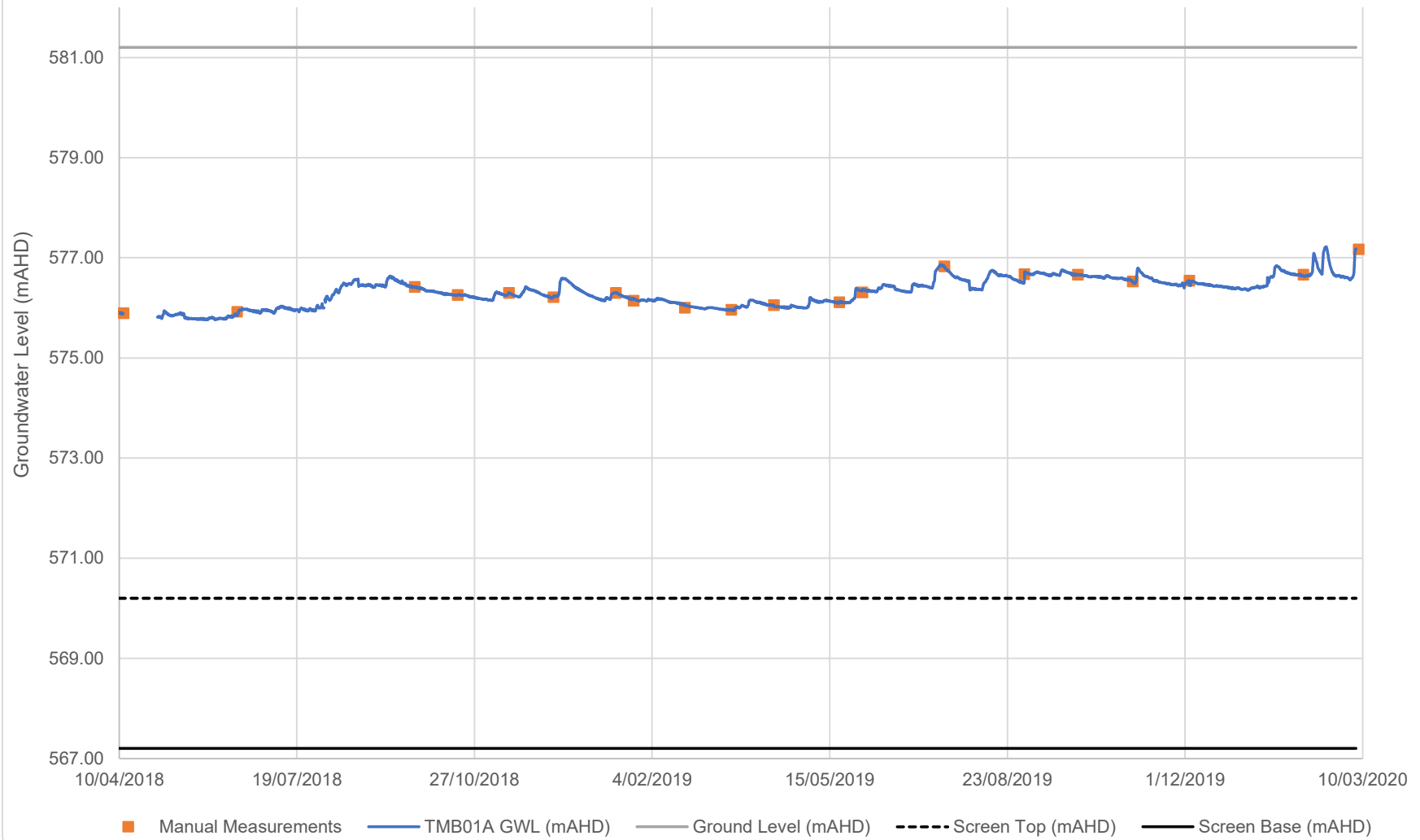
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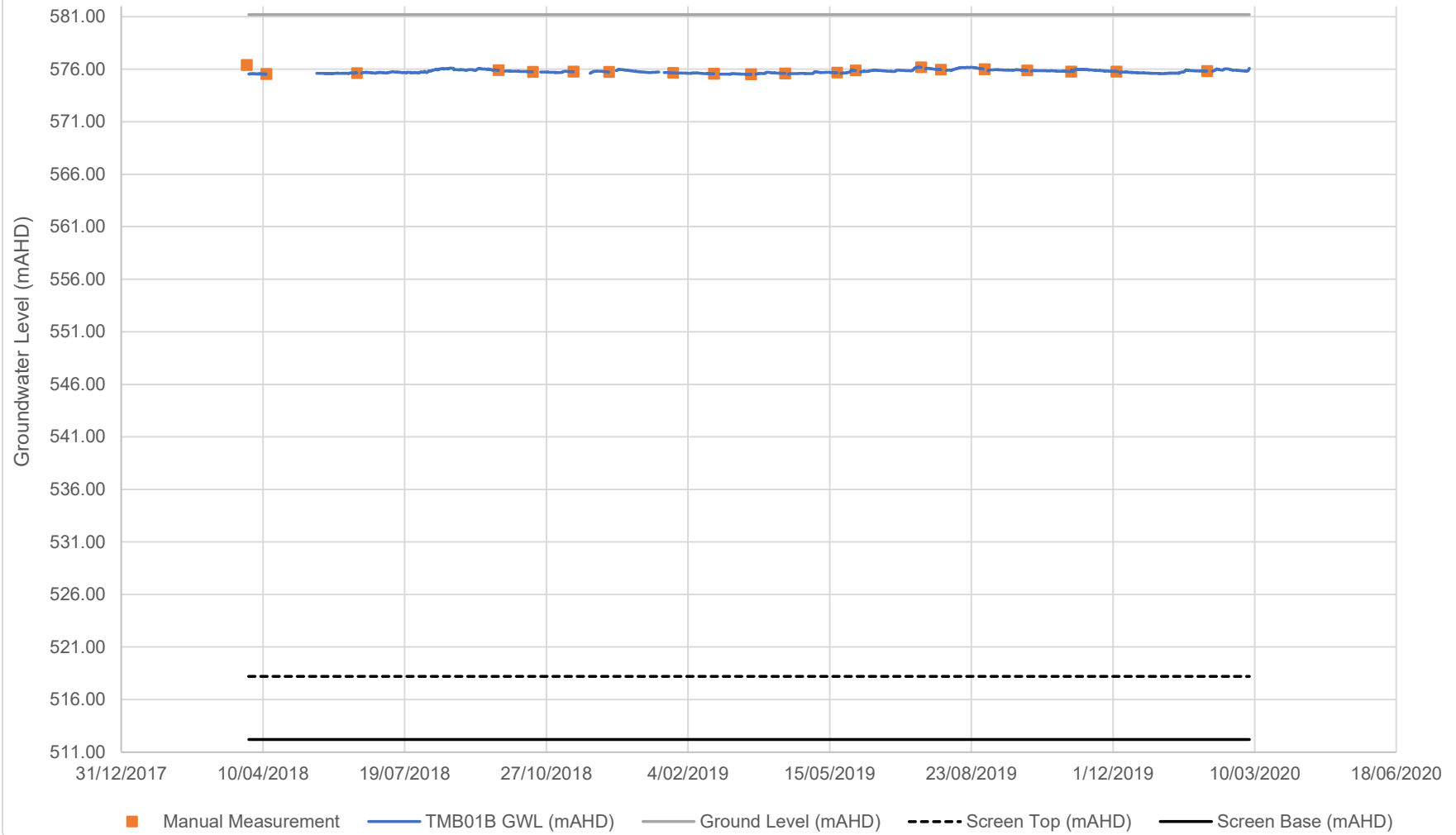
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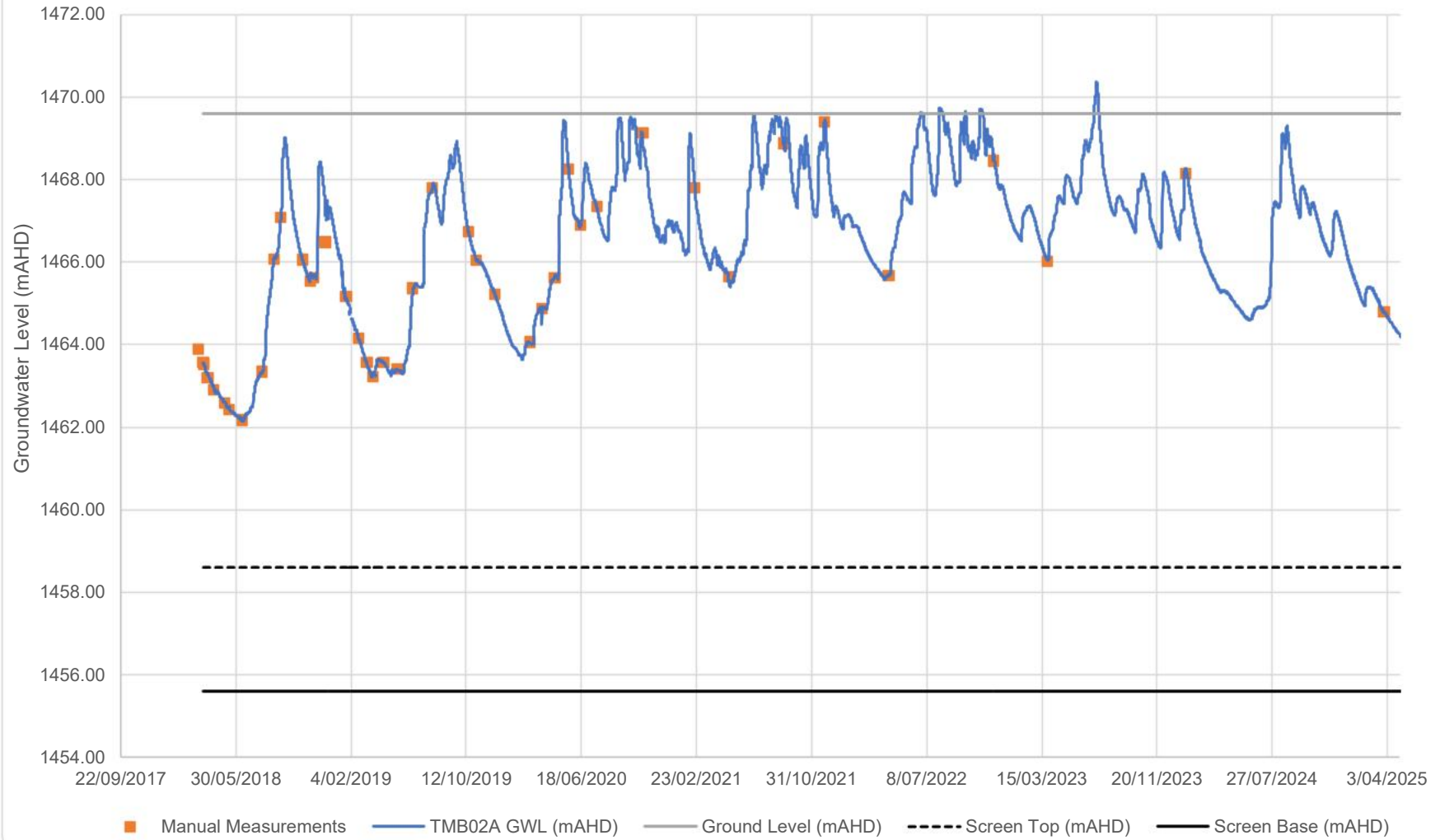
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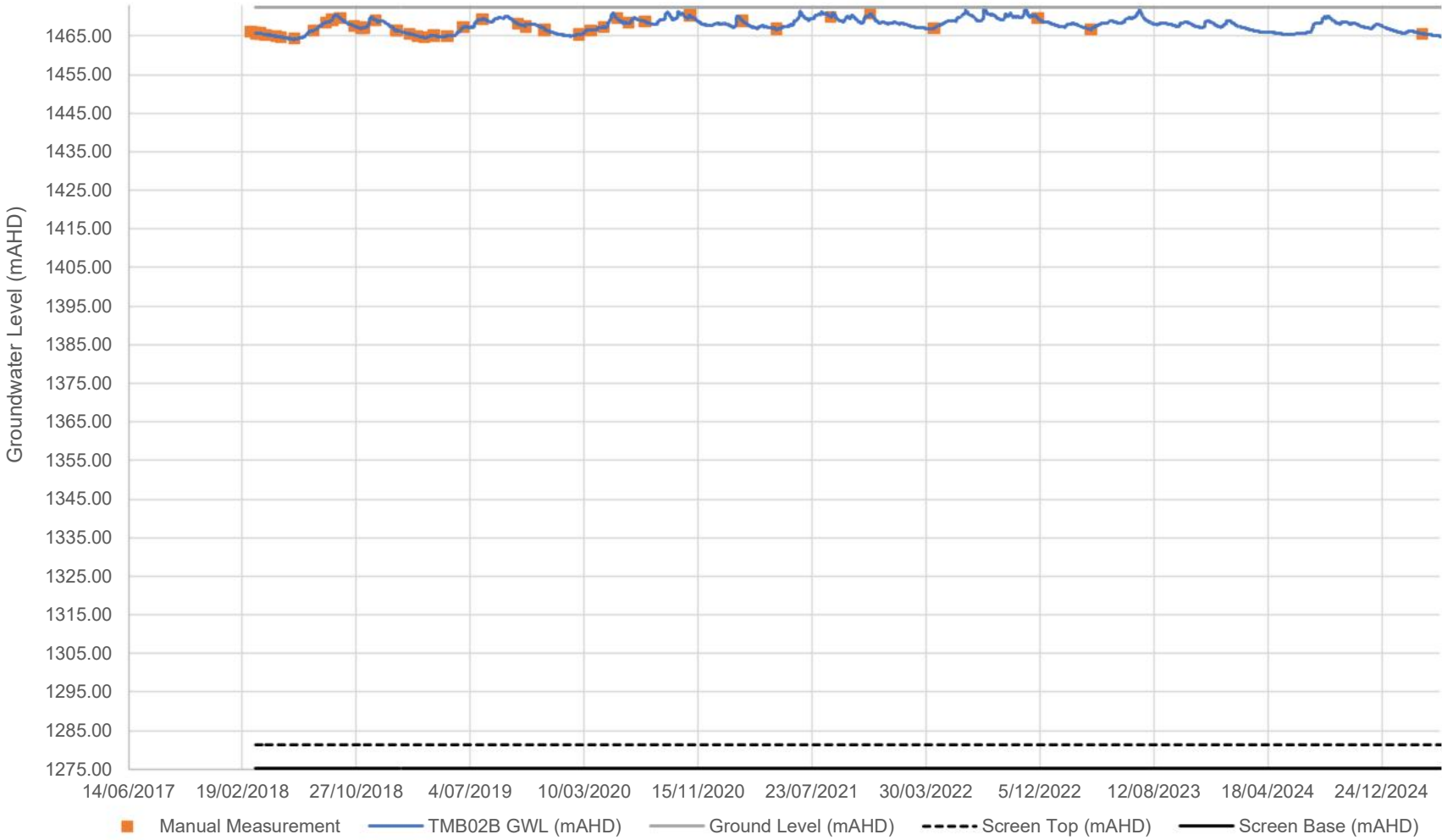
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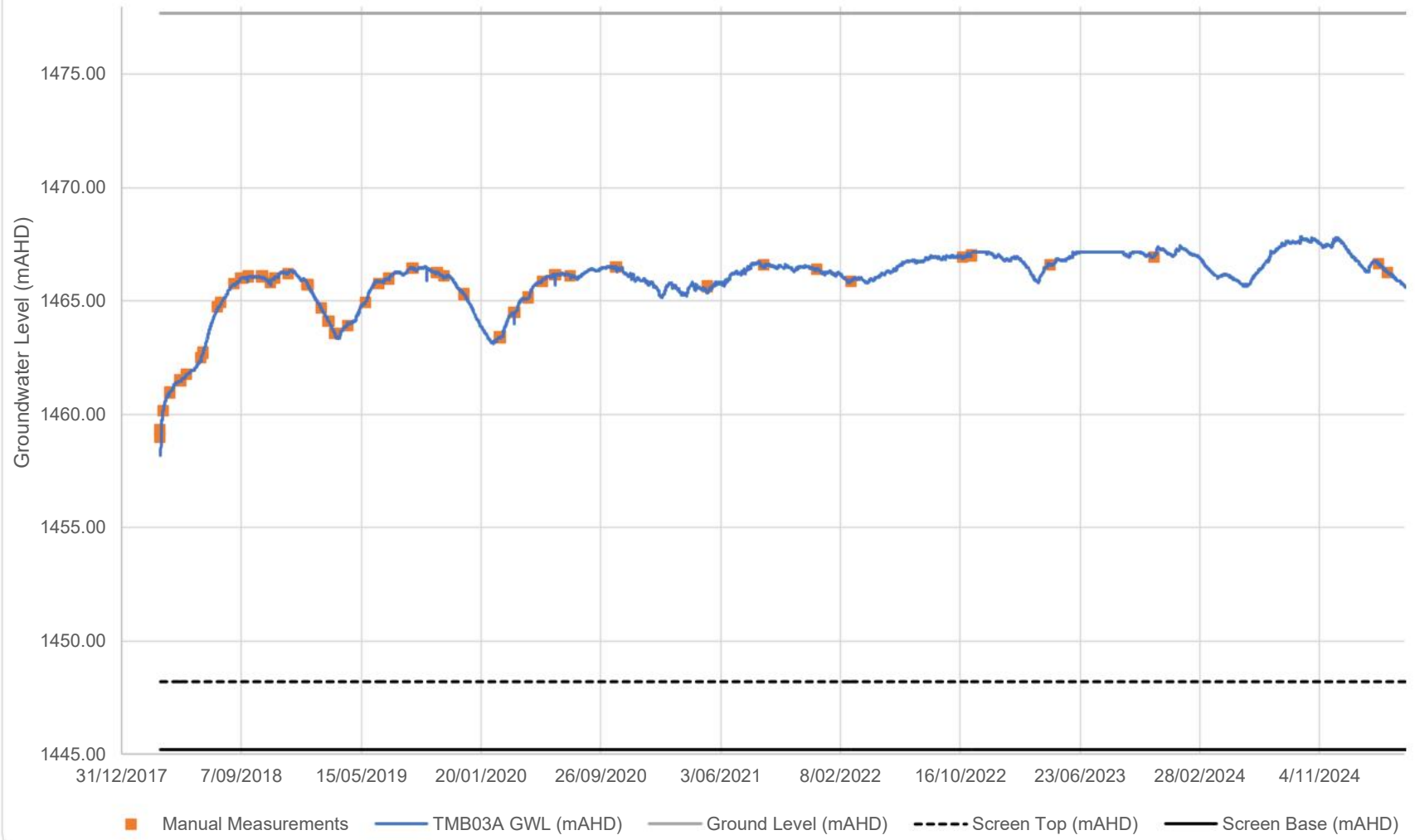
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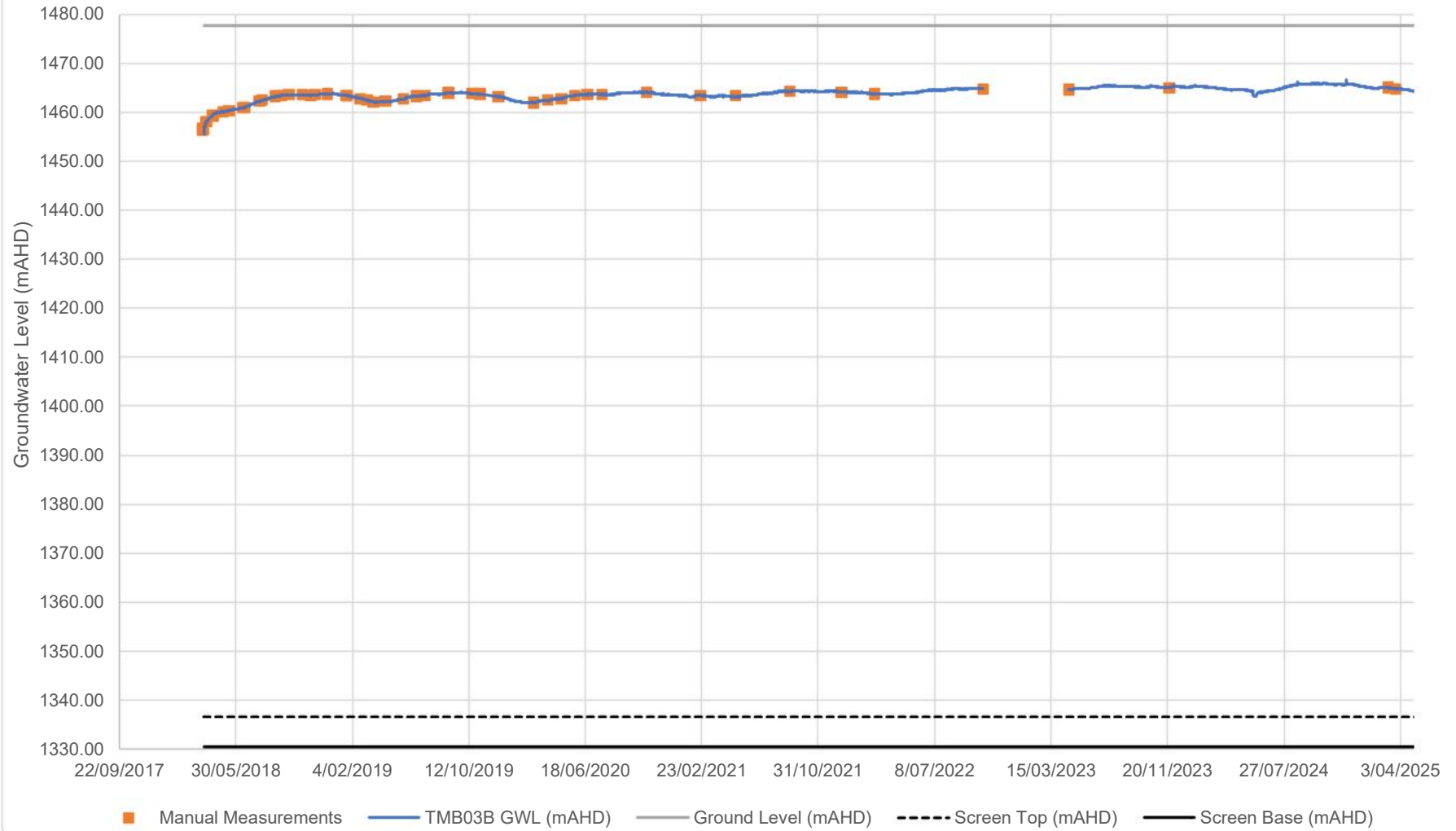
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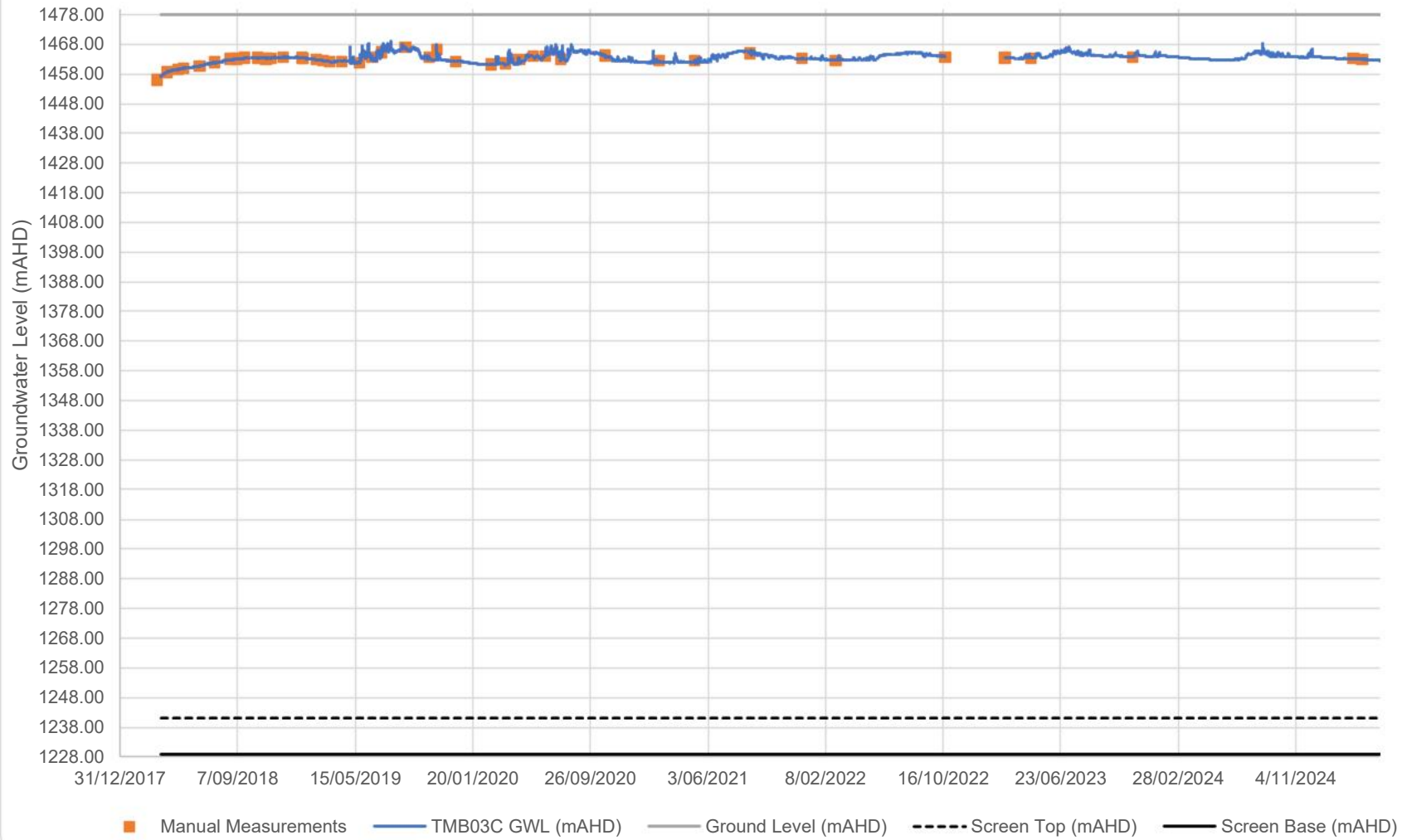
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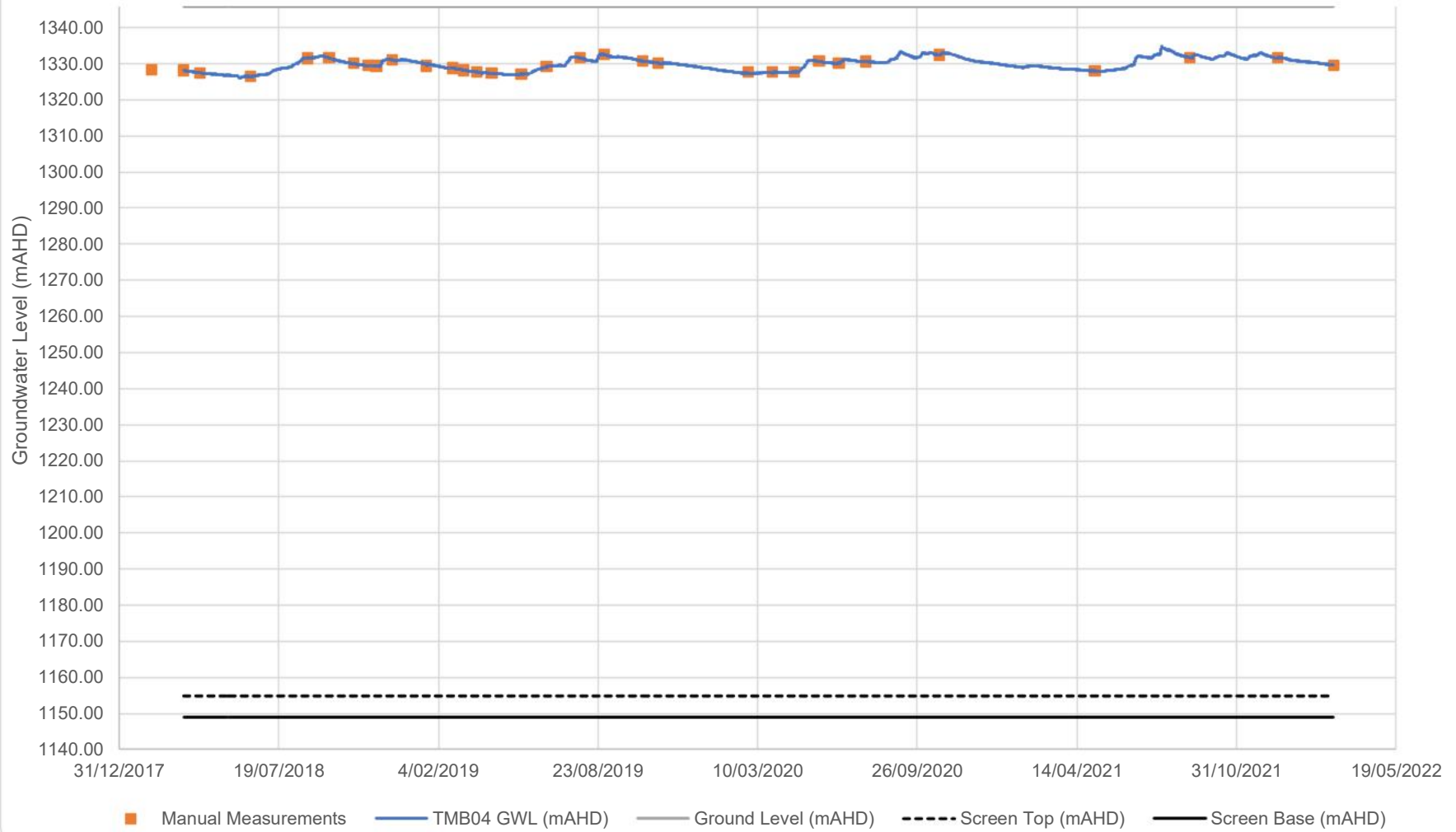
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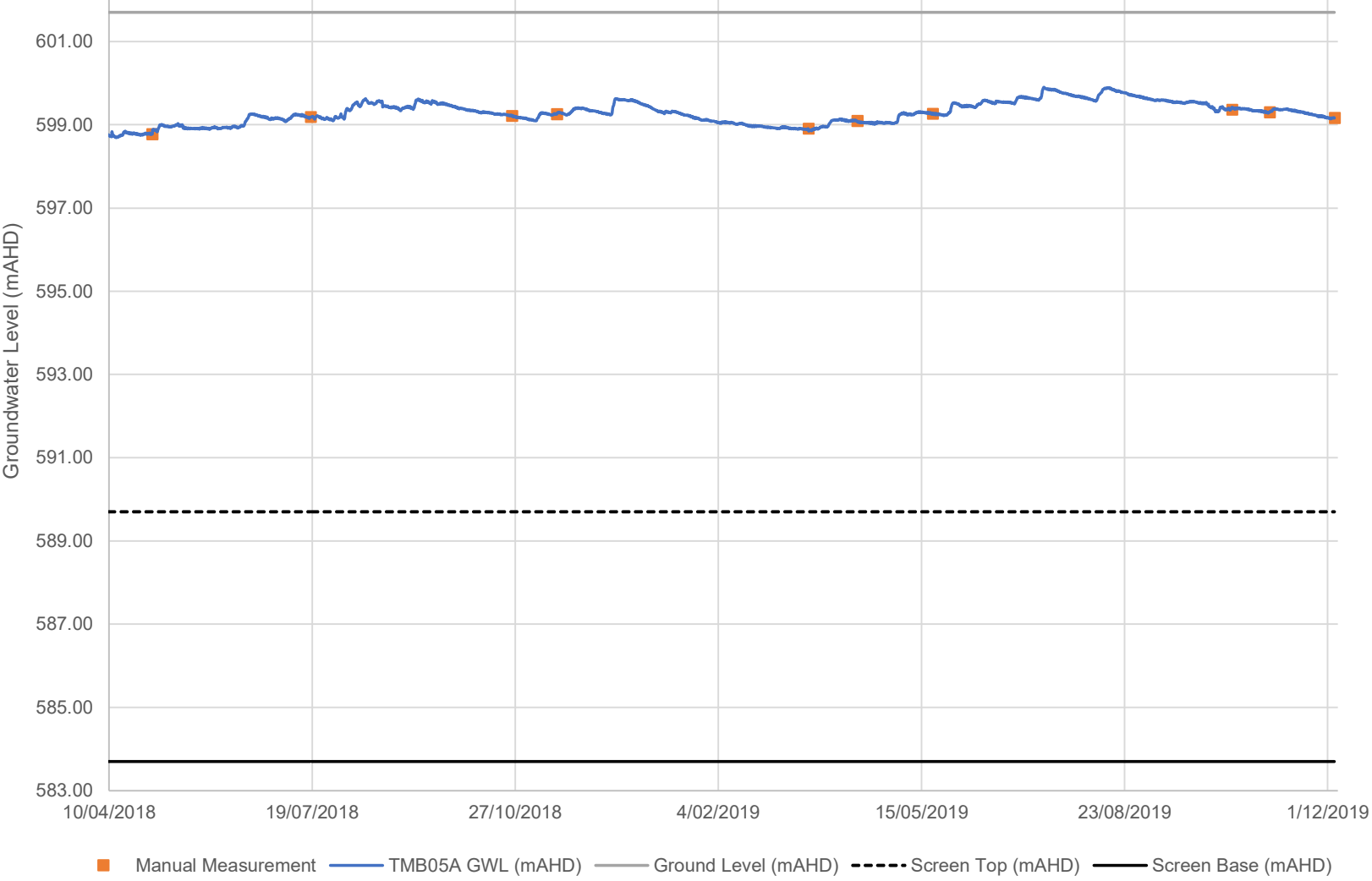
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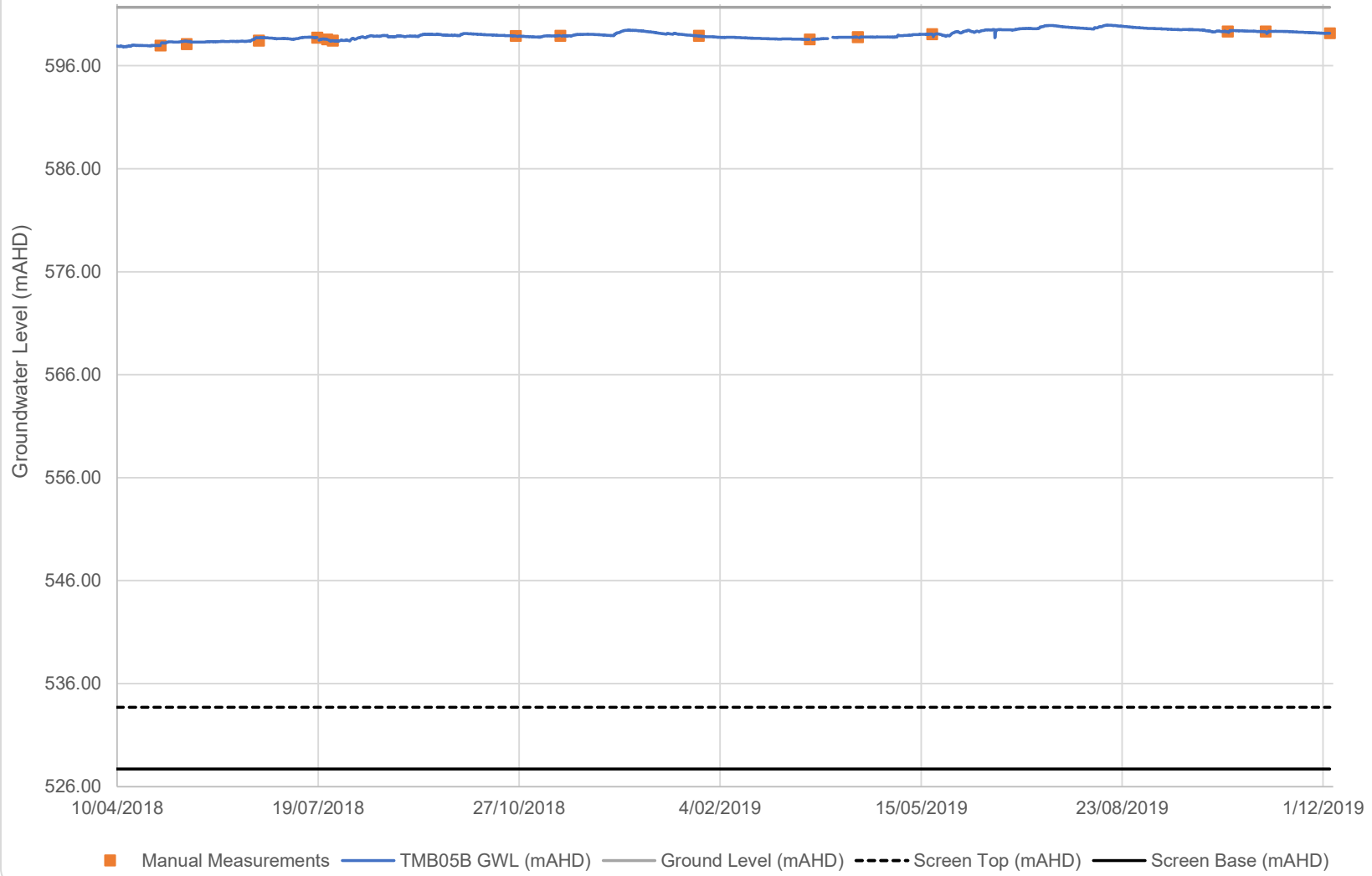
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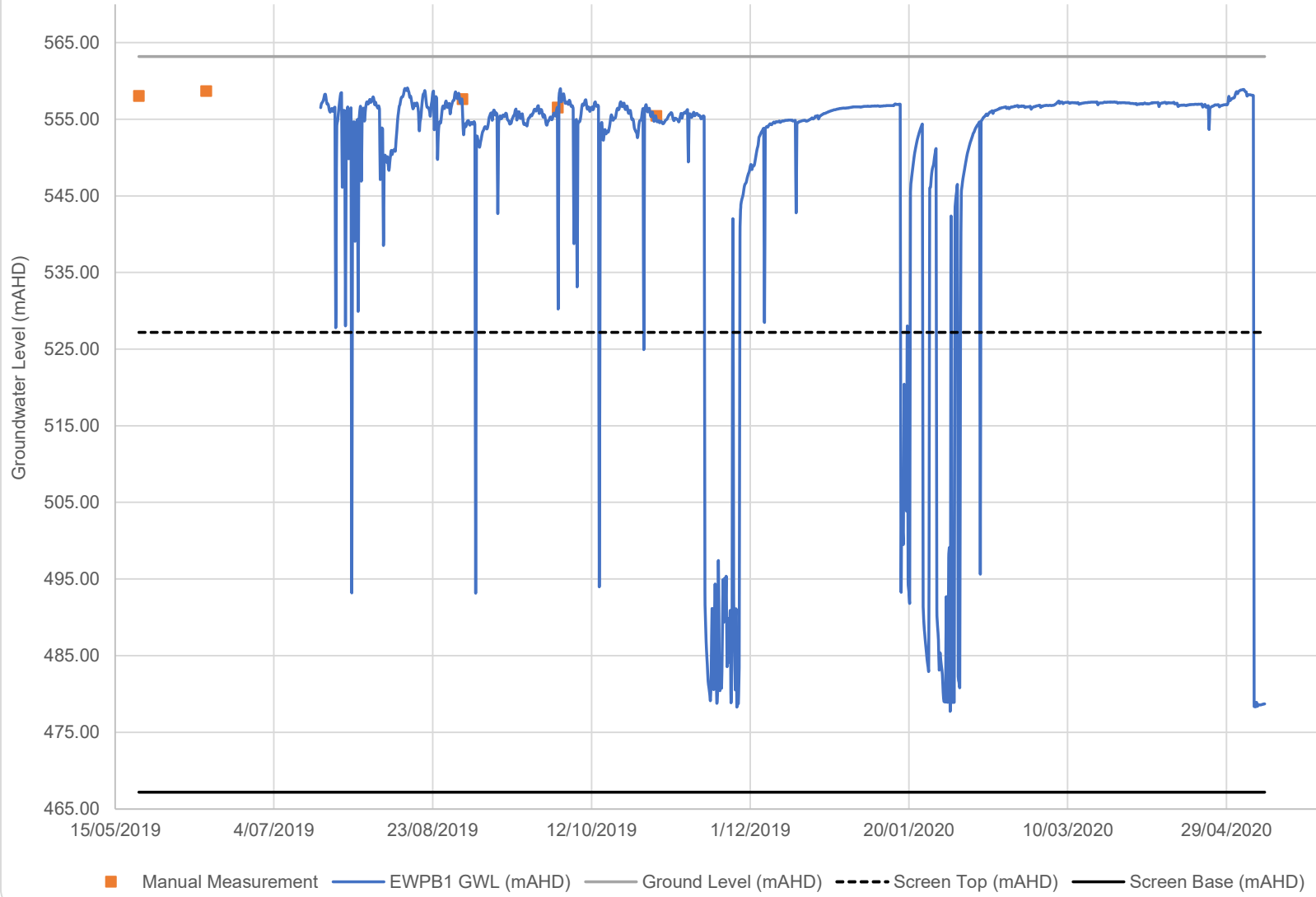
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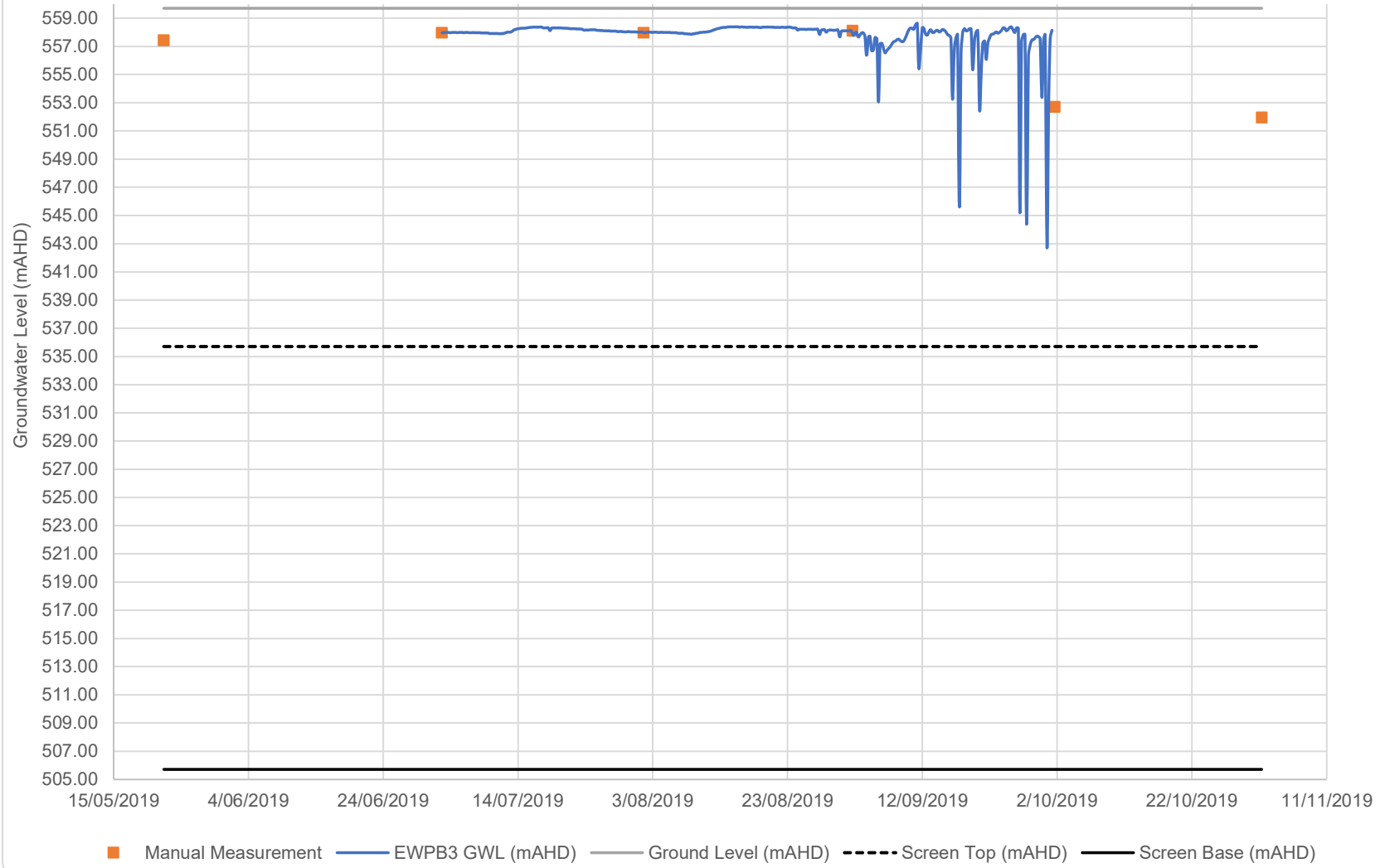
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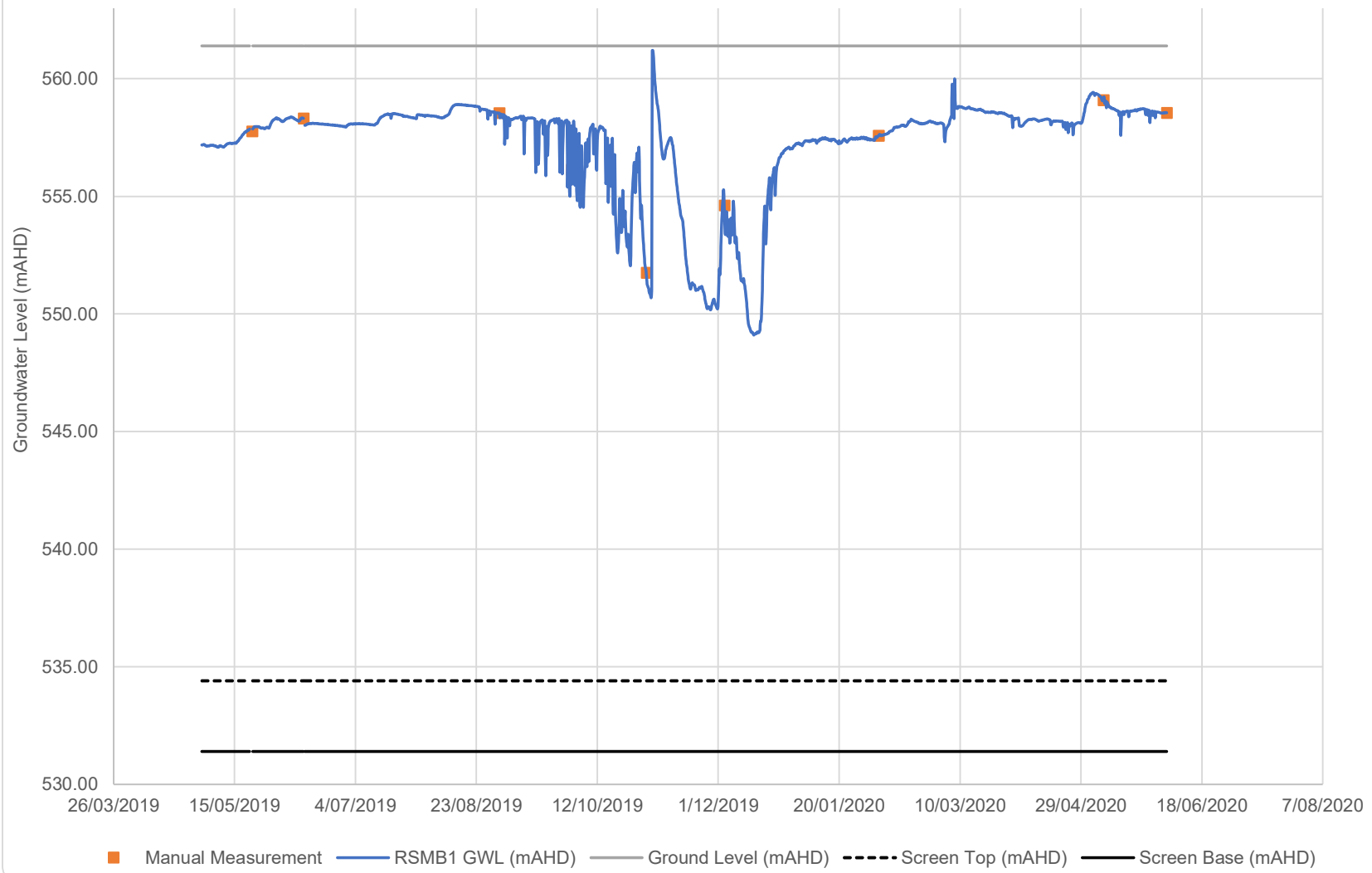
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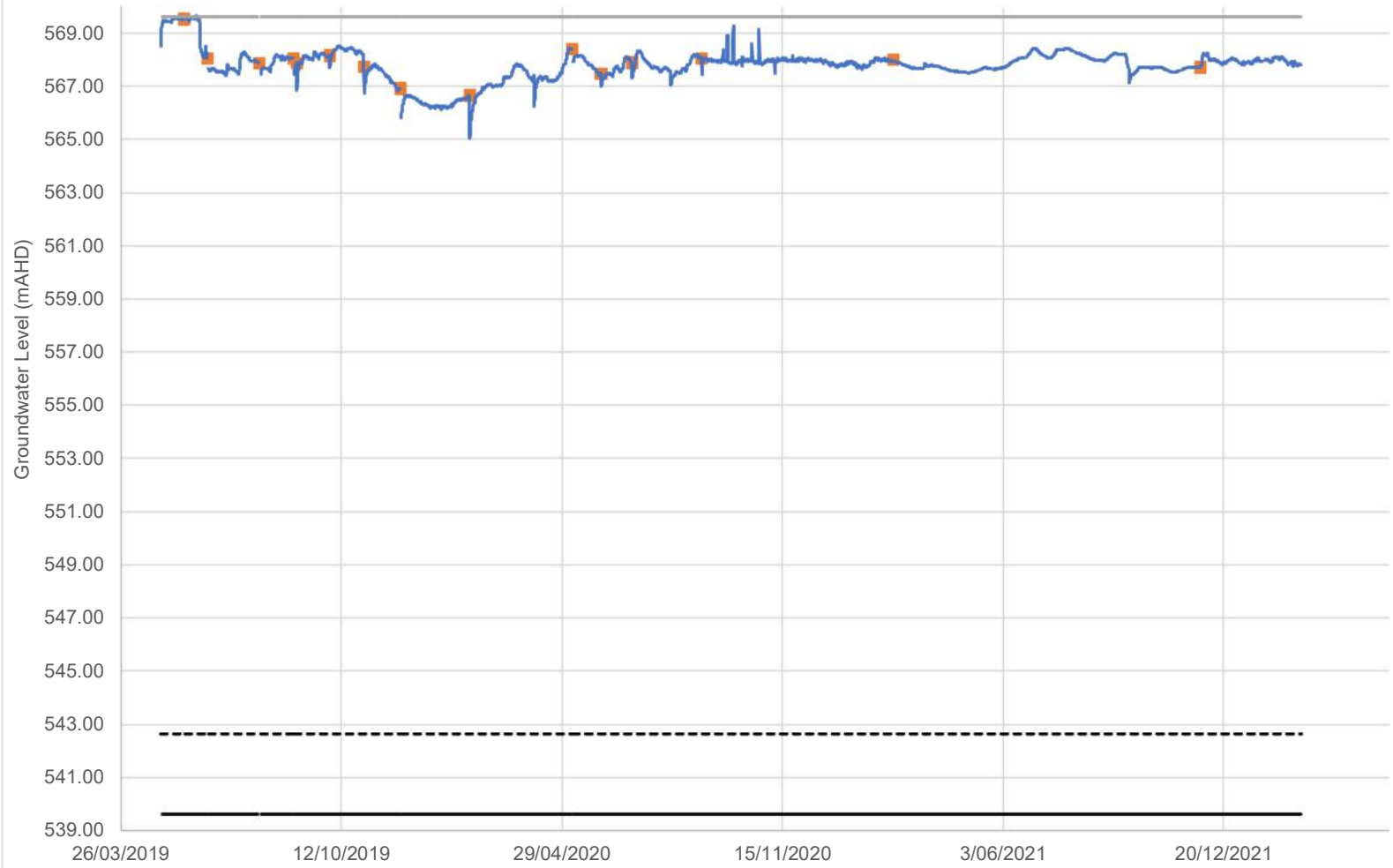
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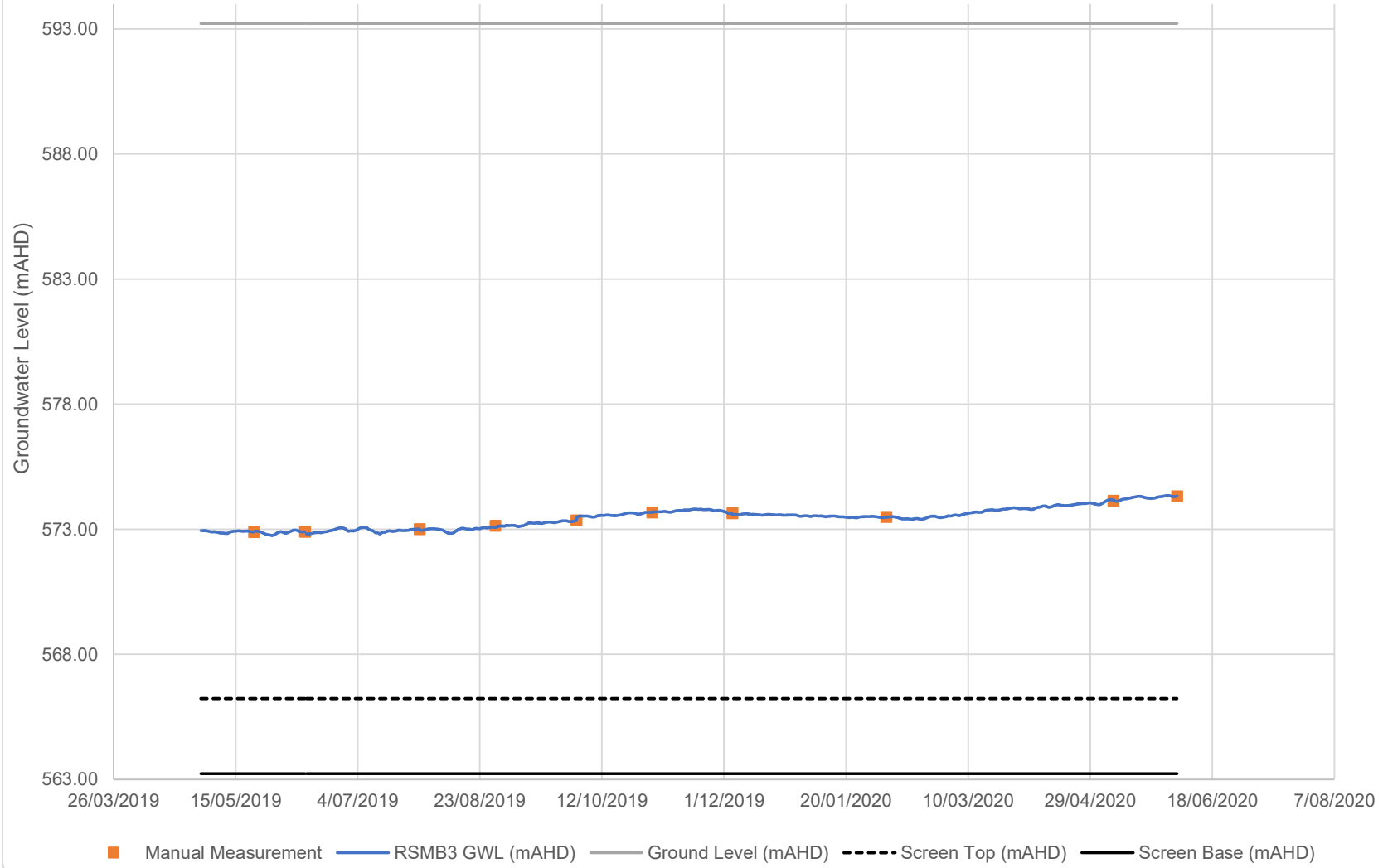


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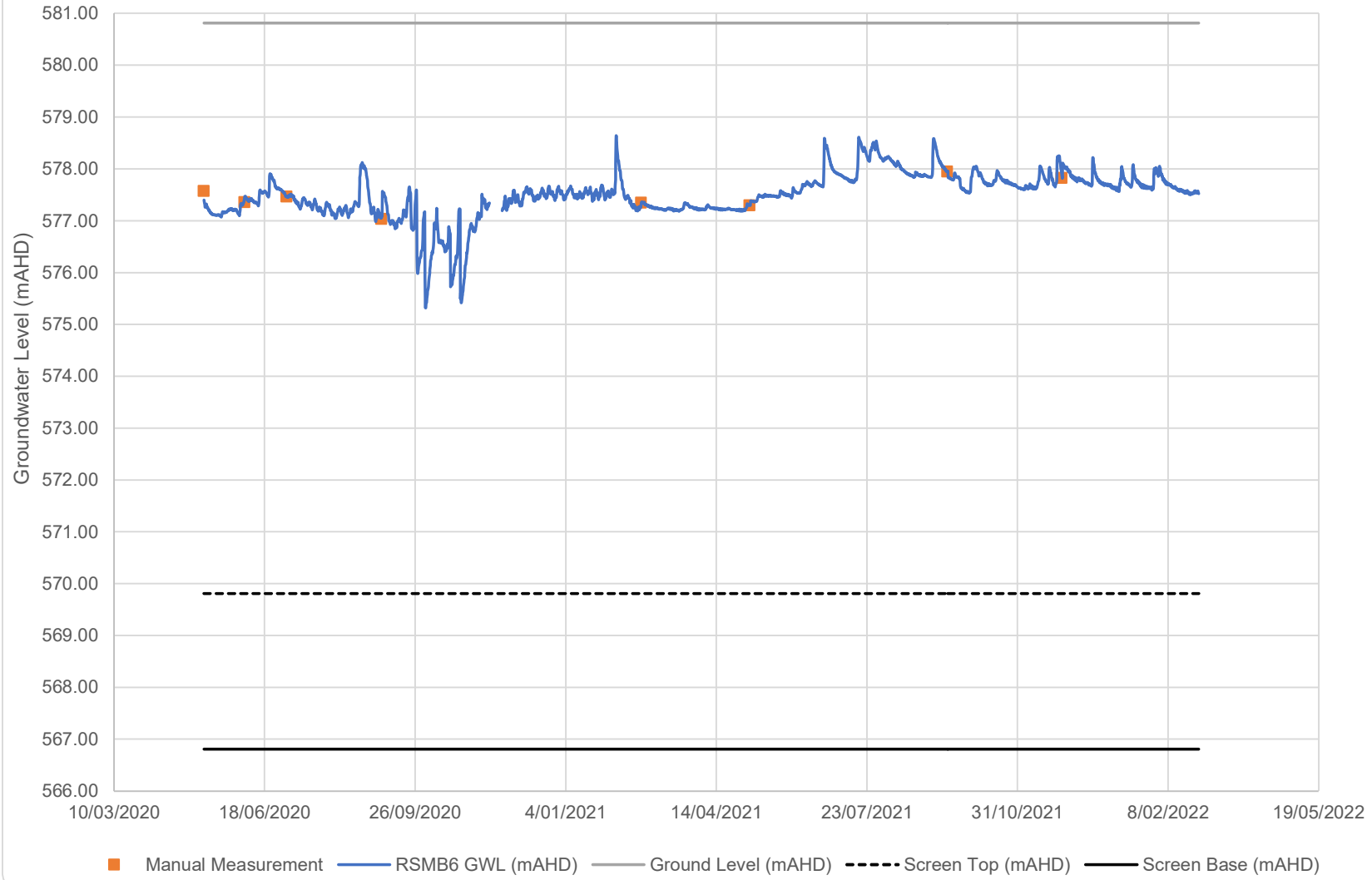


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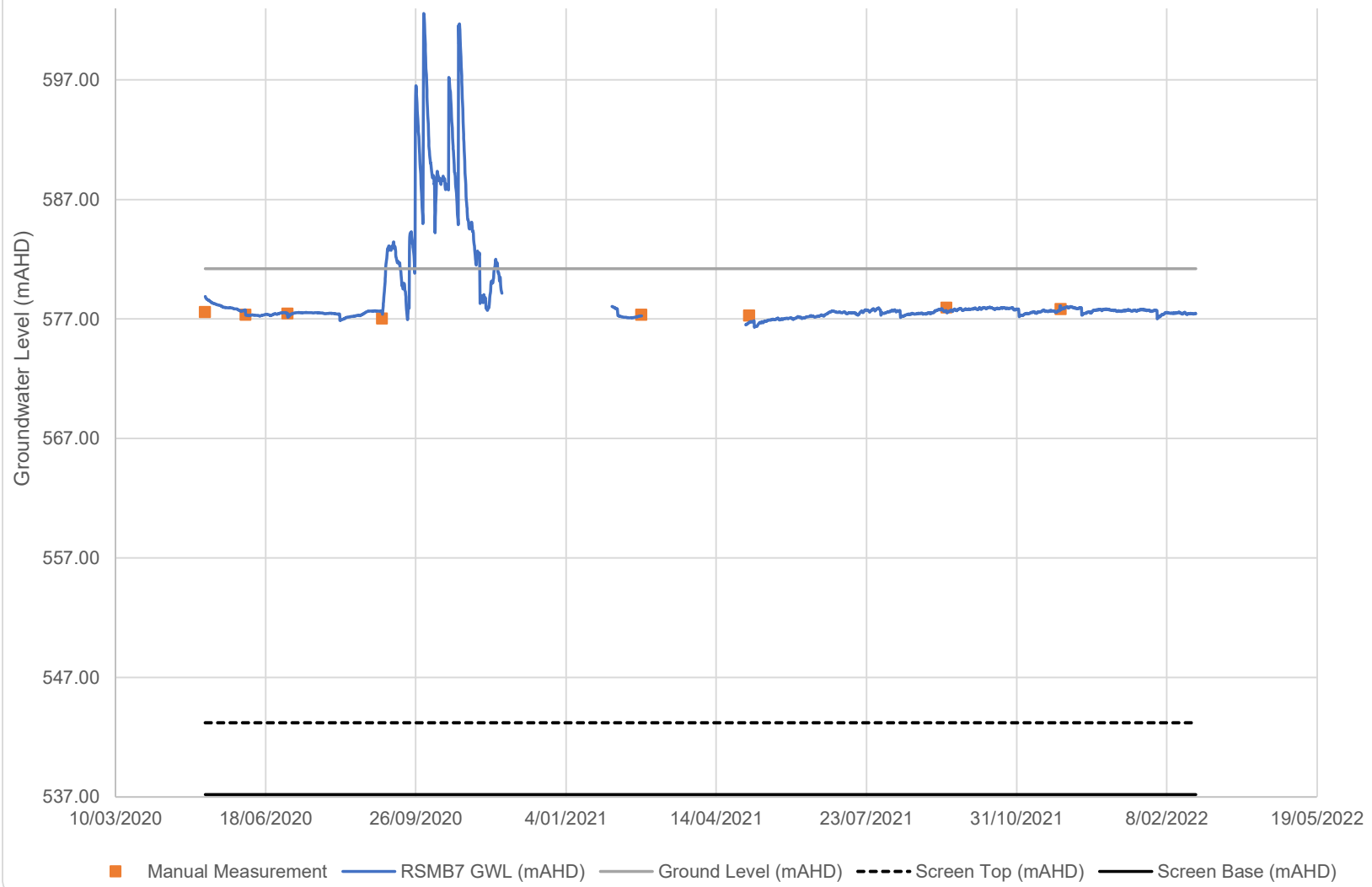
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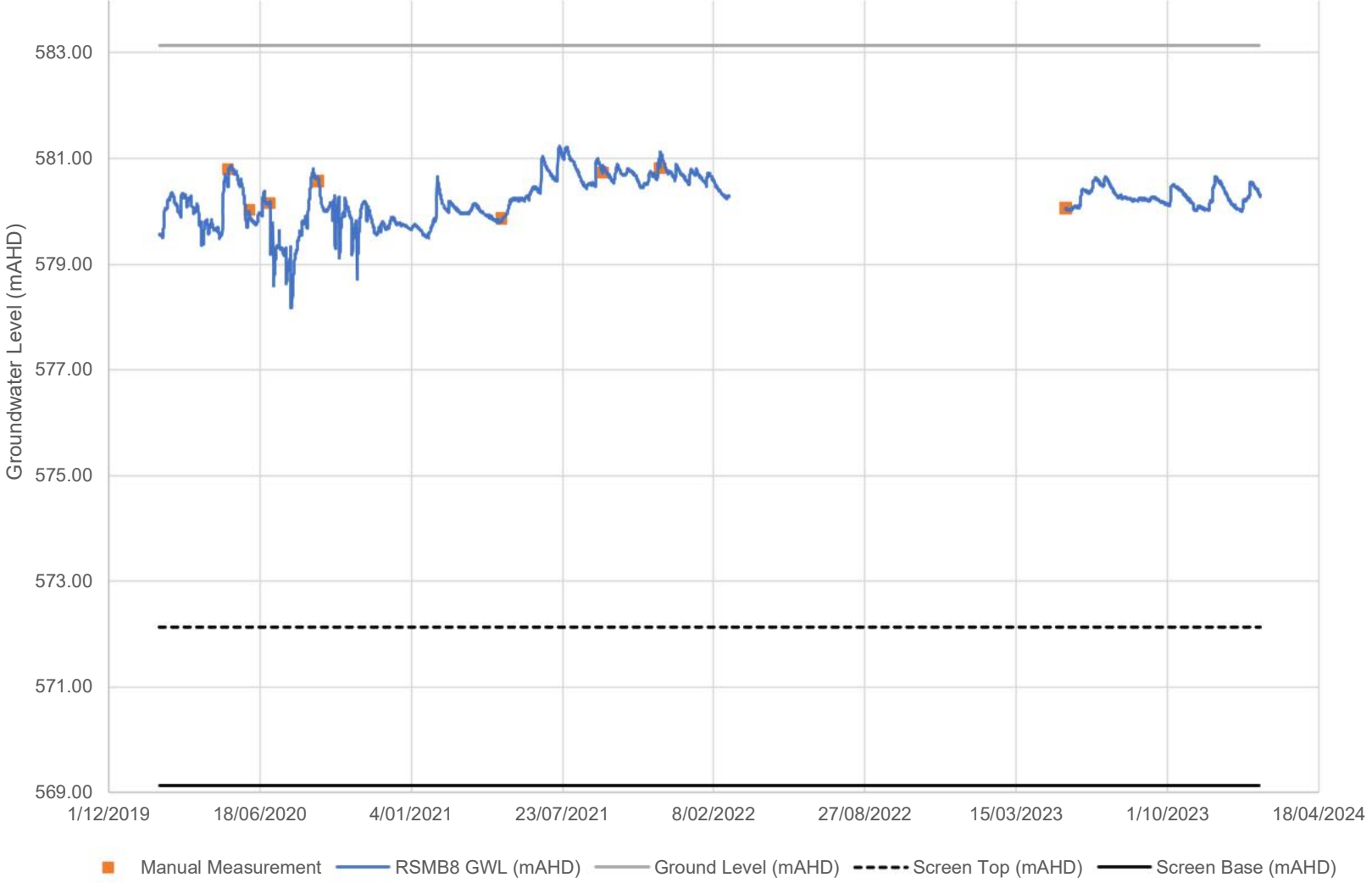
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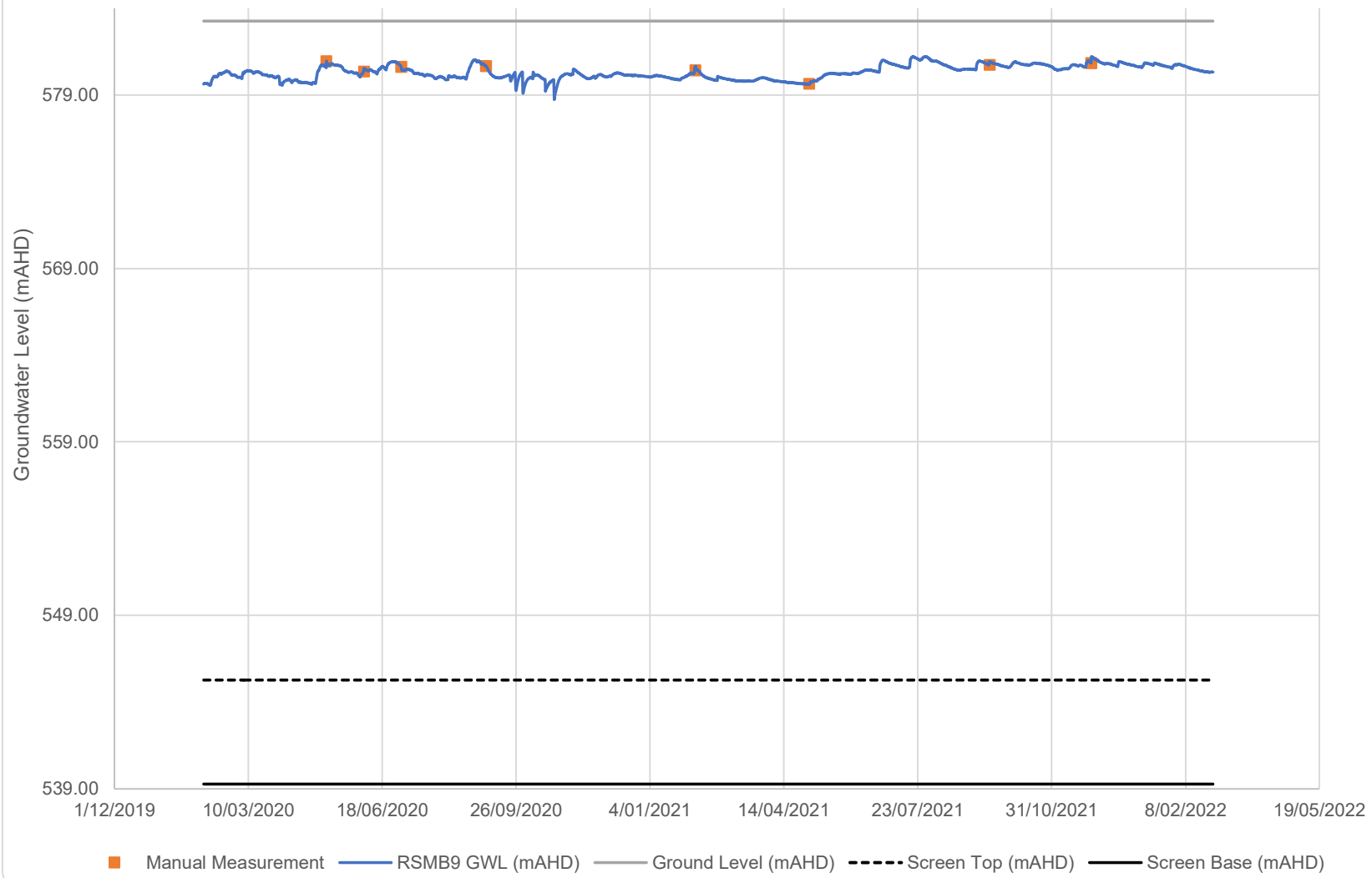
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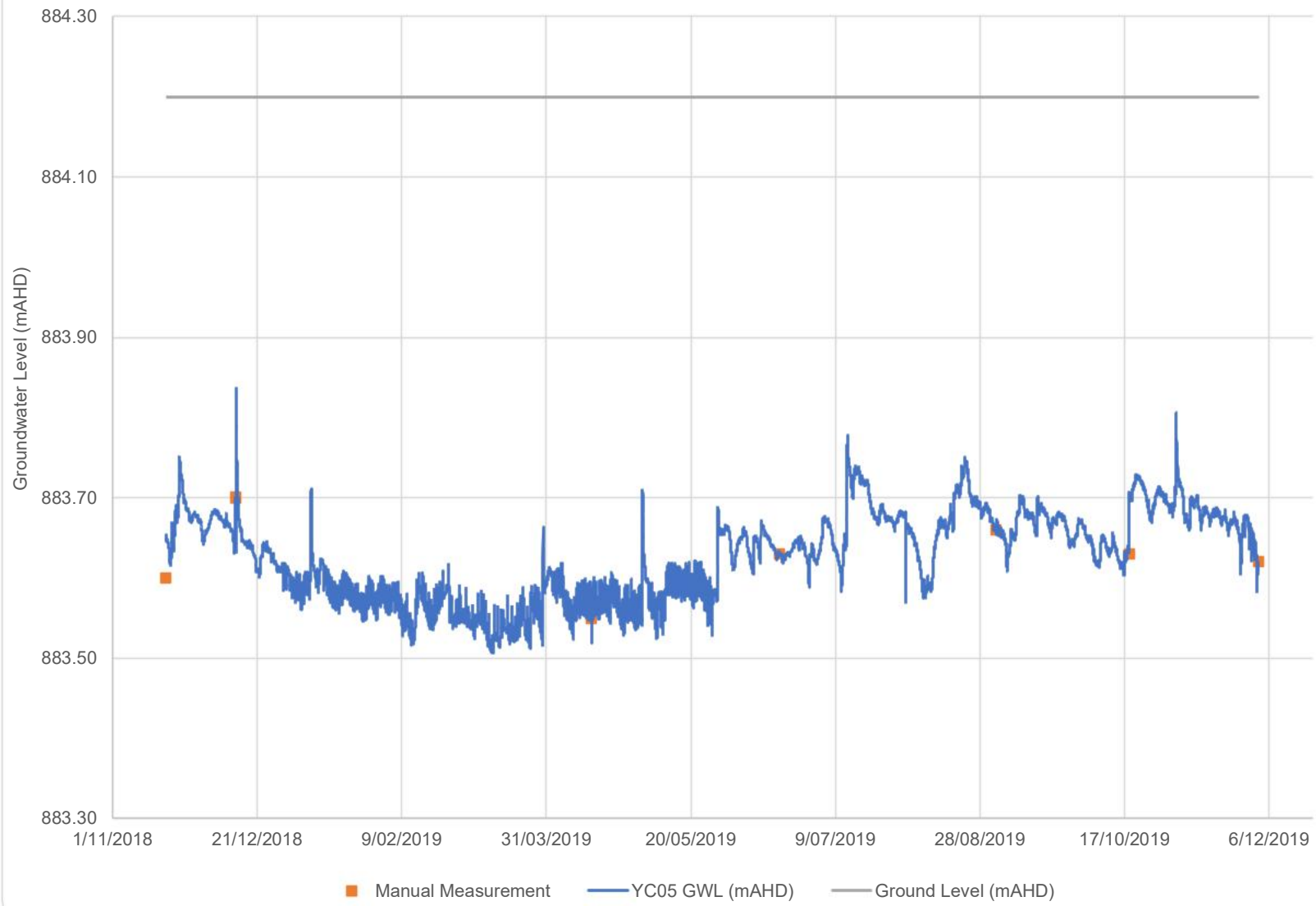
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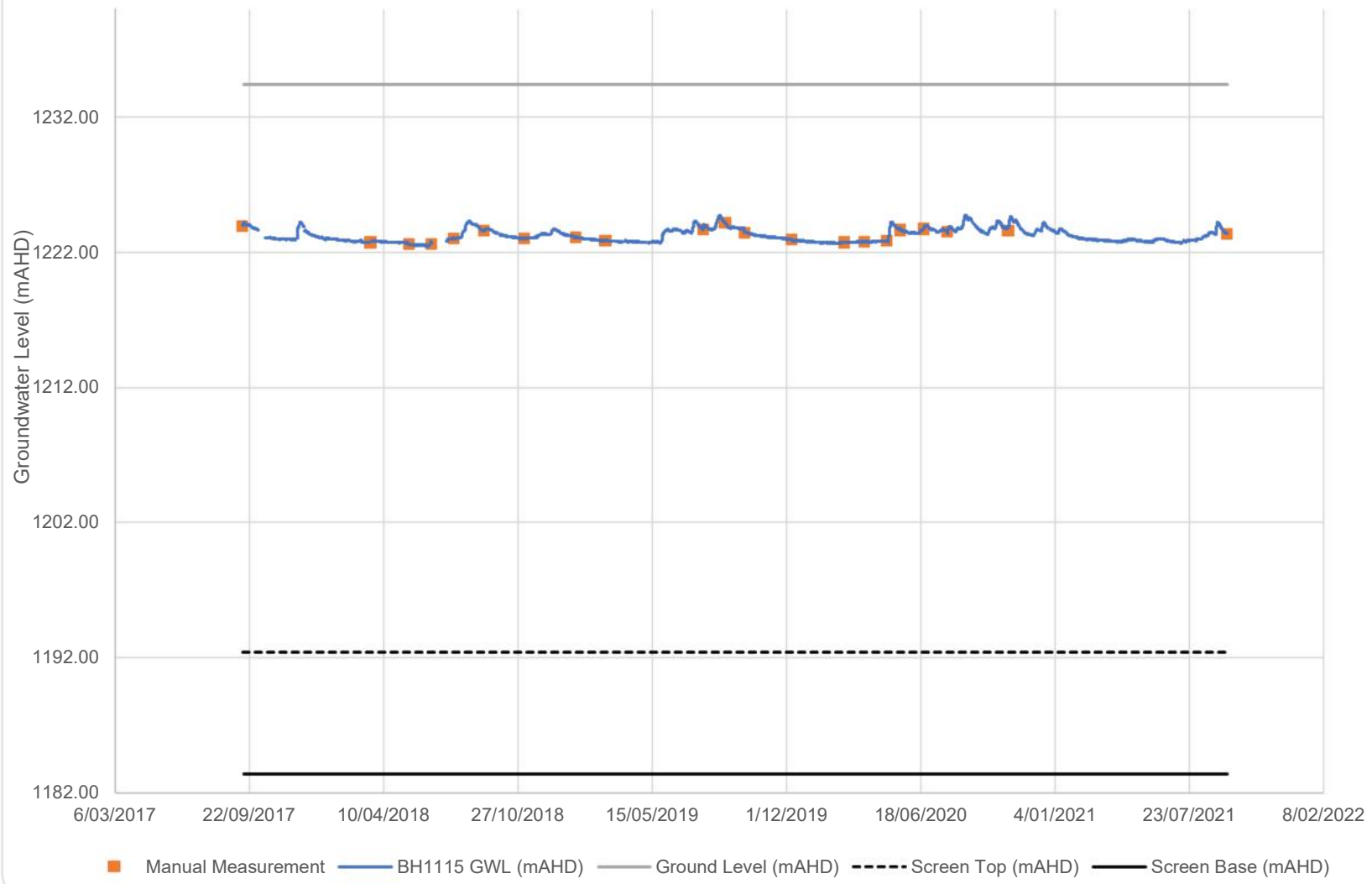
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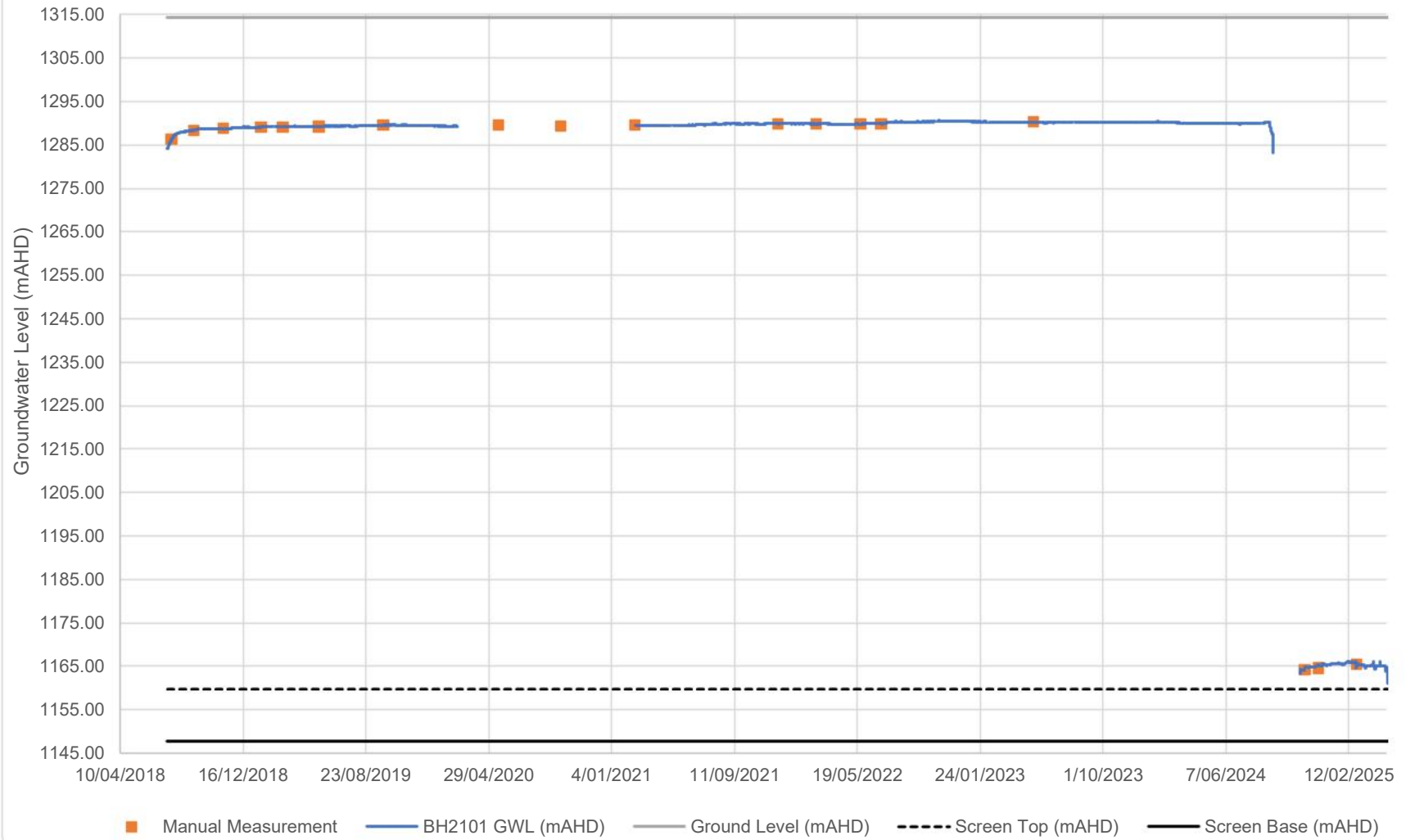
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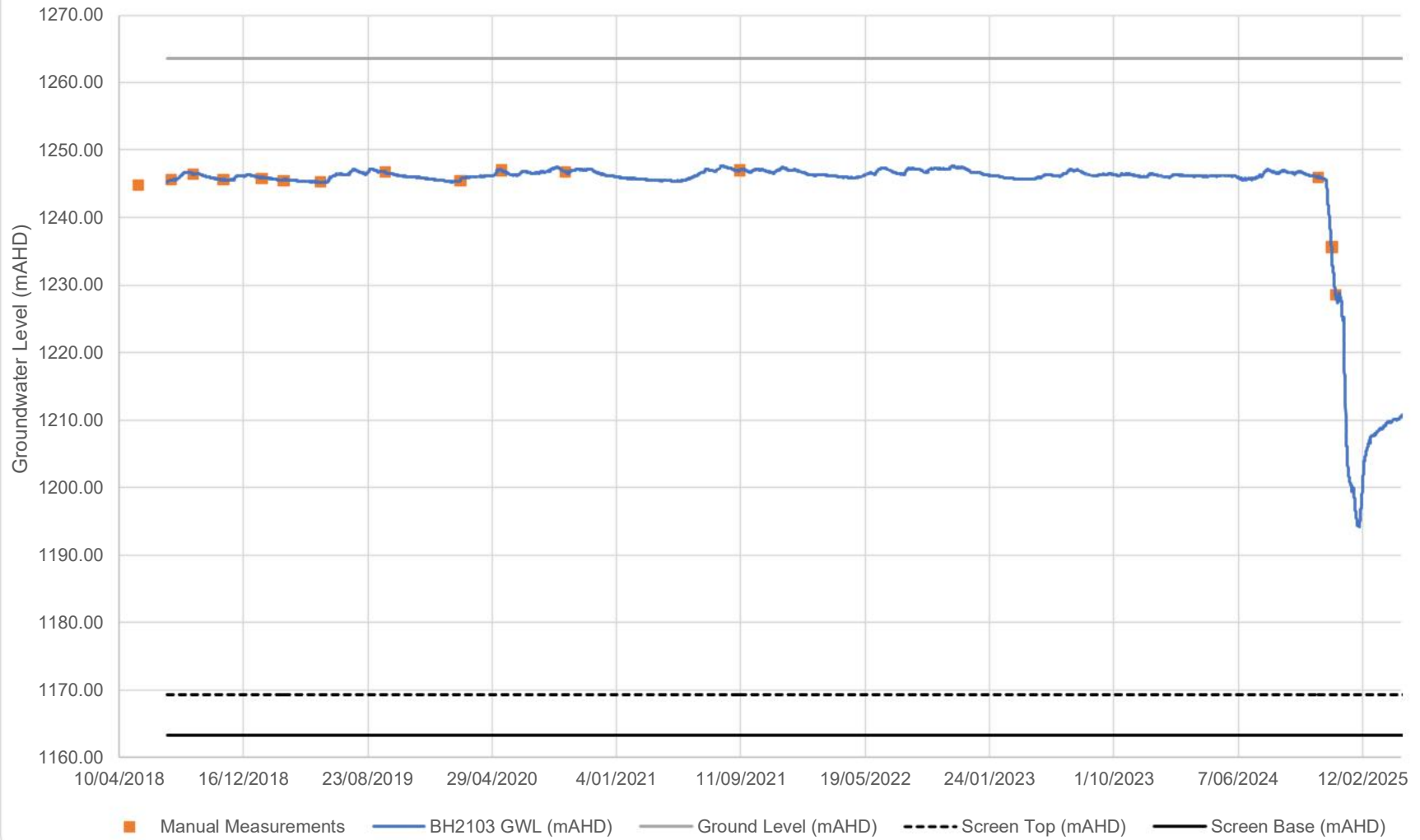
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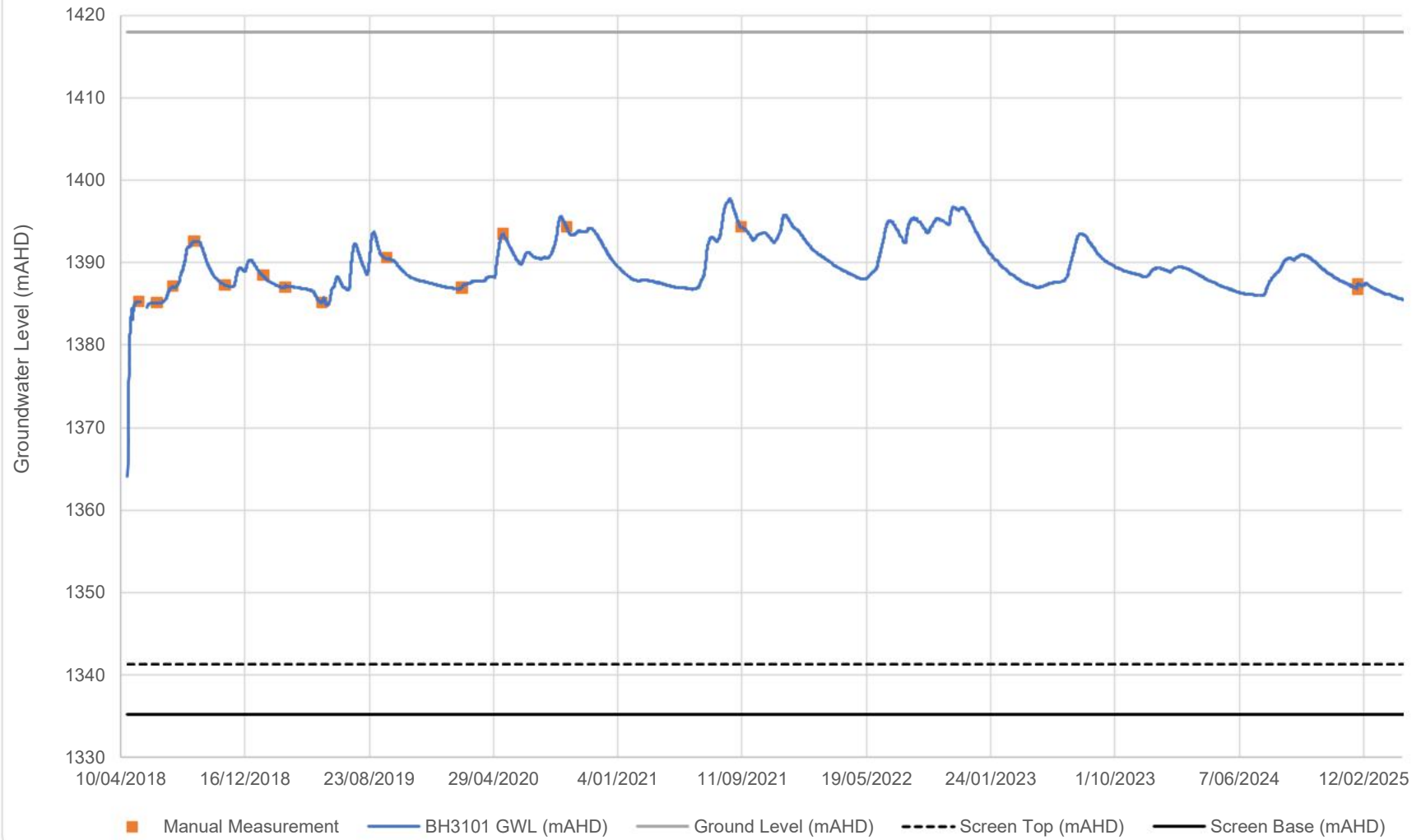
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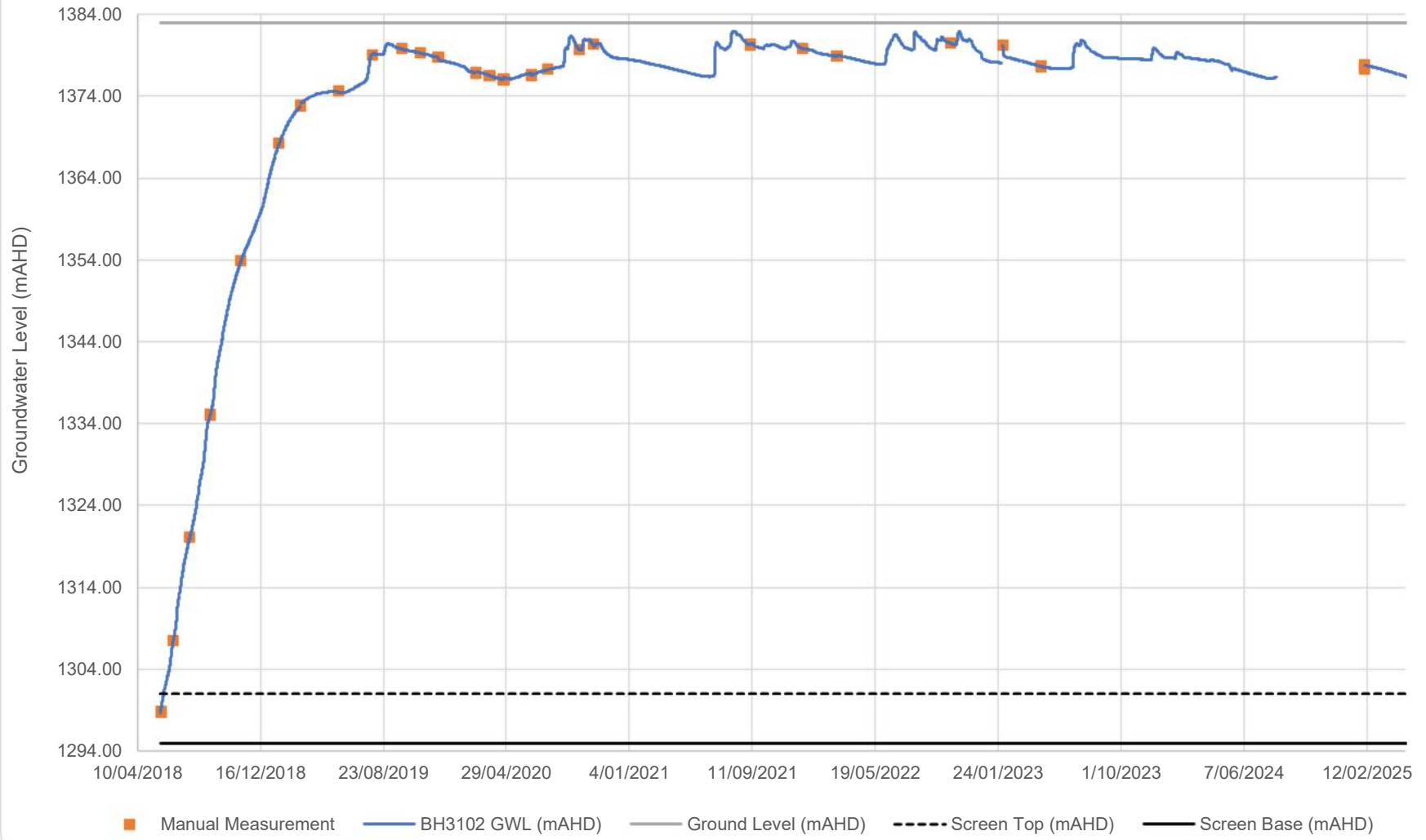
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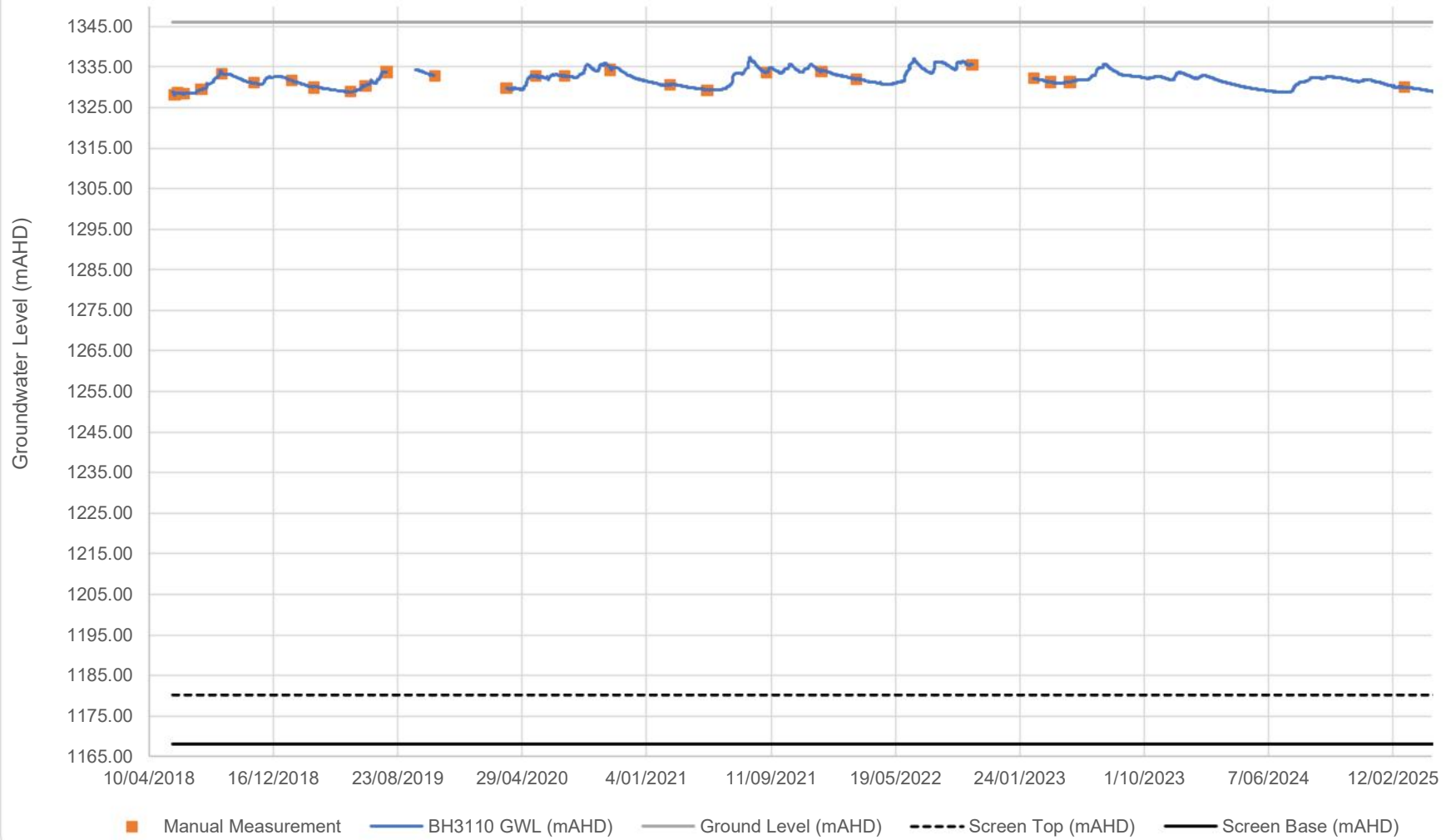
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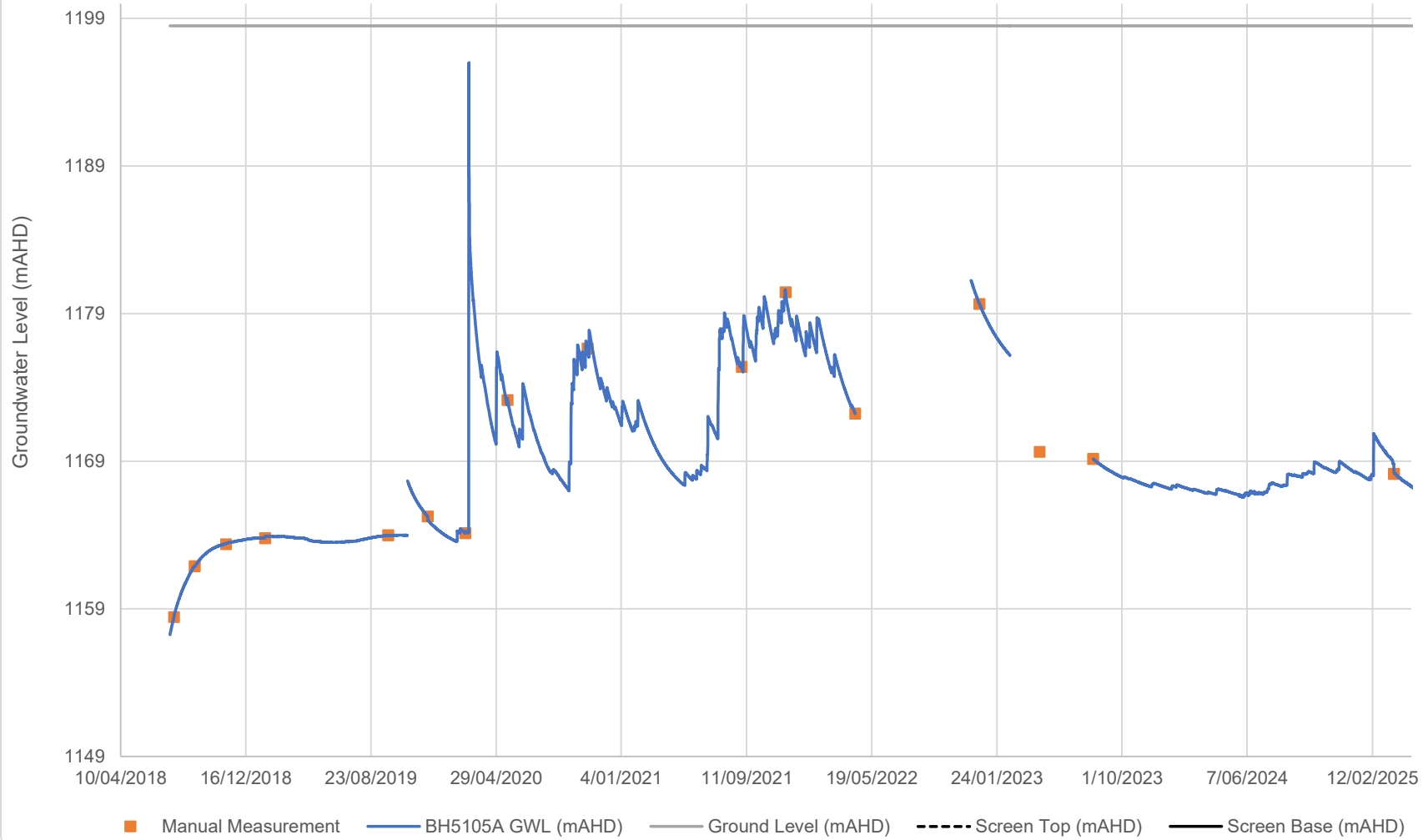
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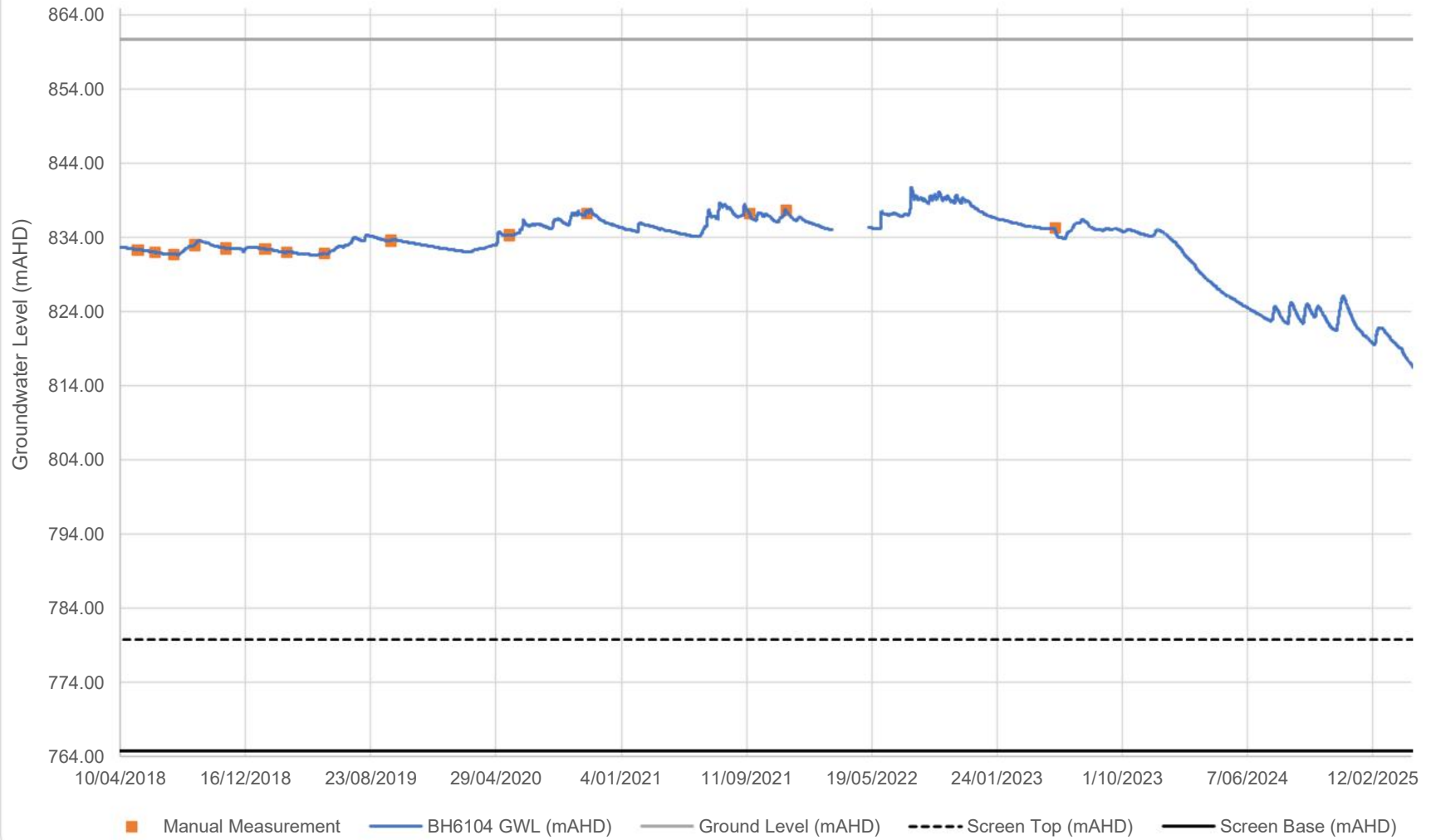
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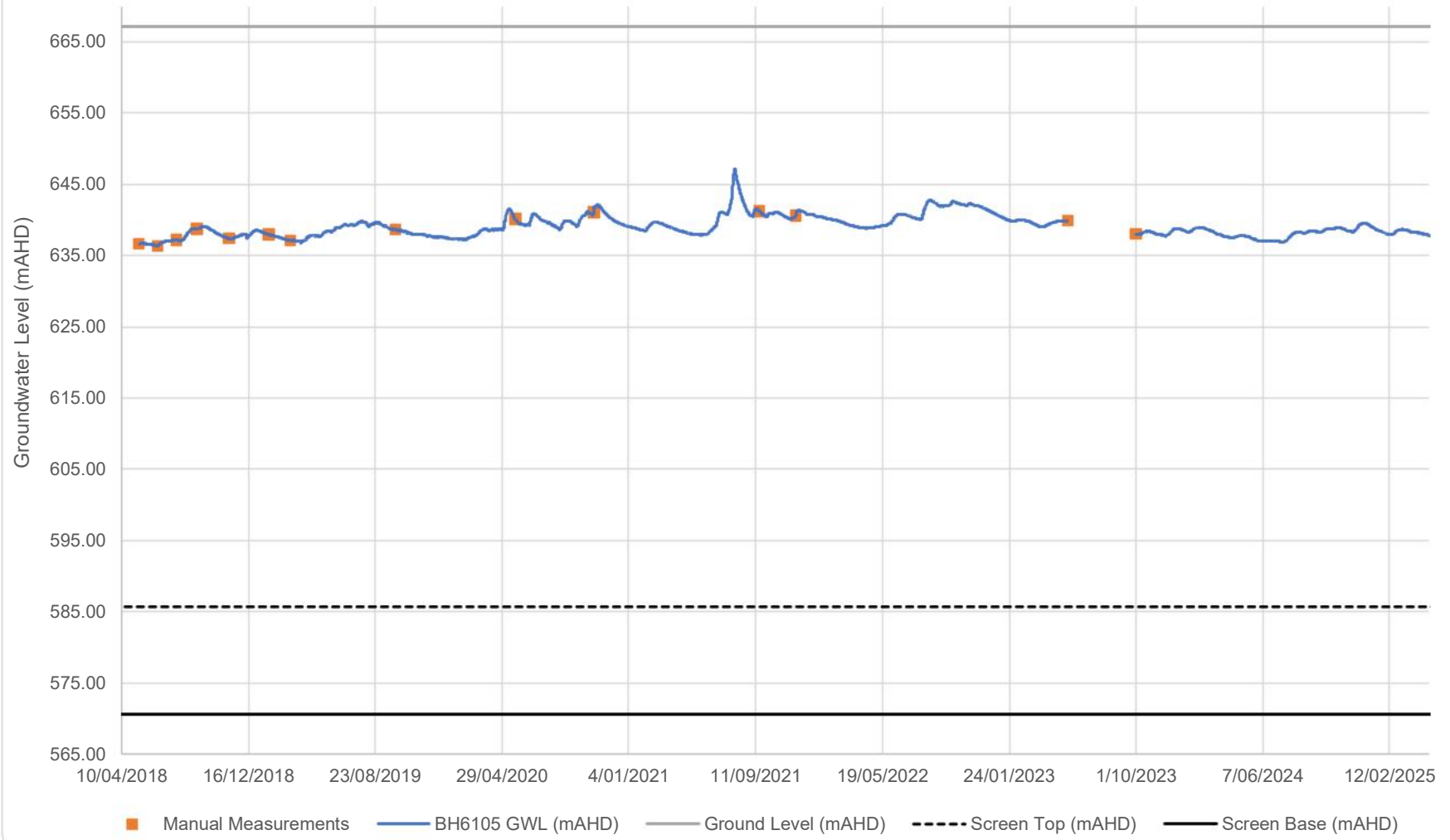
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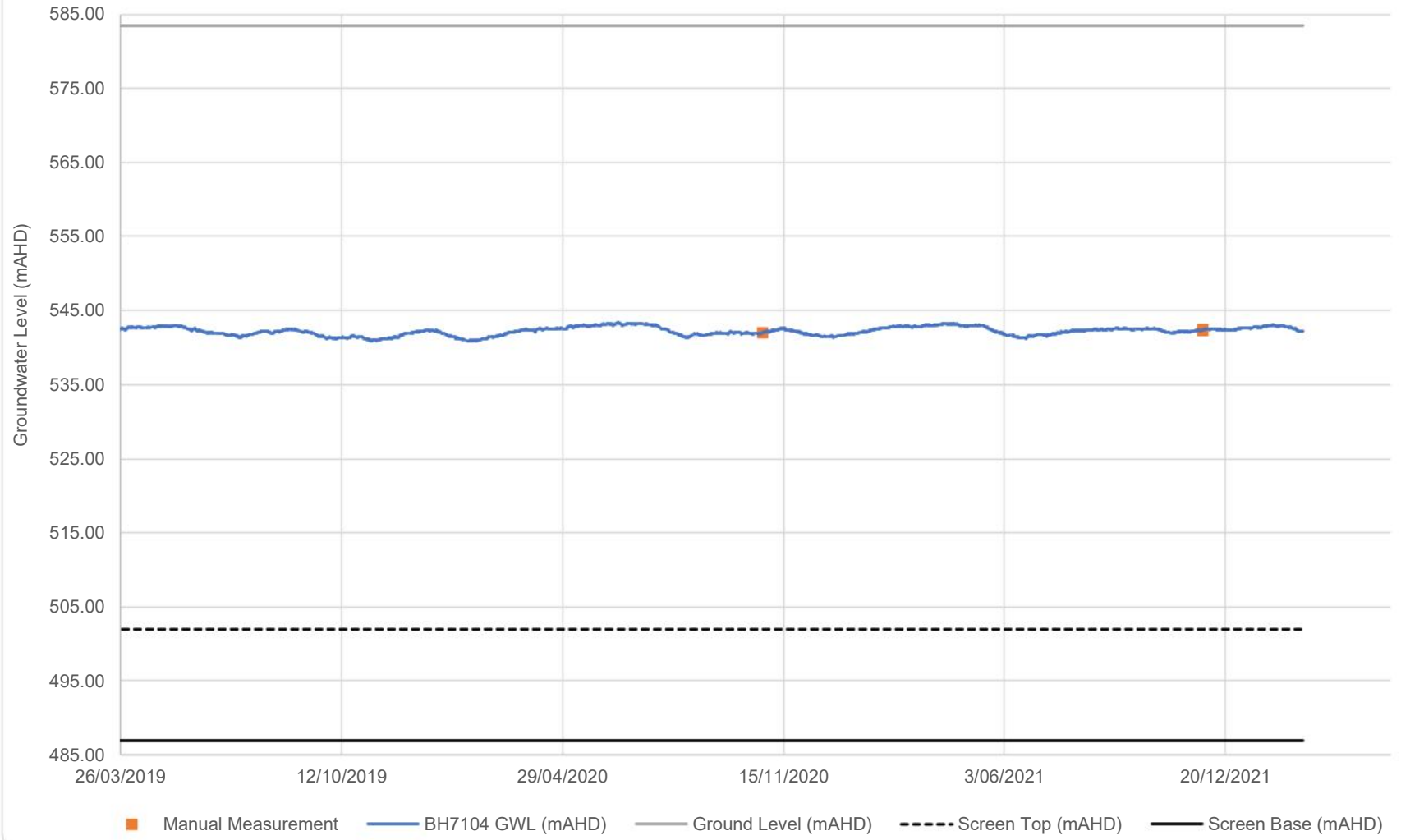
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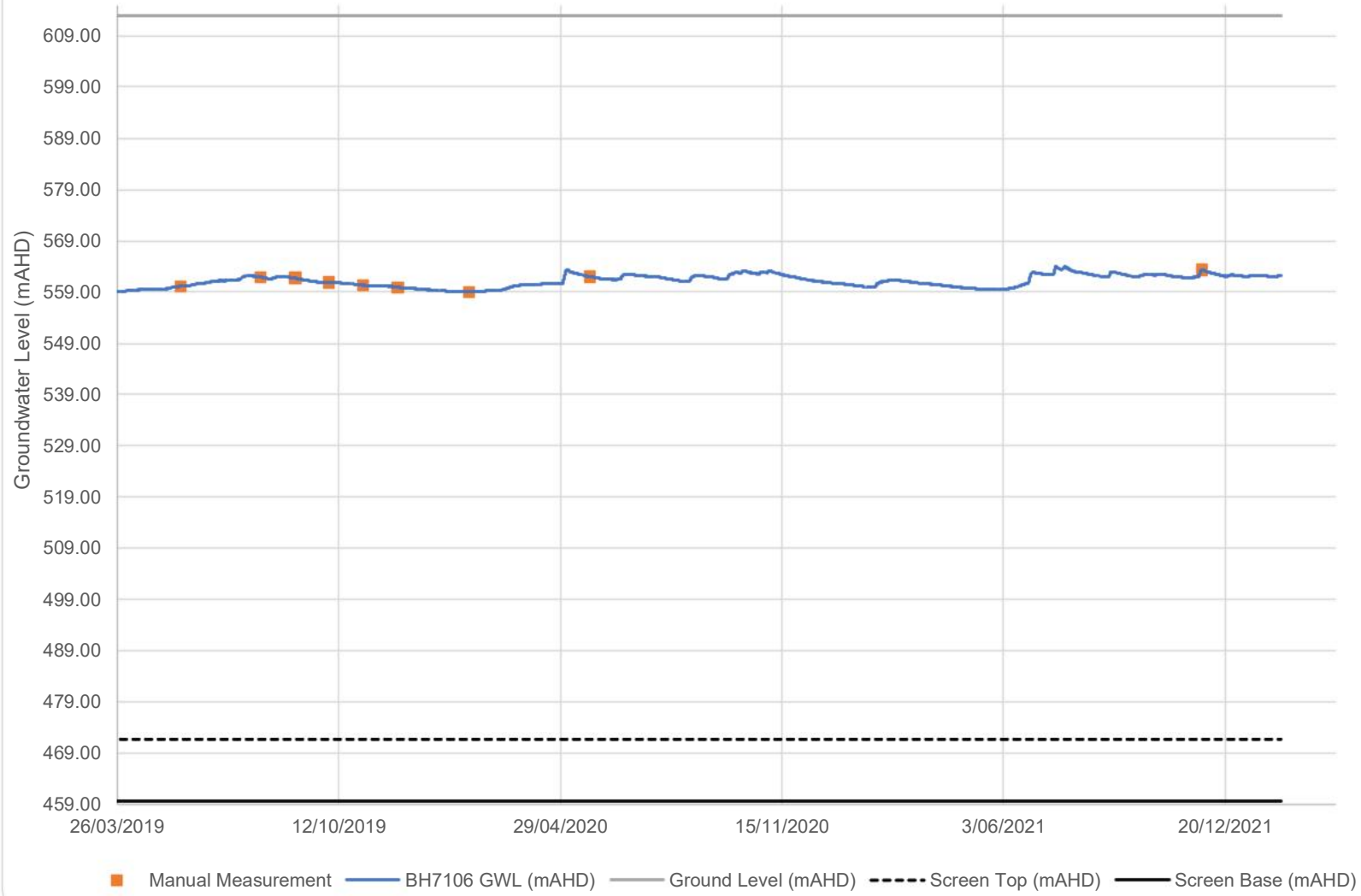
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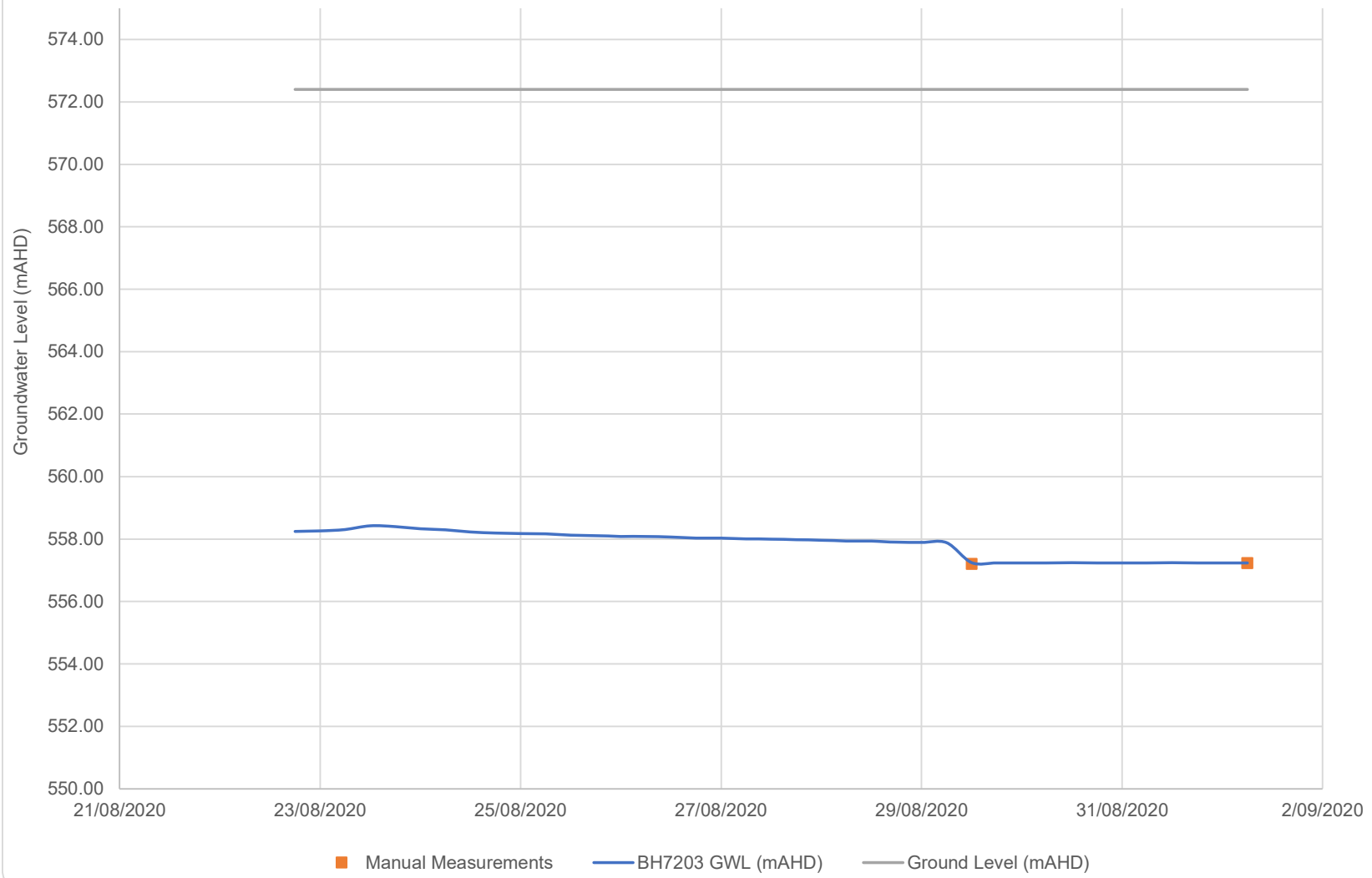
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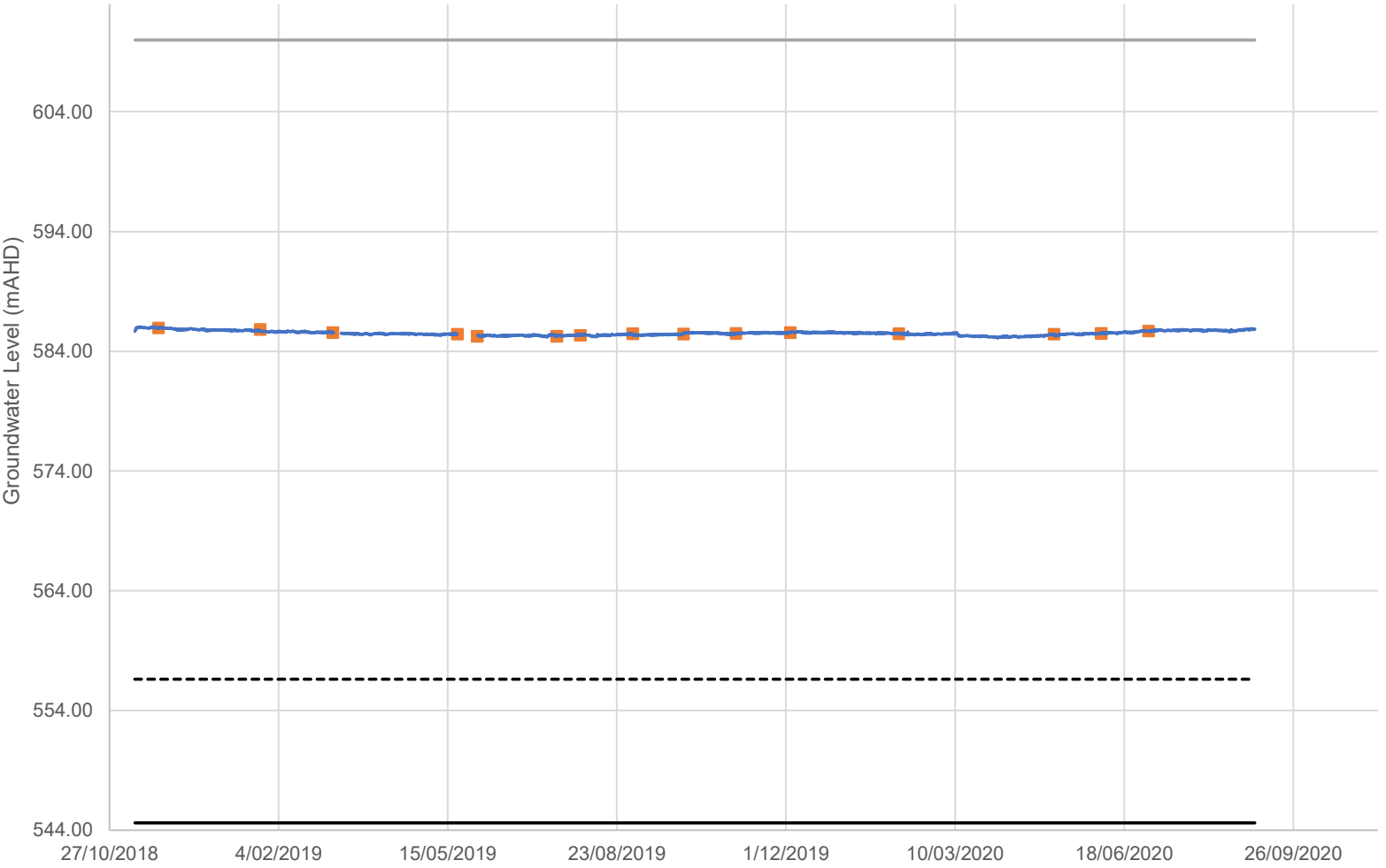
BH7106



BH7203

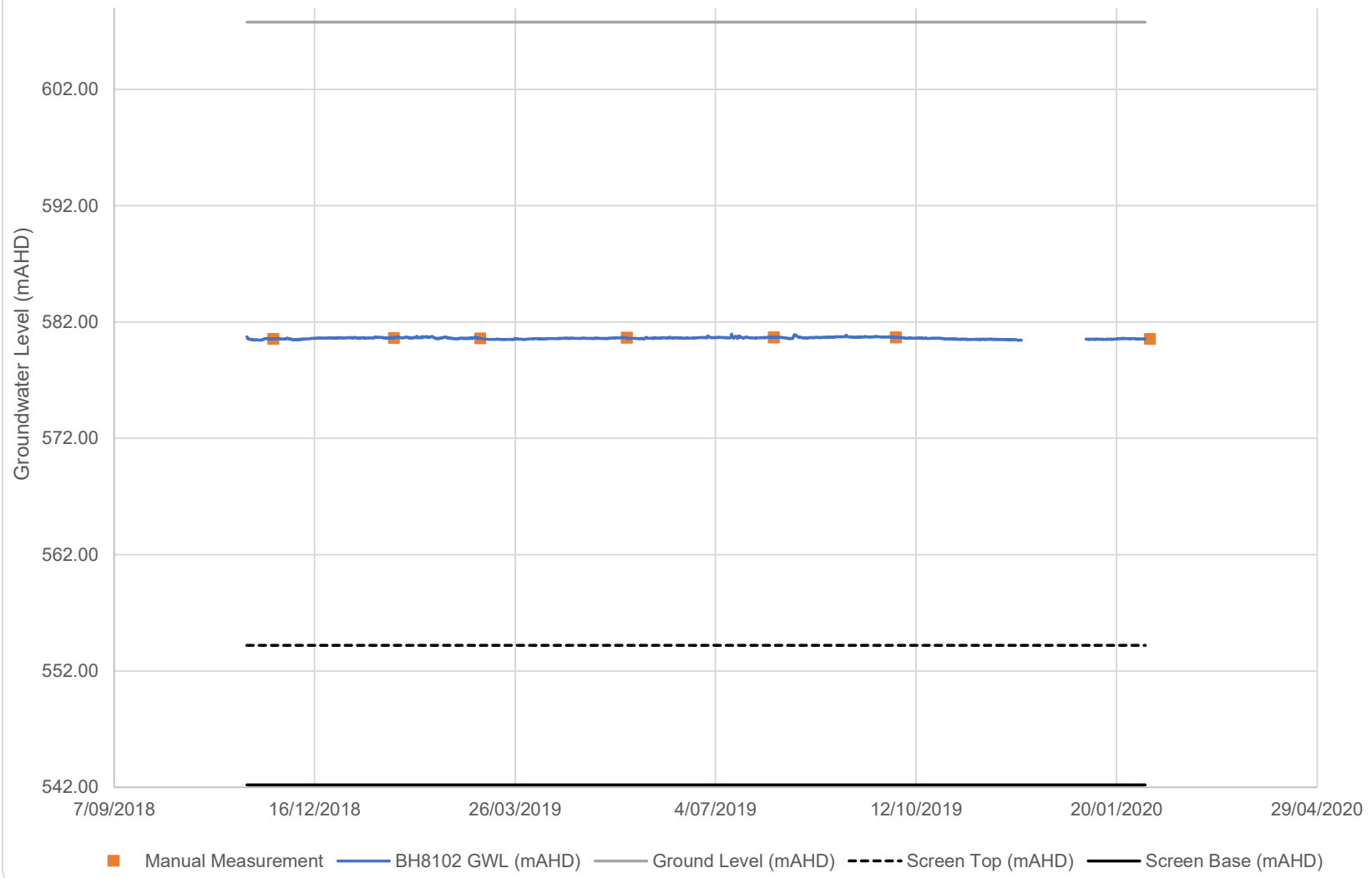


BH8101

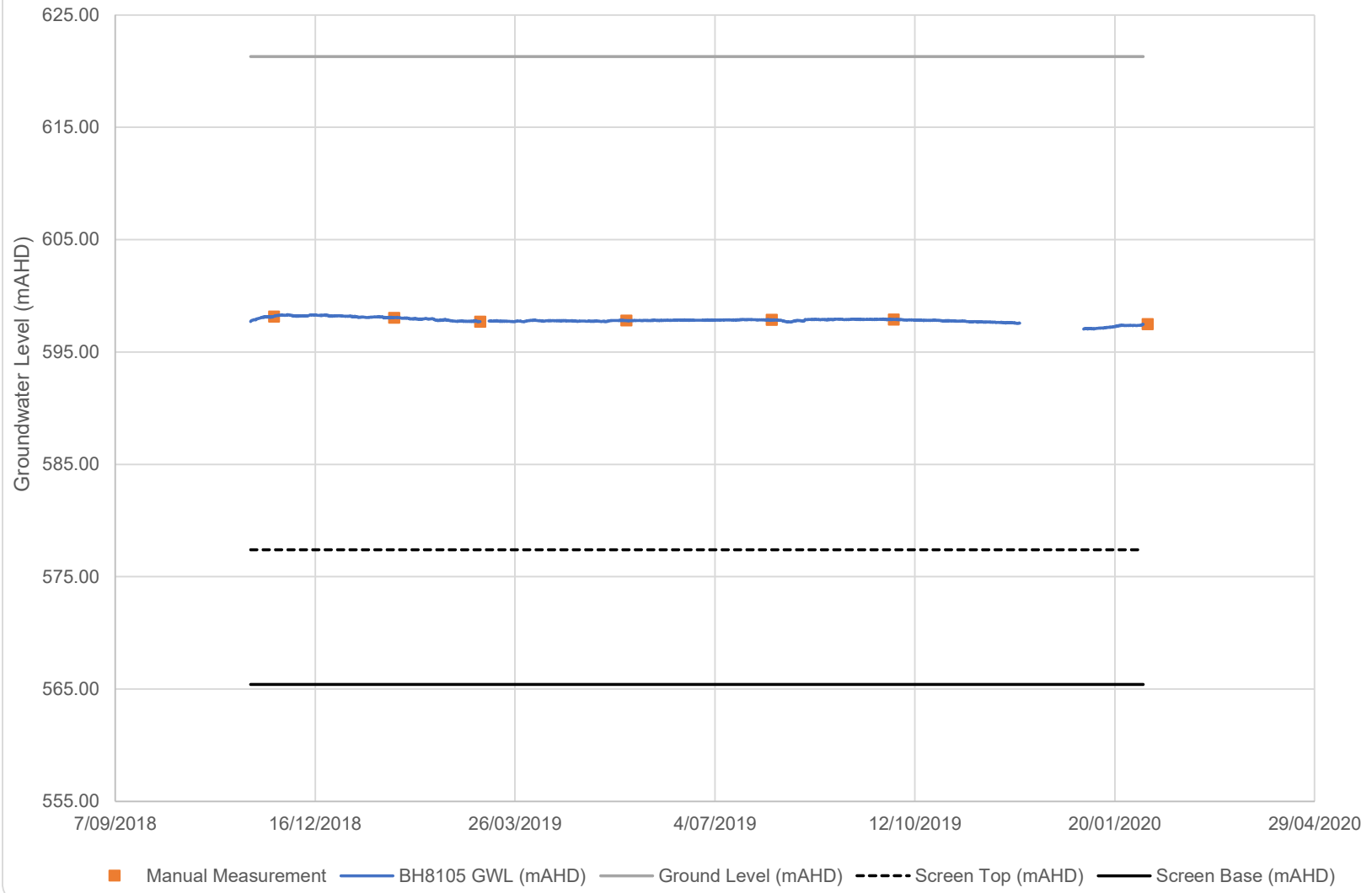


Manual Measurement BH8101 GWL (mAHD) Ground Level (mAHD) Screen Top (mAHD) Screen Base (mAHD)

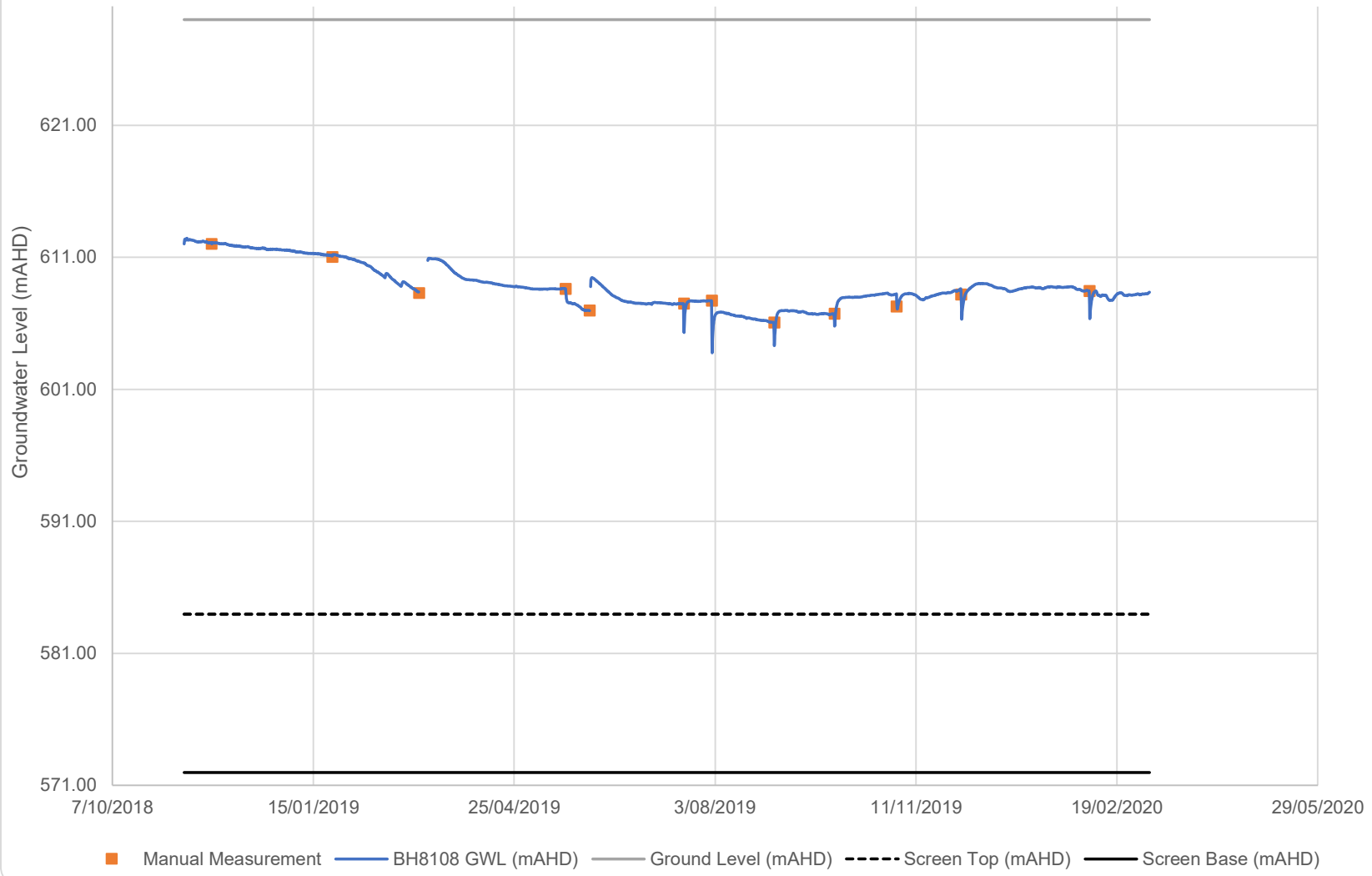
BH8102



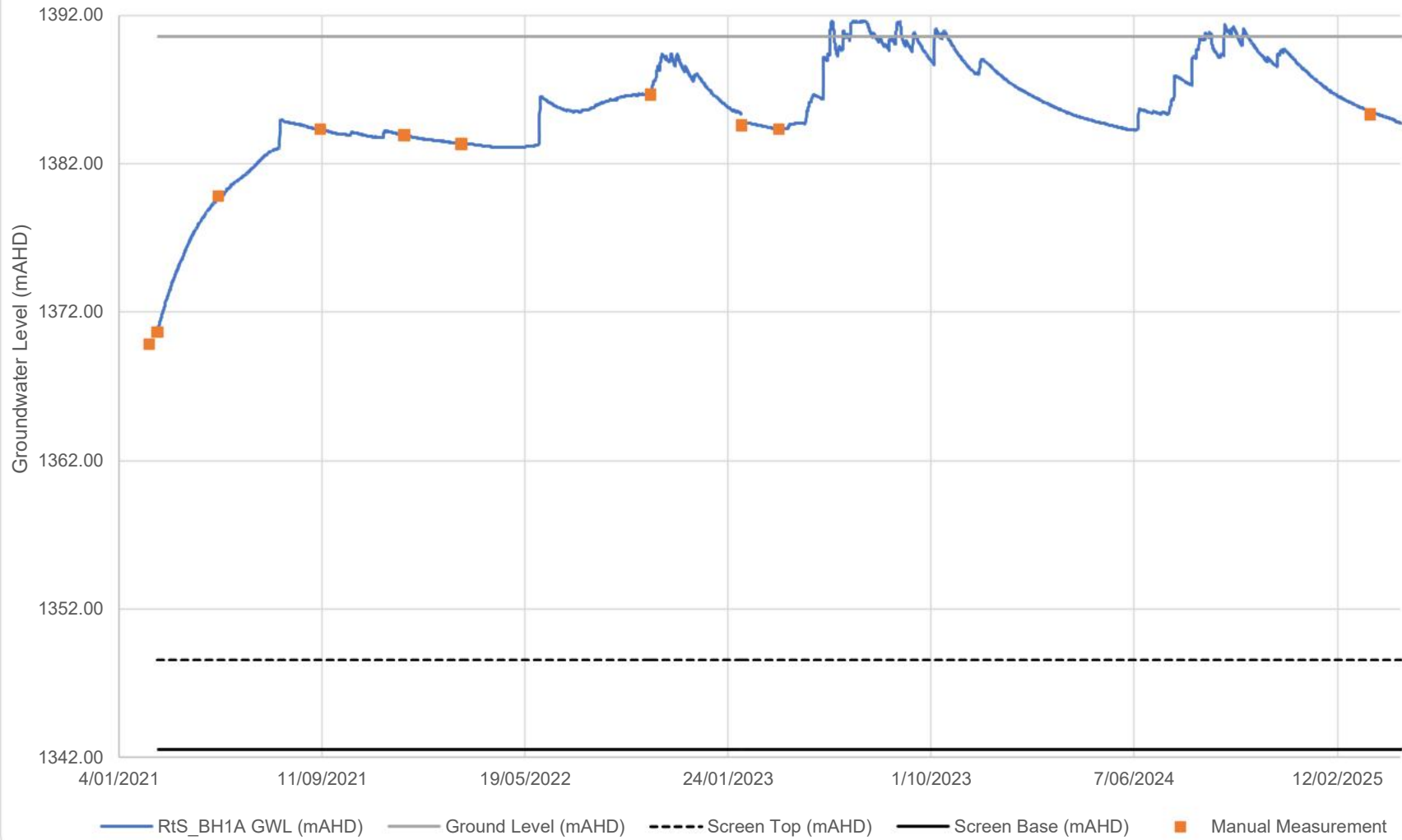
BH8105



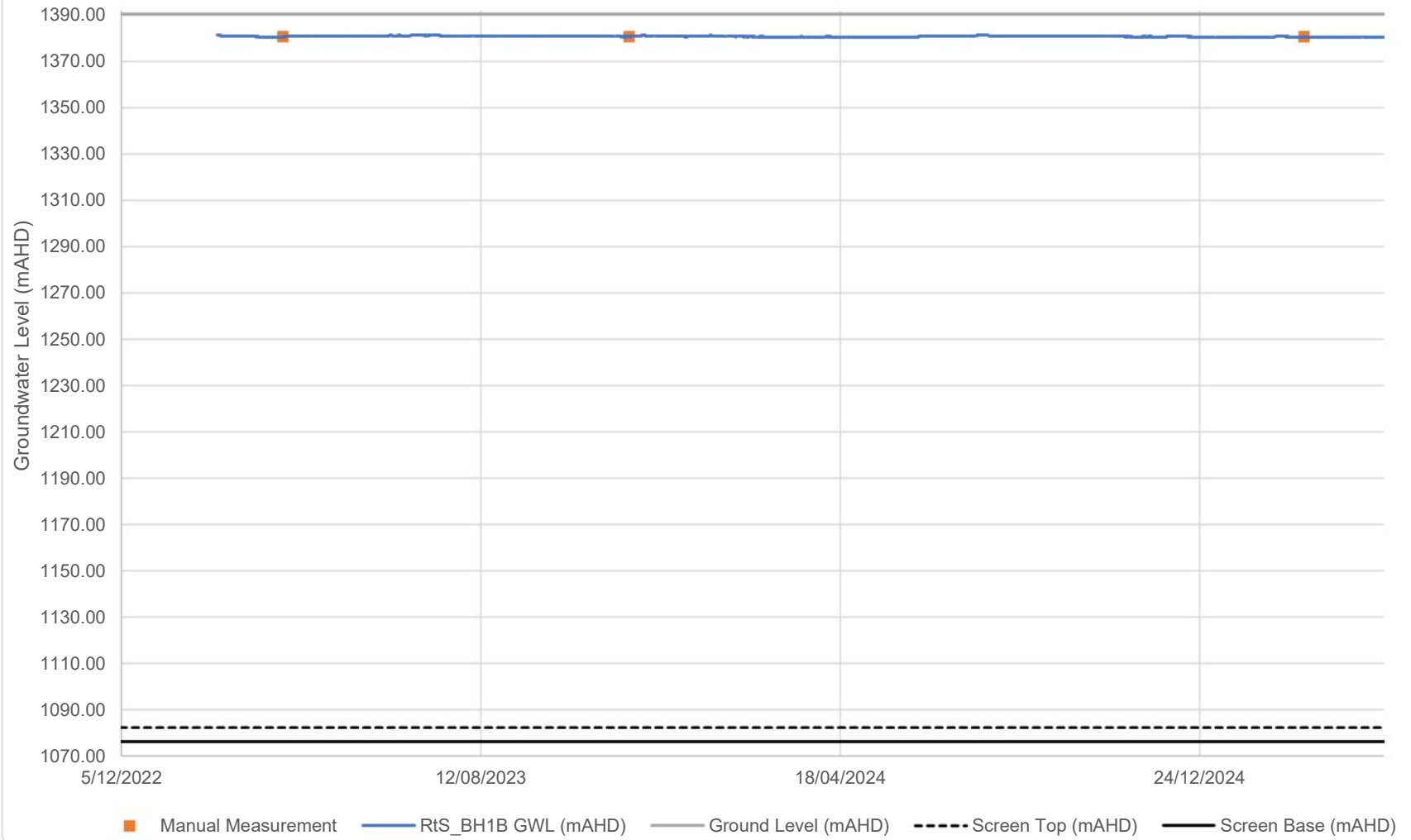
BH8108



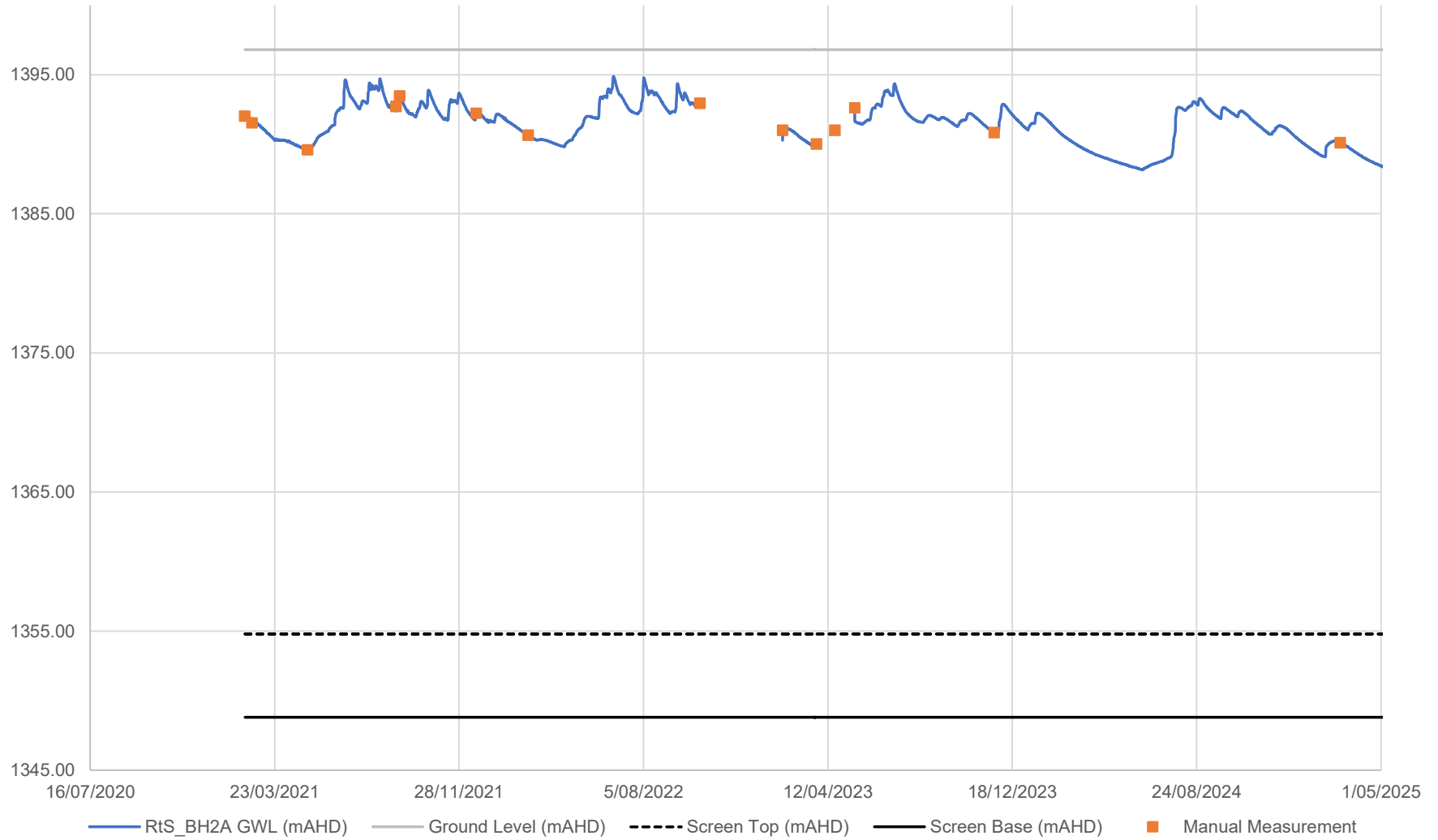
RtS_BH1A



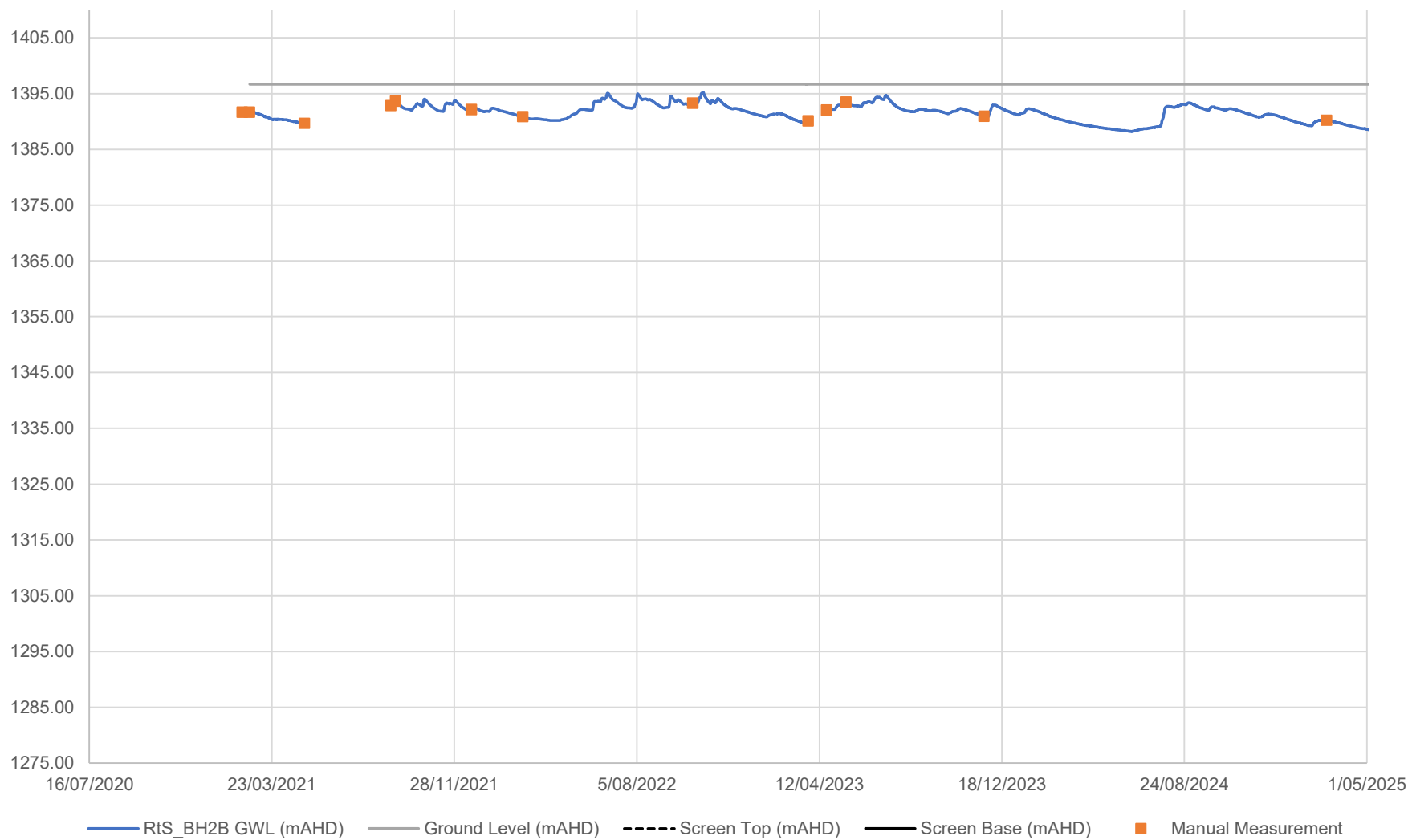
RtS_BH1B



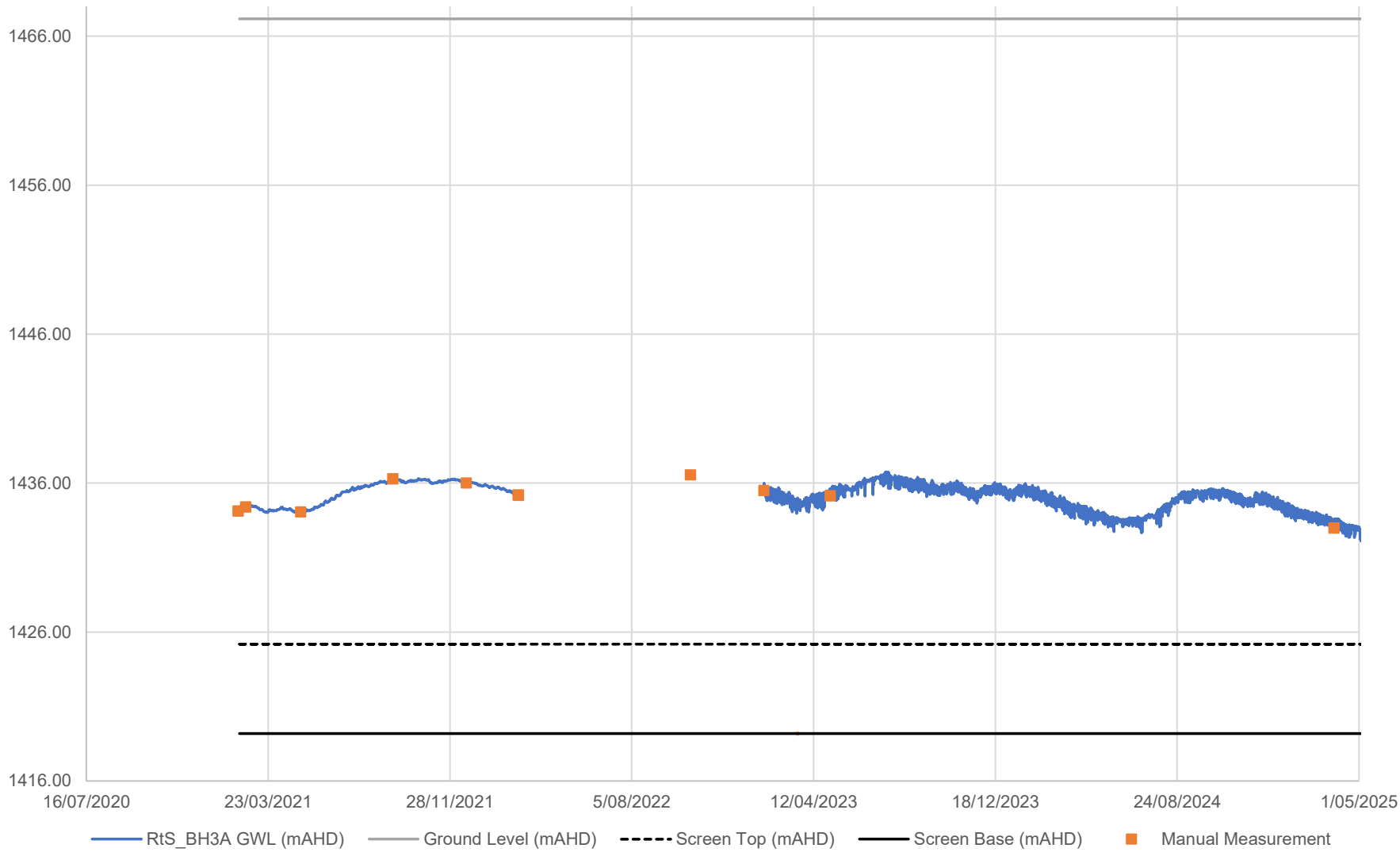
RtS_BH2A



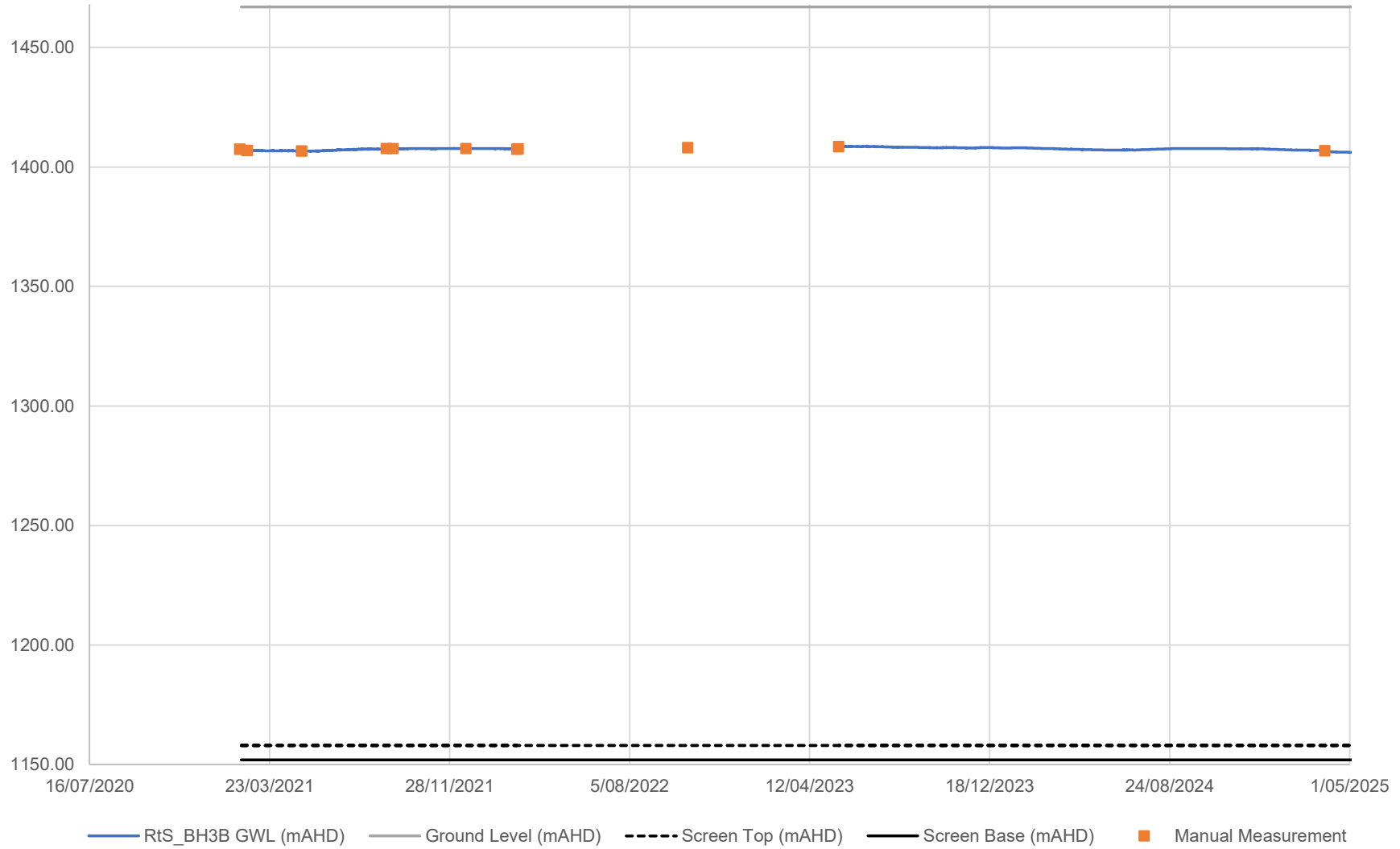
RtS_BH2B



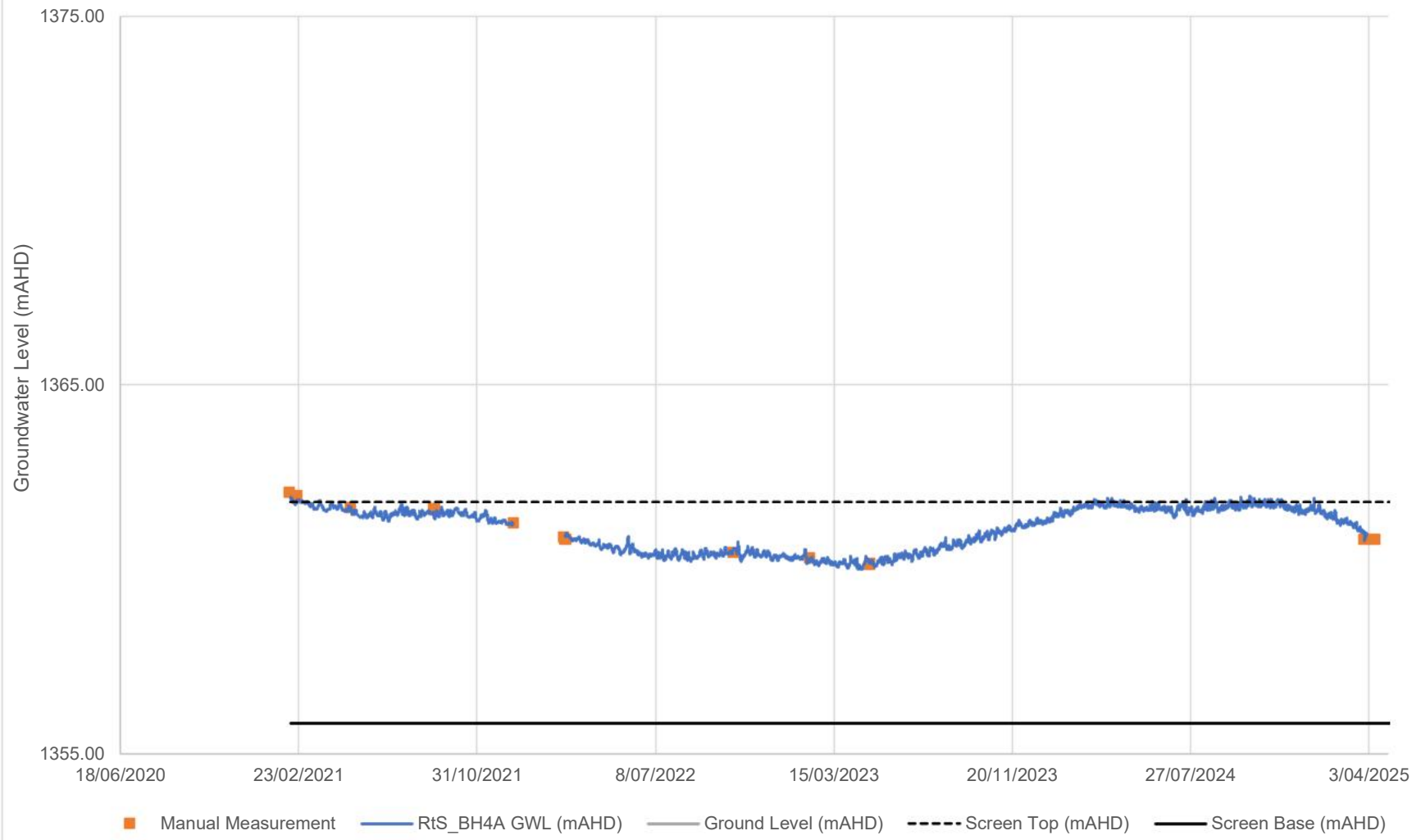
RtS_BH3A



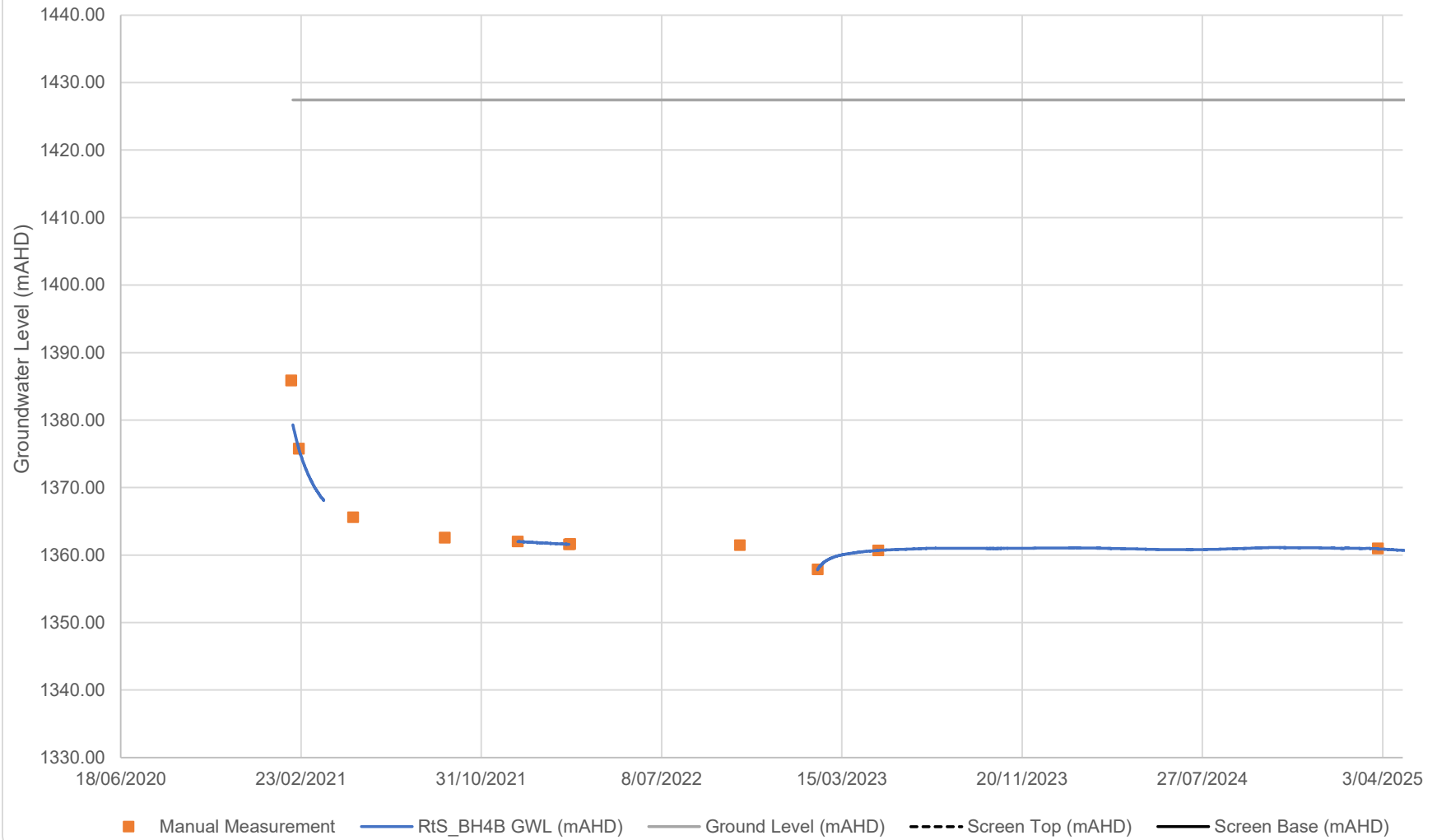
RtS_BH3B



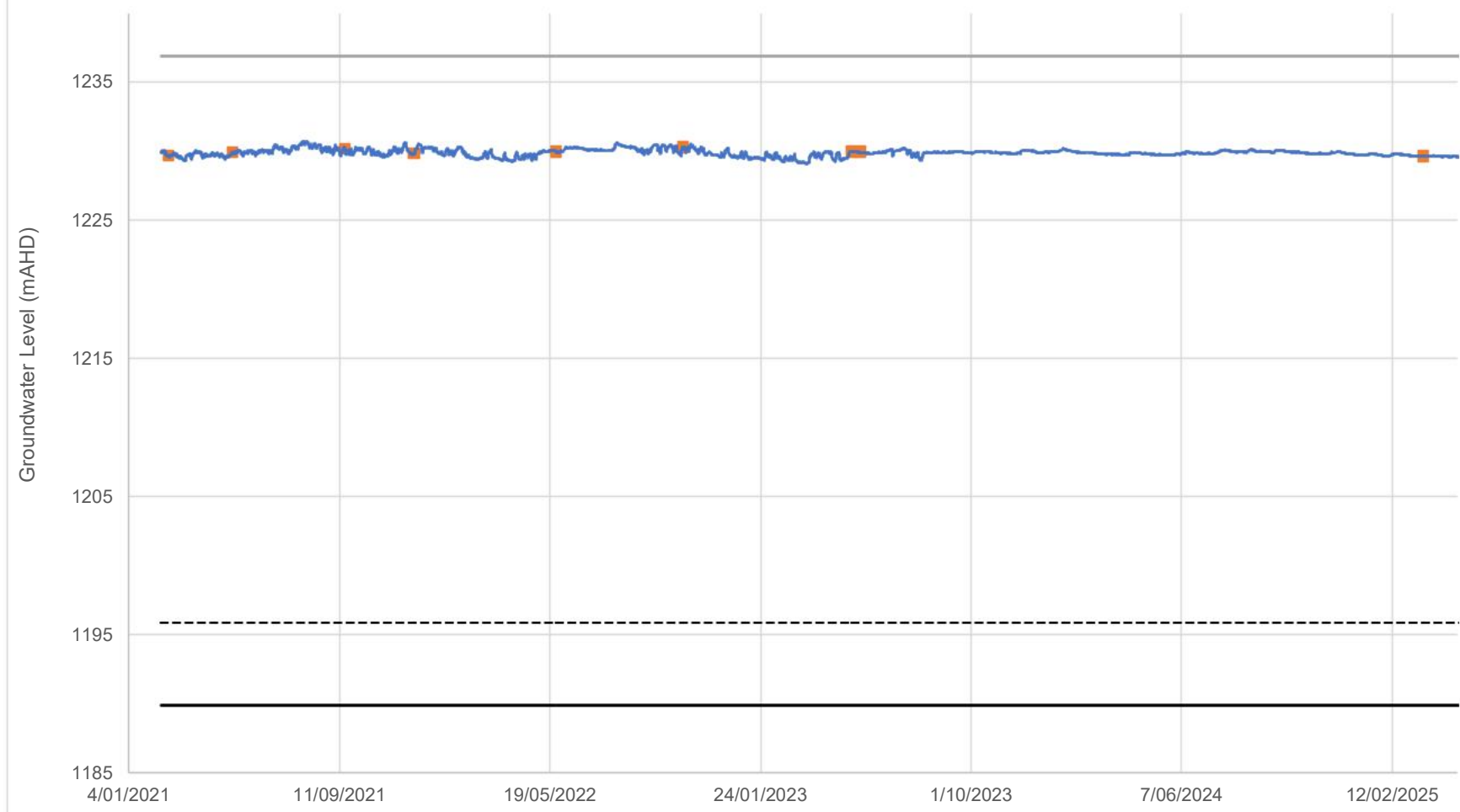
RtS_BH4A



RtS_BH4B

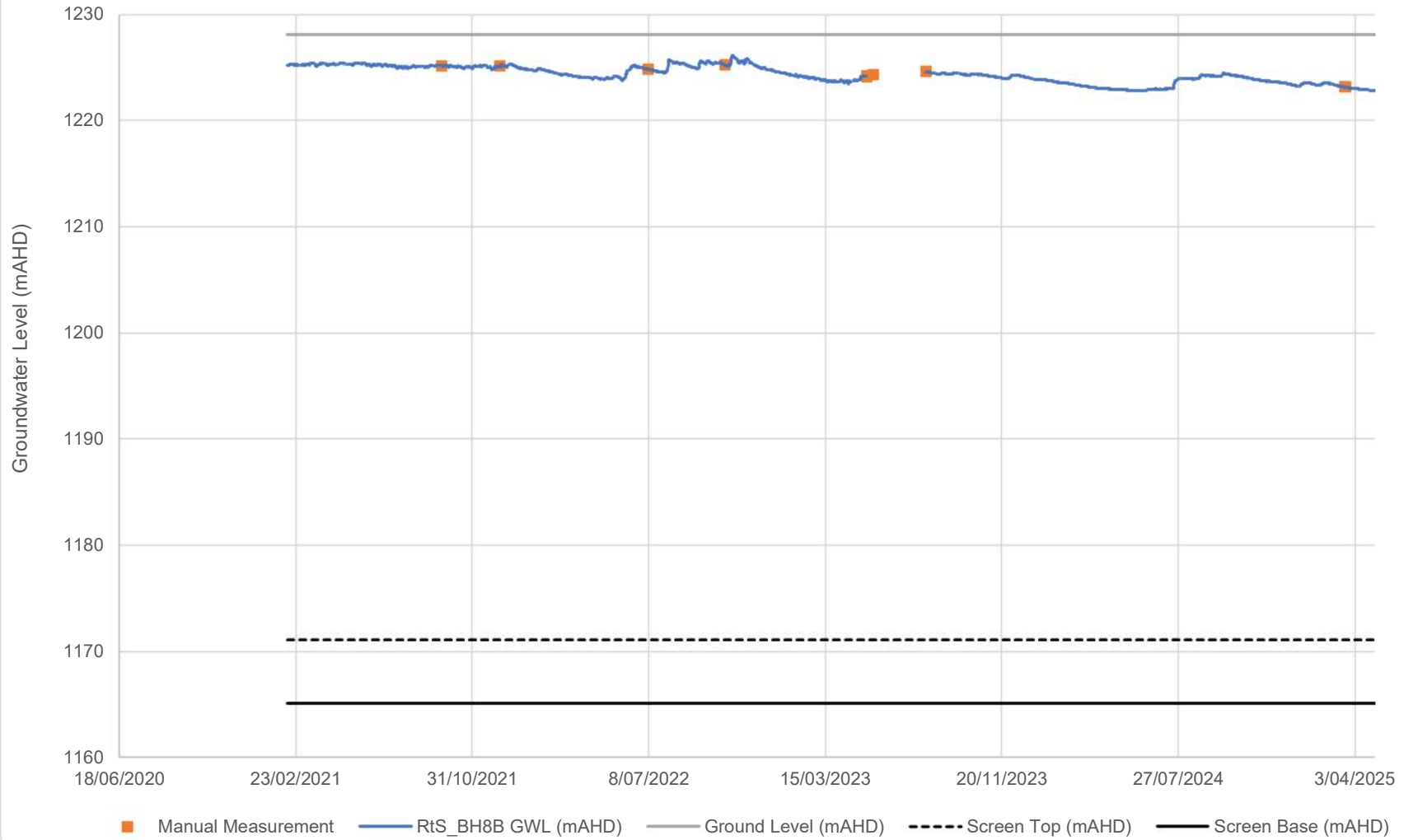


RtS_BH7B



Manual Measurement RtS_BH7B GWL (mAHD) Ground Level (mAHD) Screen Top (mAHD) Screen Base (mAHD)

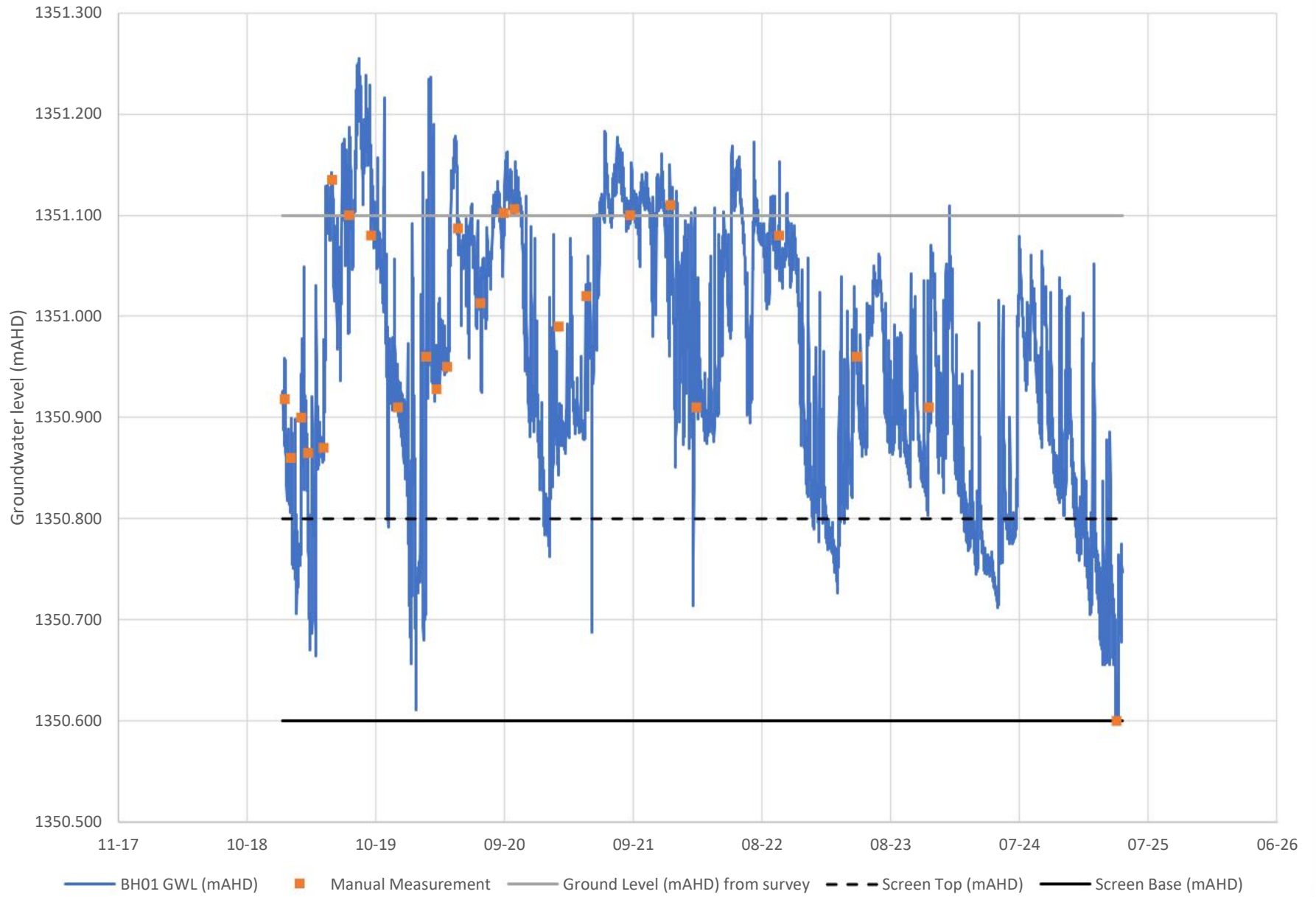
RtS_BH8B



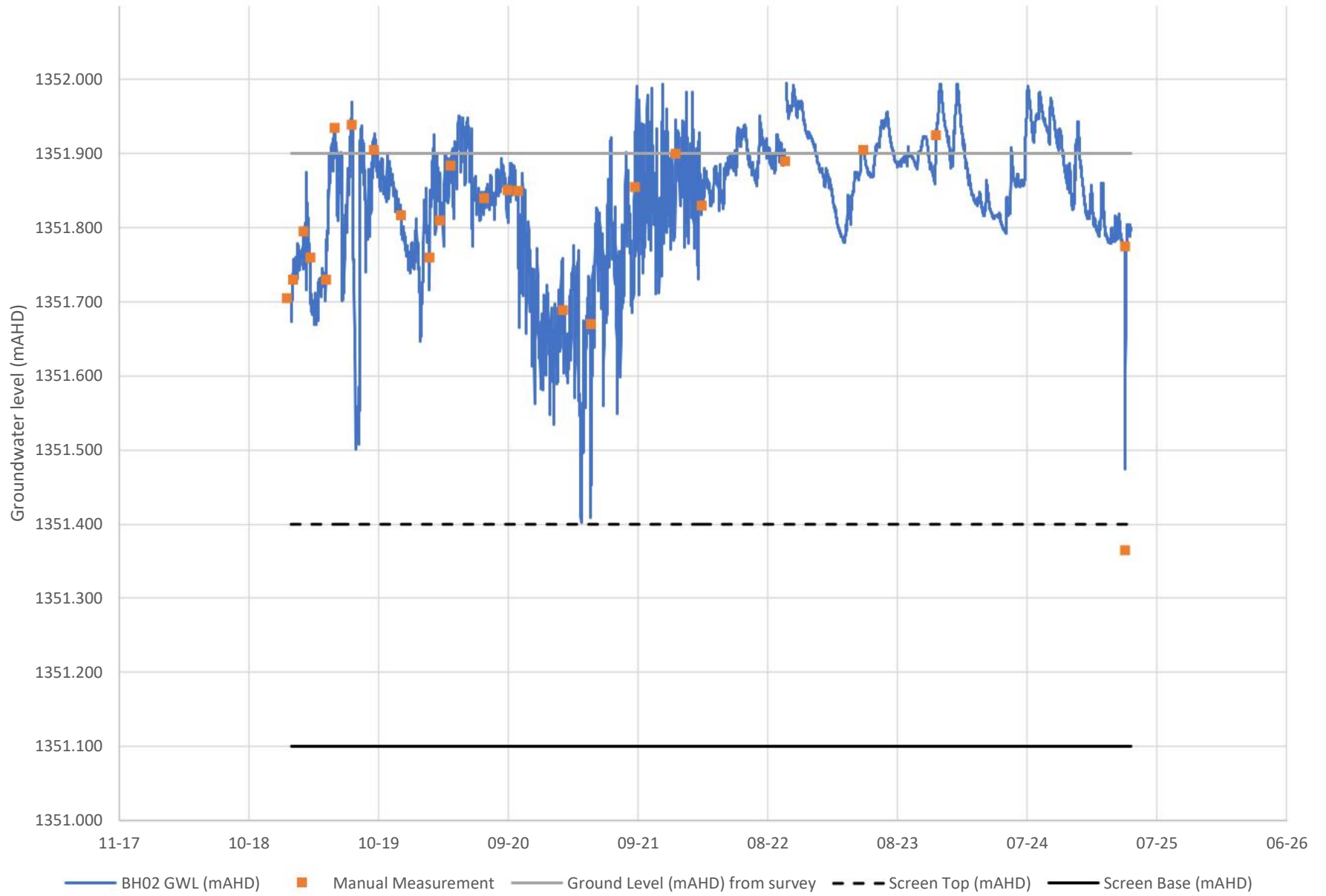
Appendix B - Bogs and Fens Hydrographs



BH01



BH02

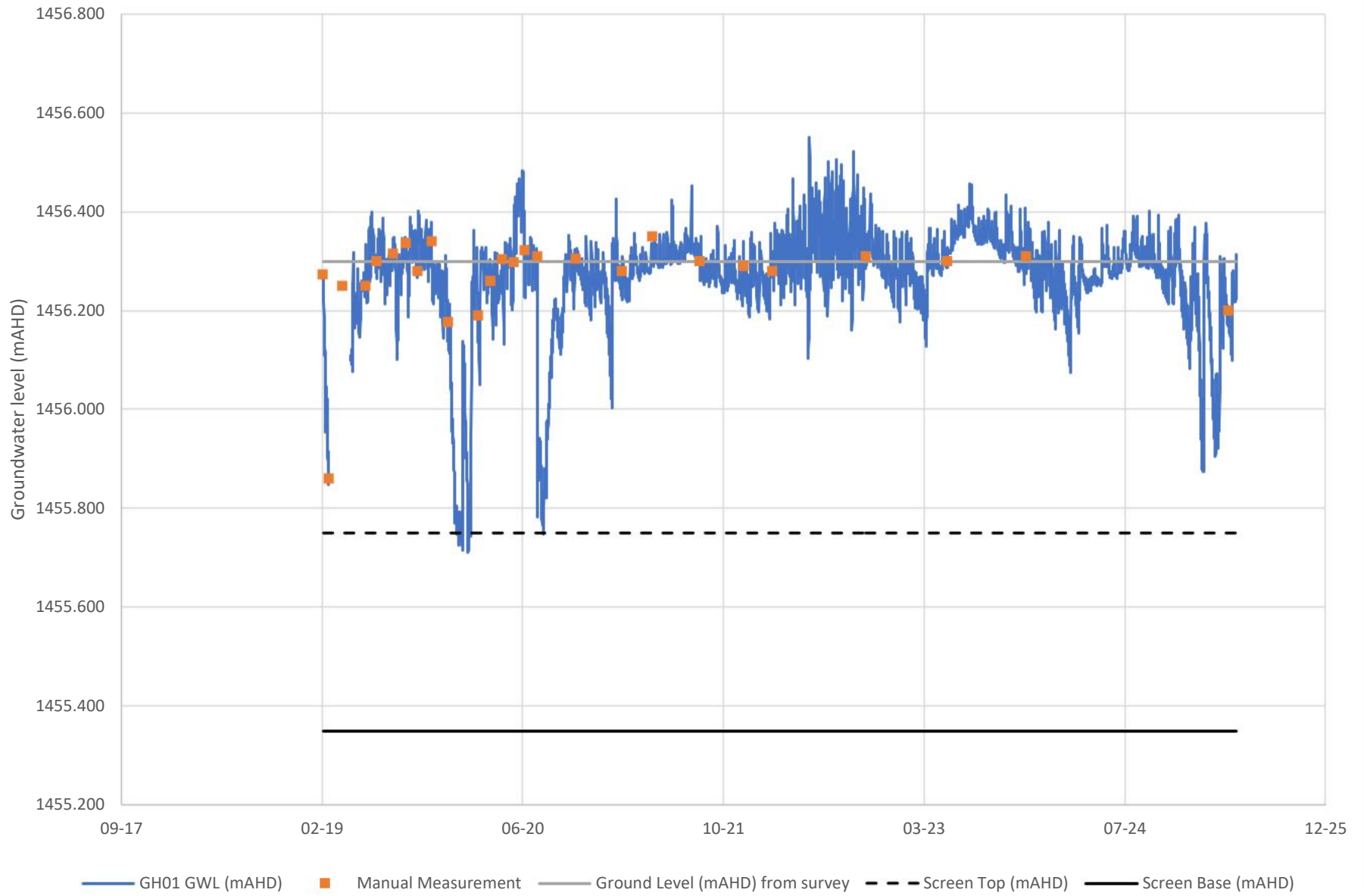


BH03

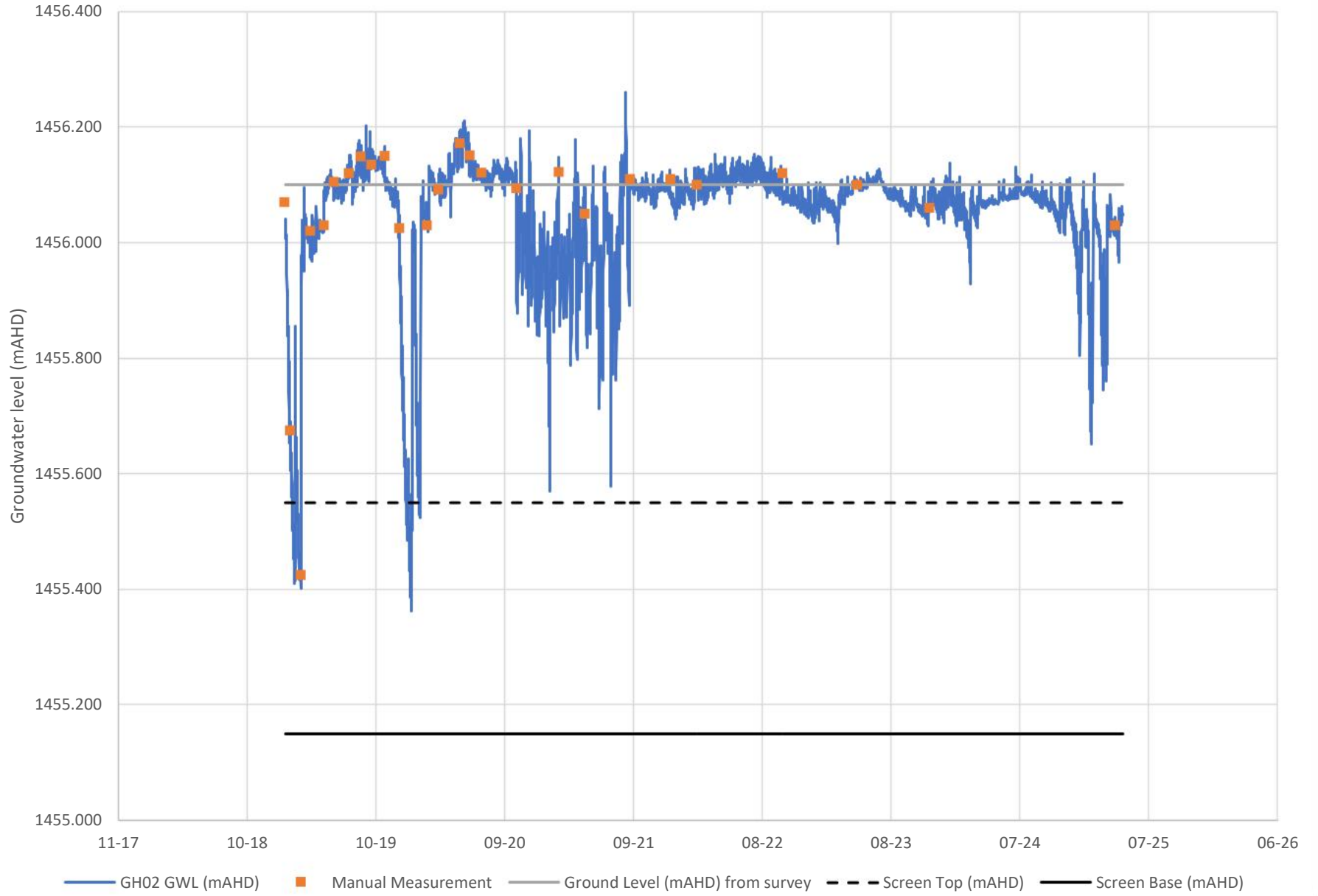


— BH03 GWL (mAHD) ■ Manual Measurement — Ground Level (mAHD) from survey - - - Screen Top (mAHD) — Screen Base (mAHD)

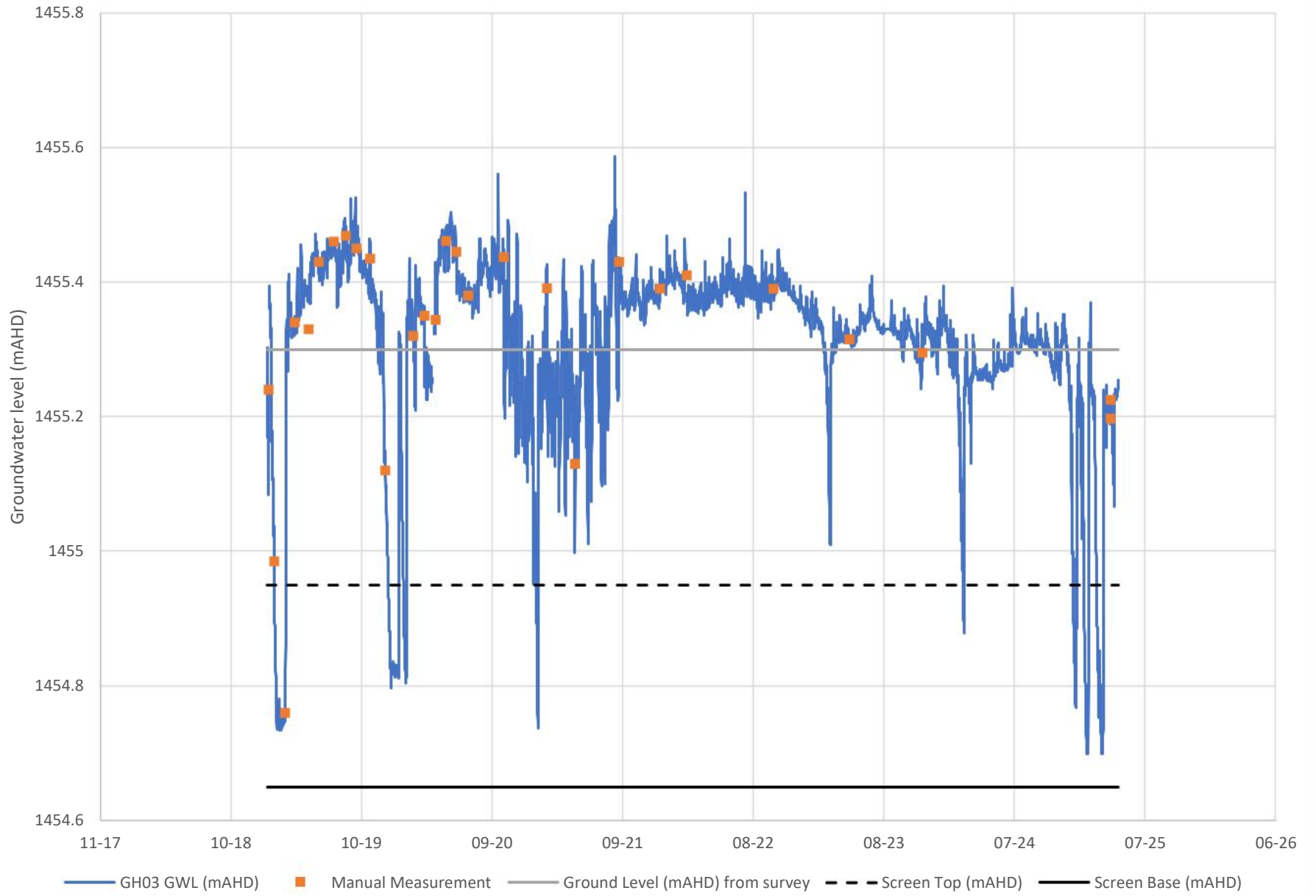
GH01



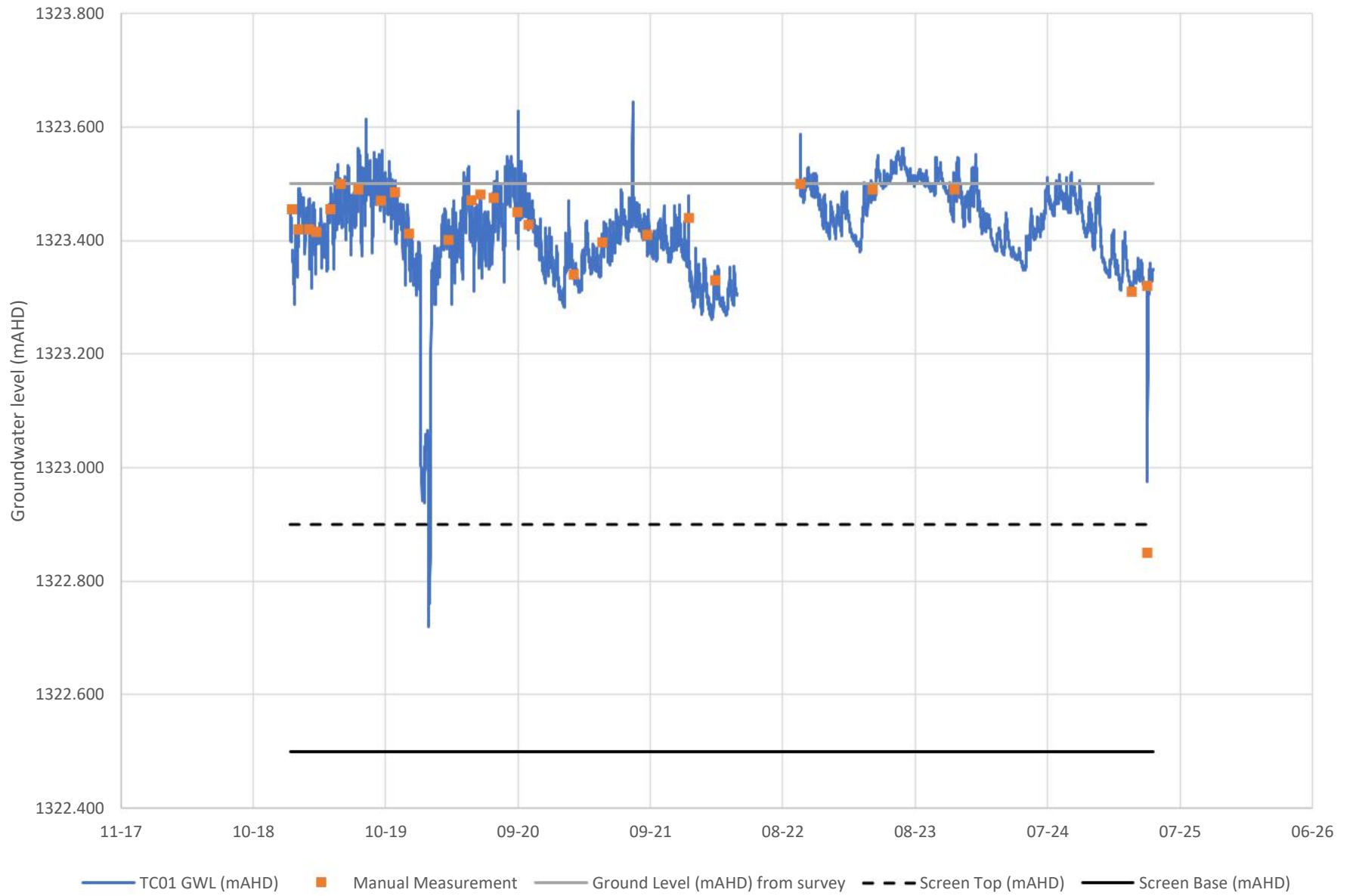
GH02



GH03



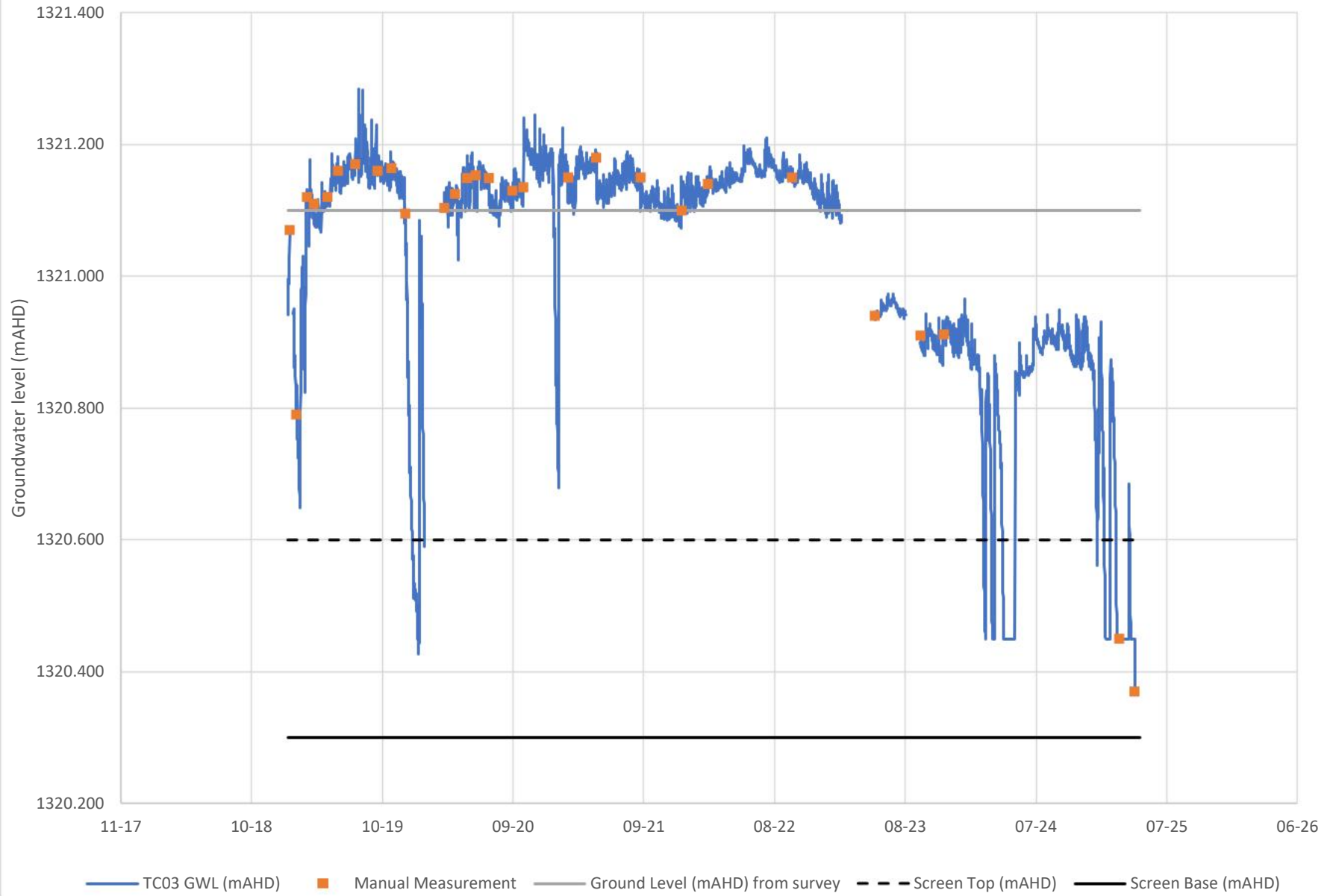
TC01



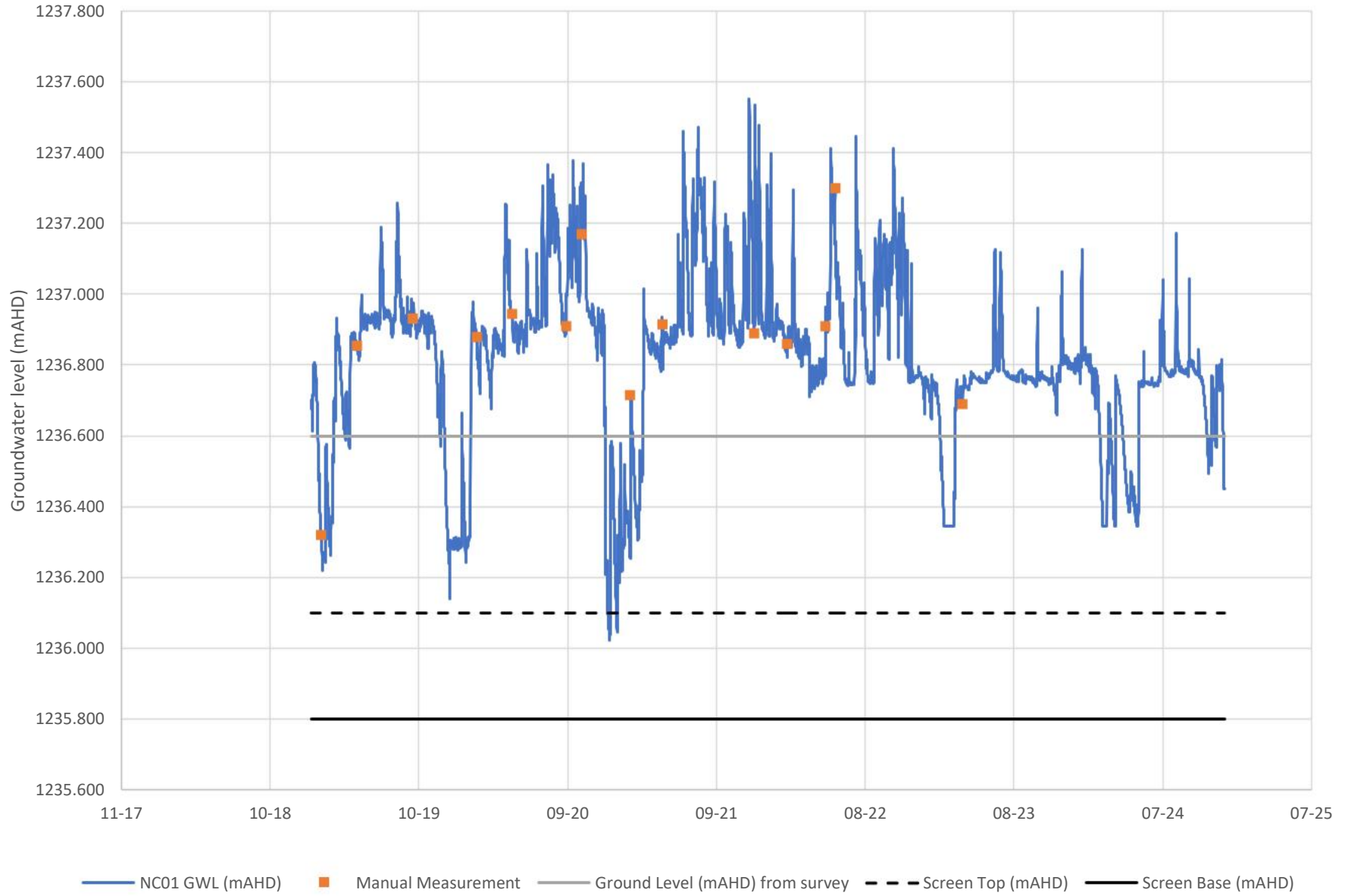
TC02



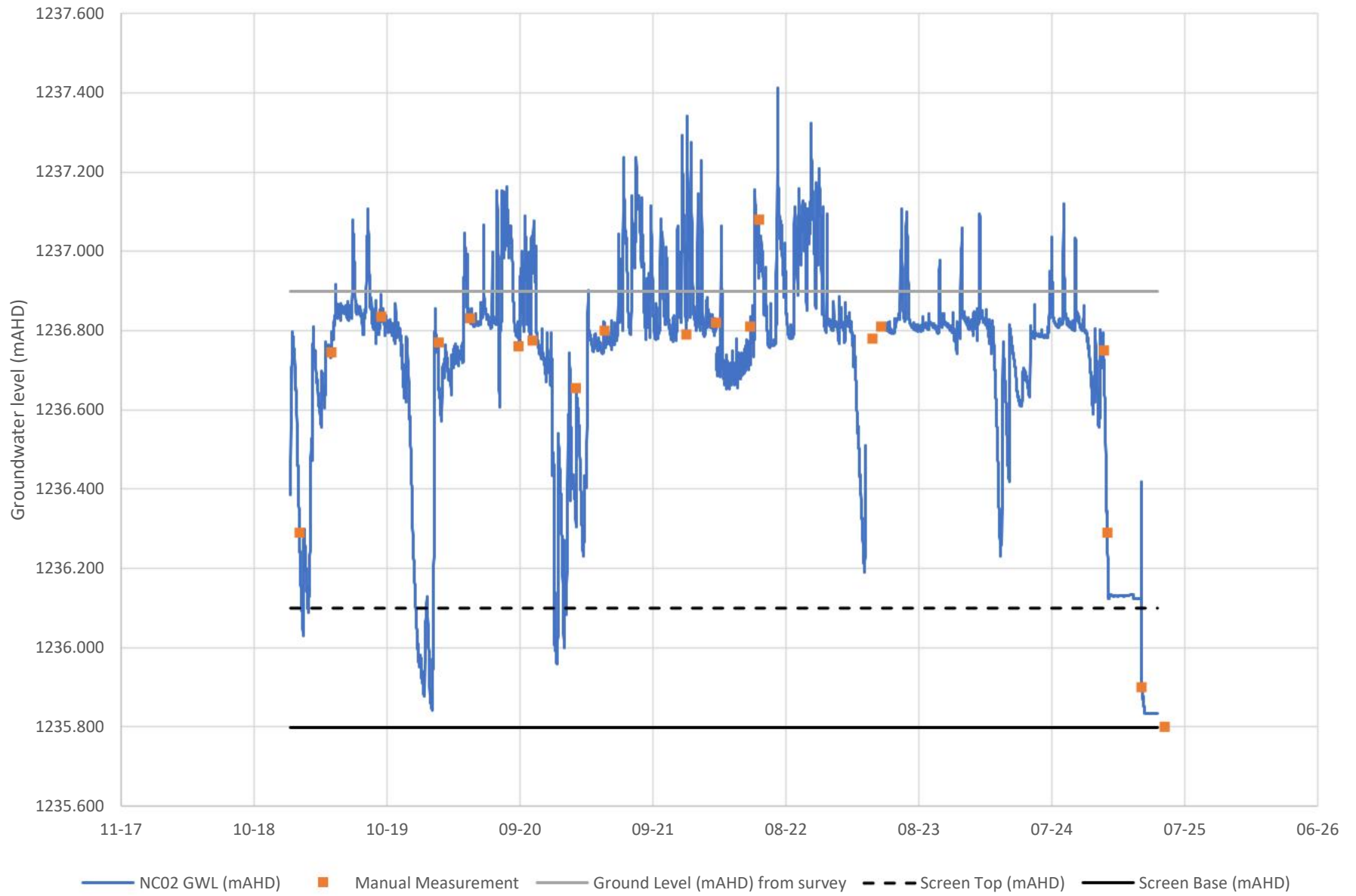
TC03



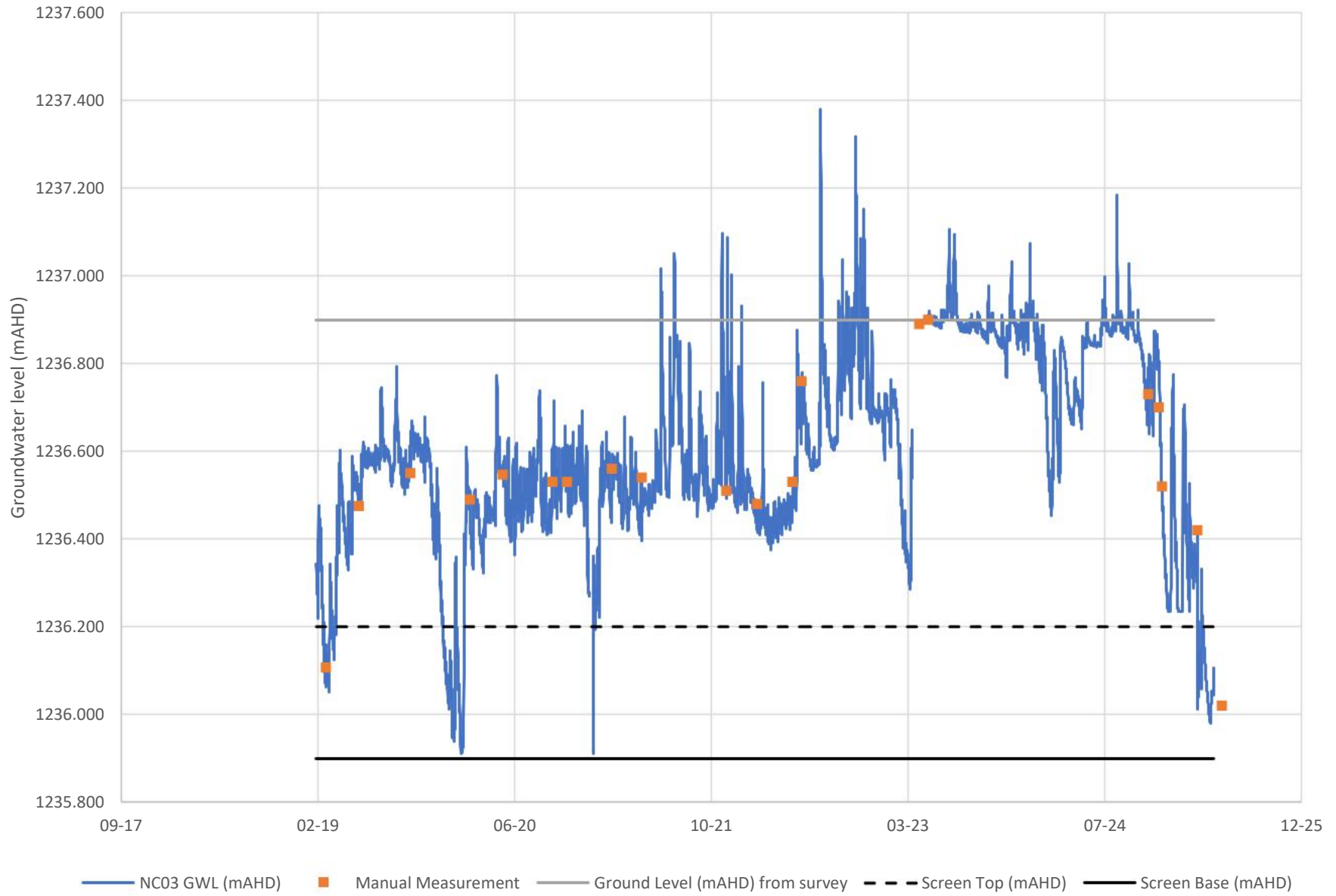
NC01



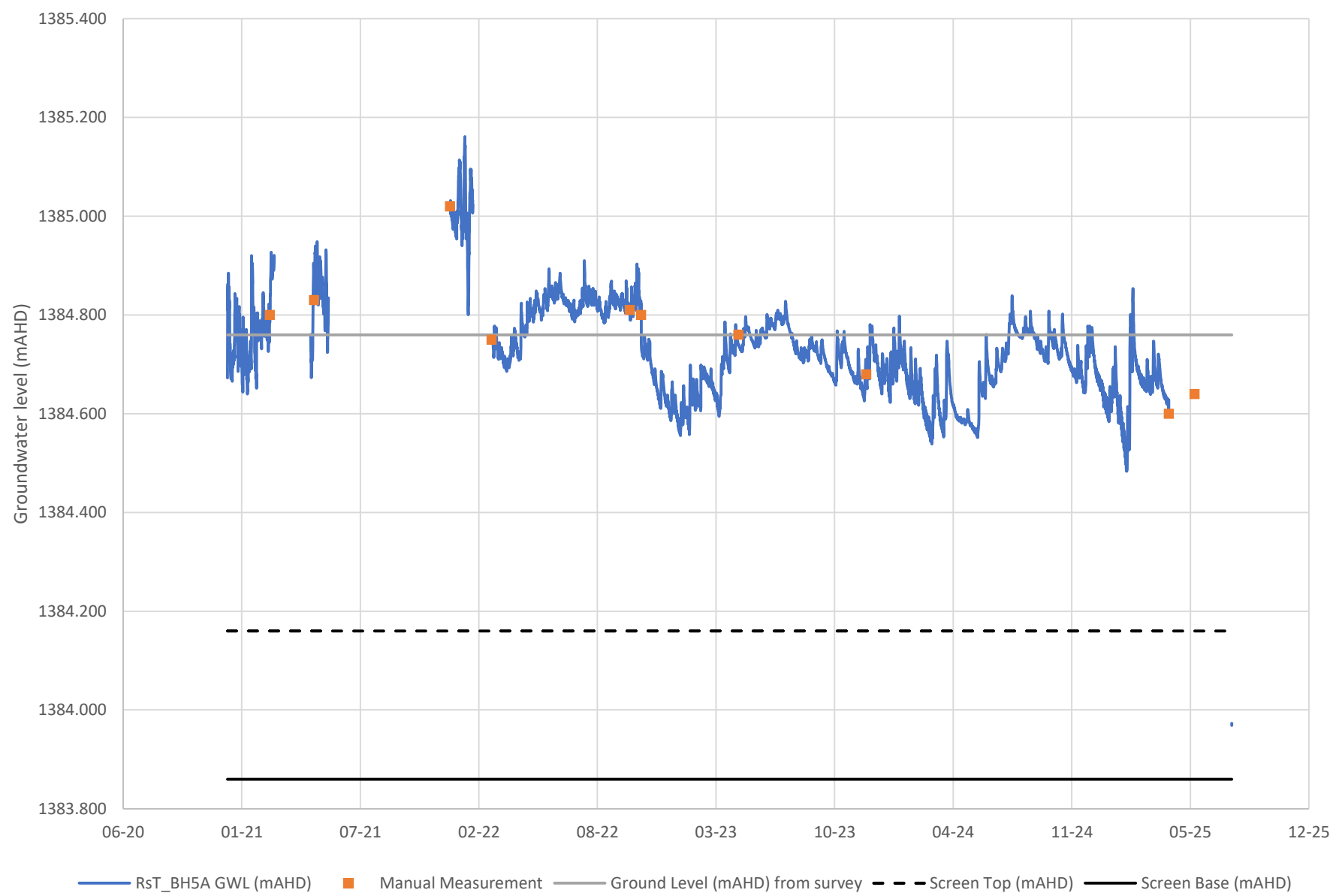
NC02



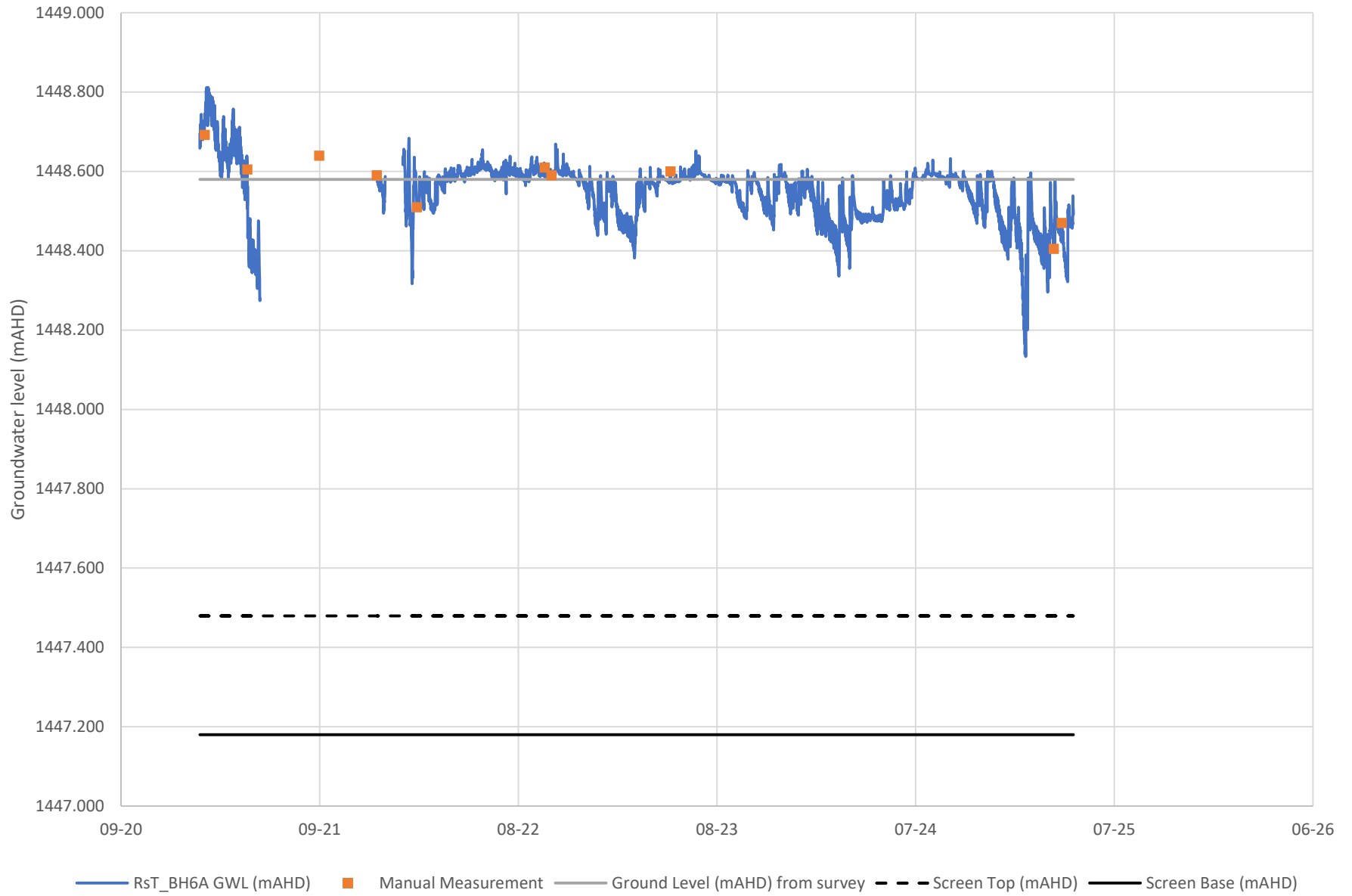
NC03



RtS_BH5A



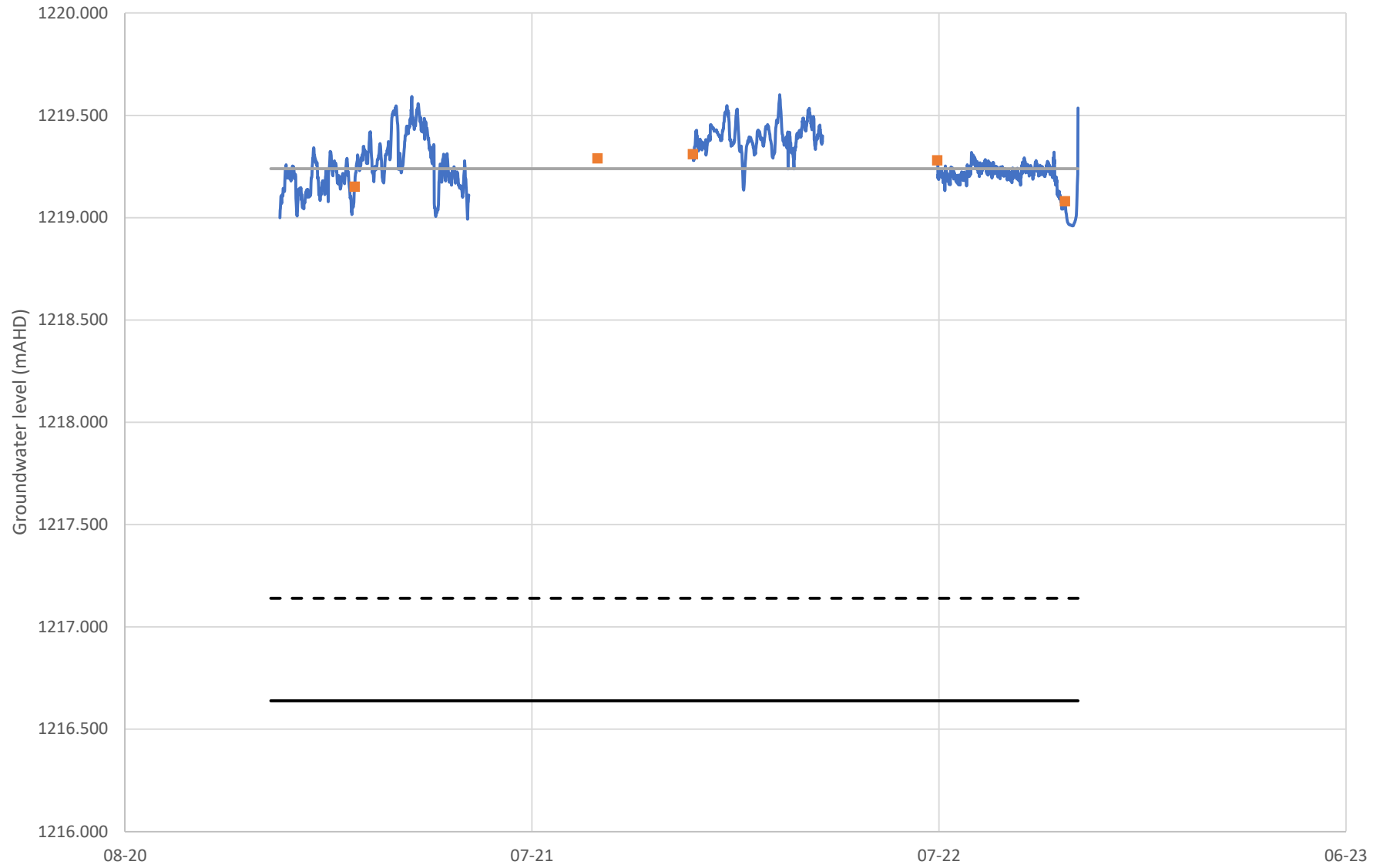
RtS_BH6A



RtS_BH7A

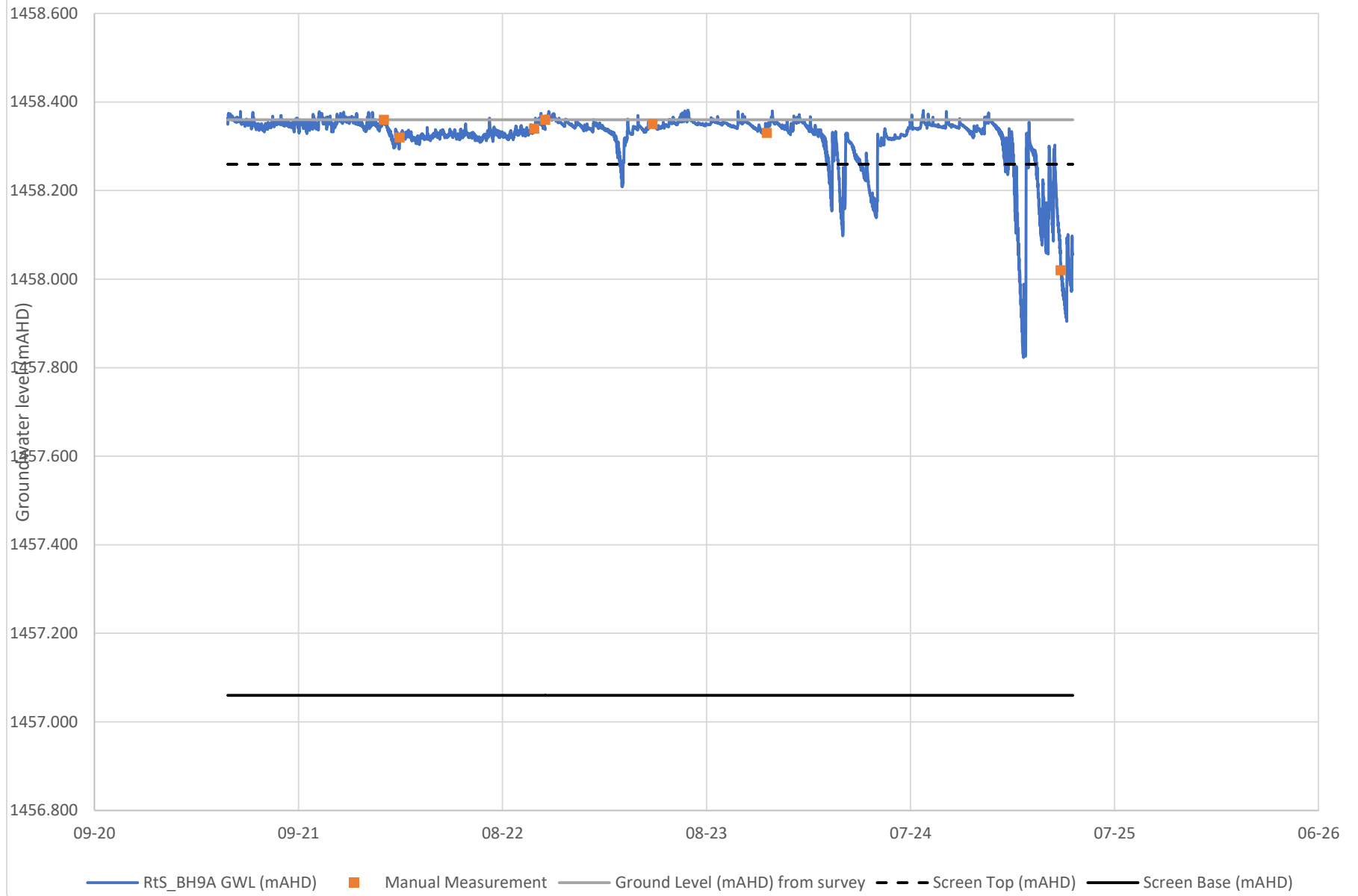


RtS_BH8A

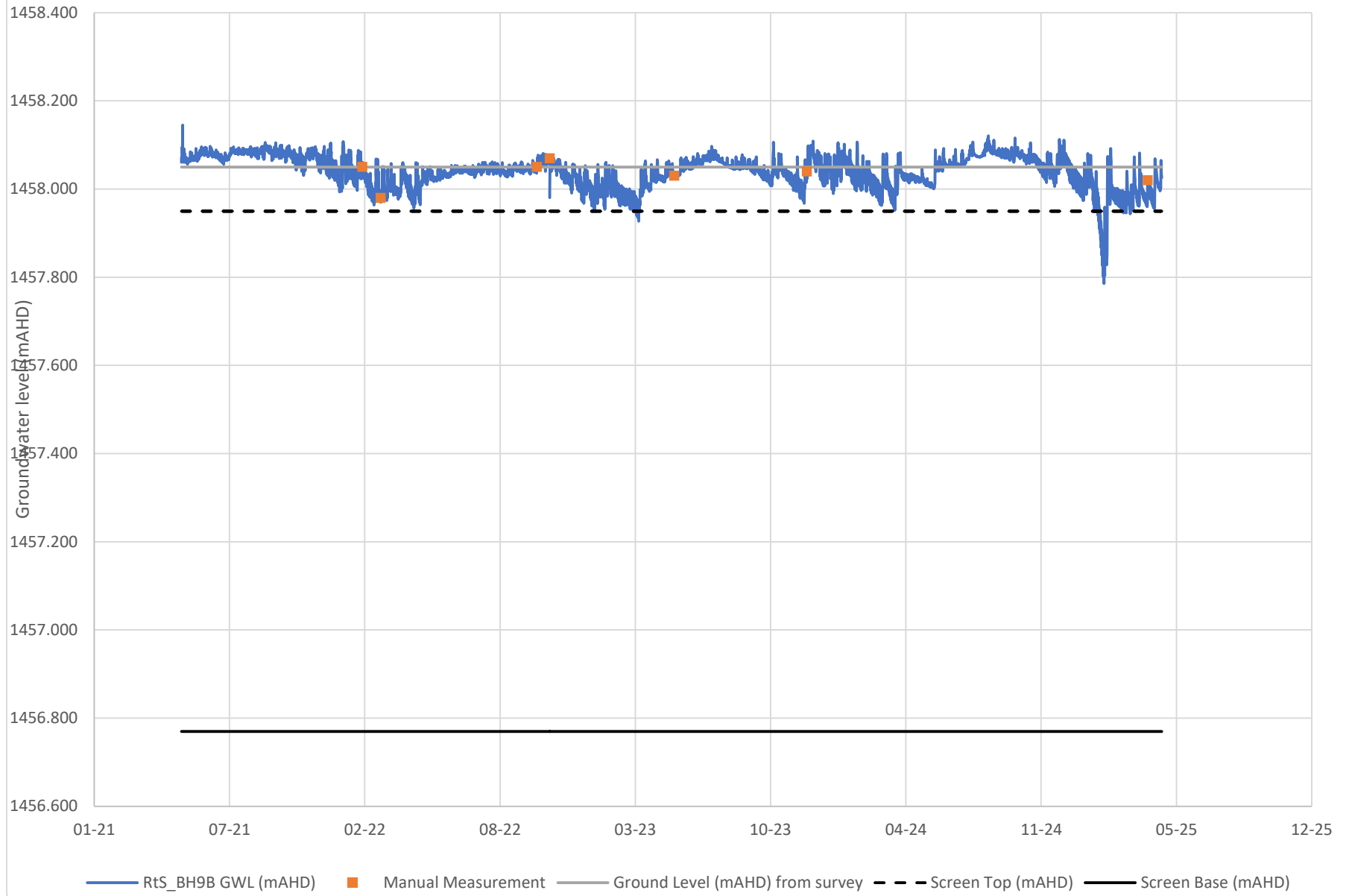


— RtS_BH8A GWL (mAHD) ■ Manual Measurement — Ground Level (mAHD) from survey - - - Screen Top (mAHD) — Screen Base (mAHD)

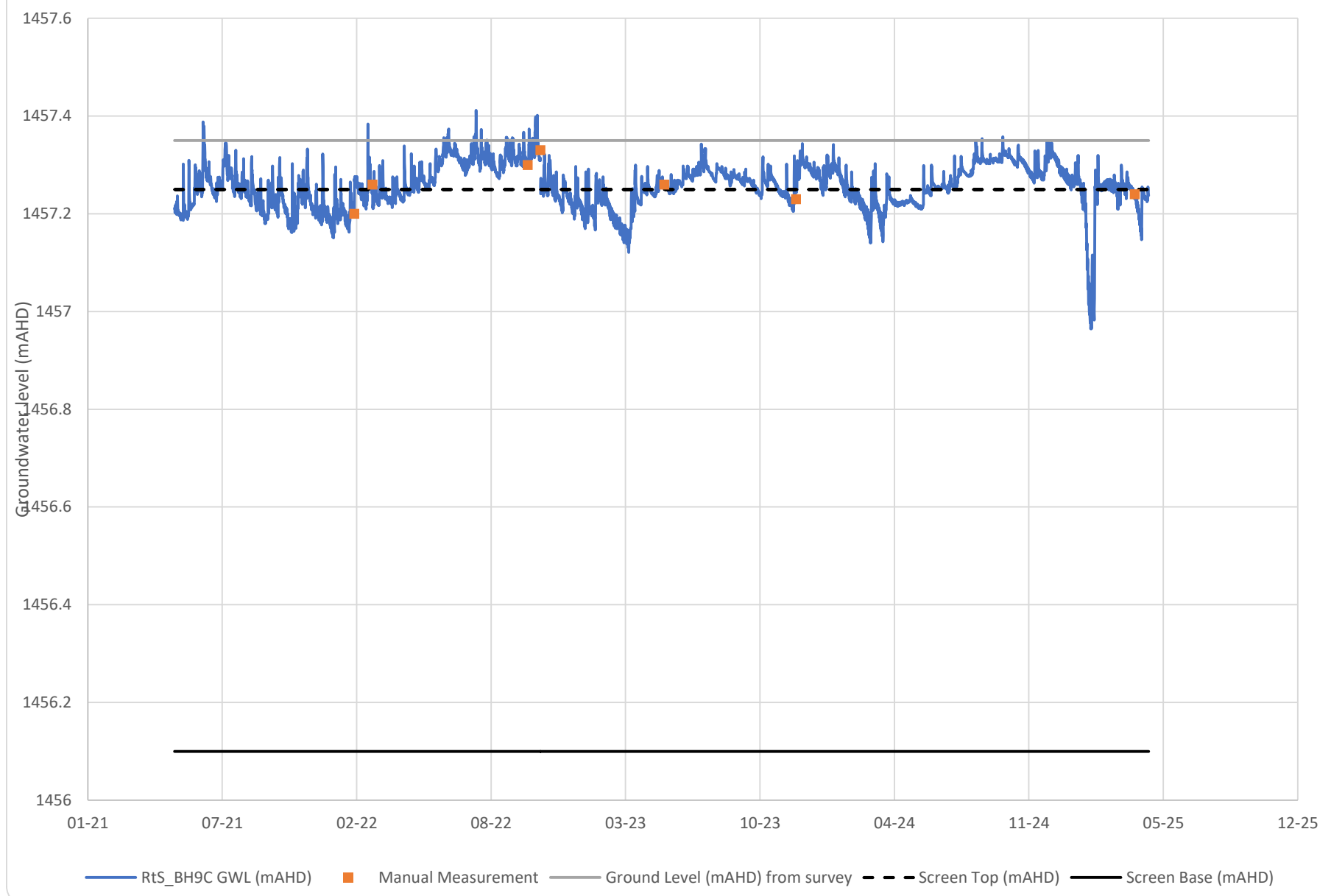
RtS_BH9A



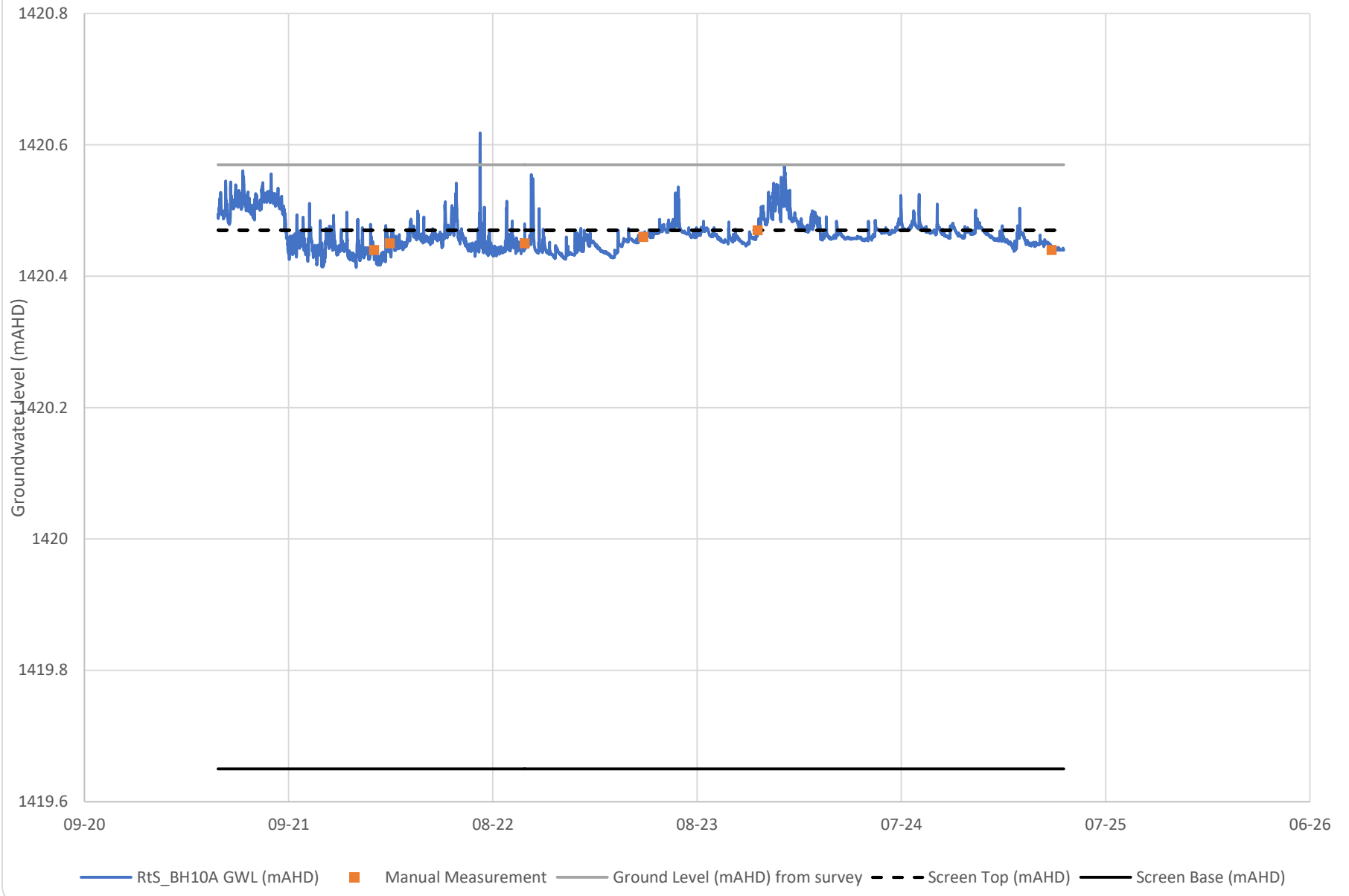
RtS_BH9B



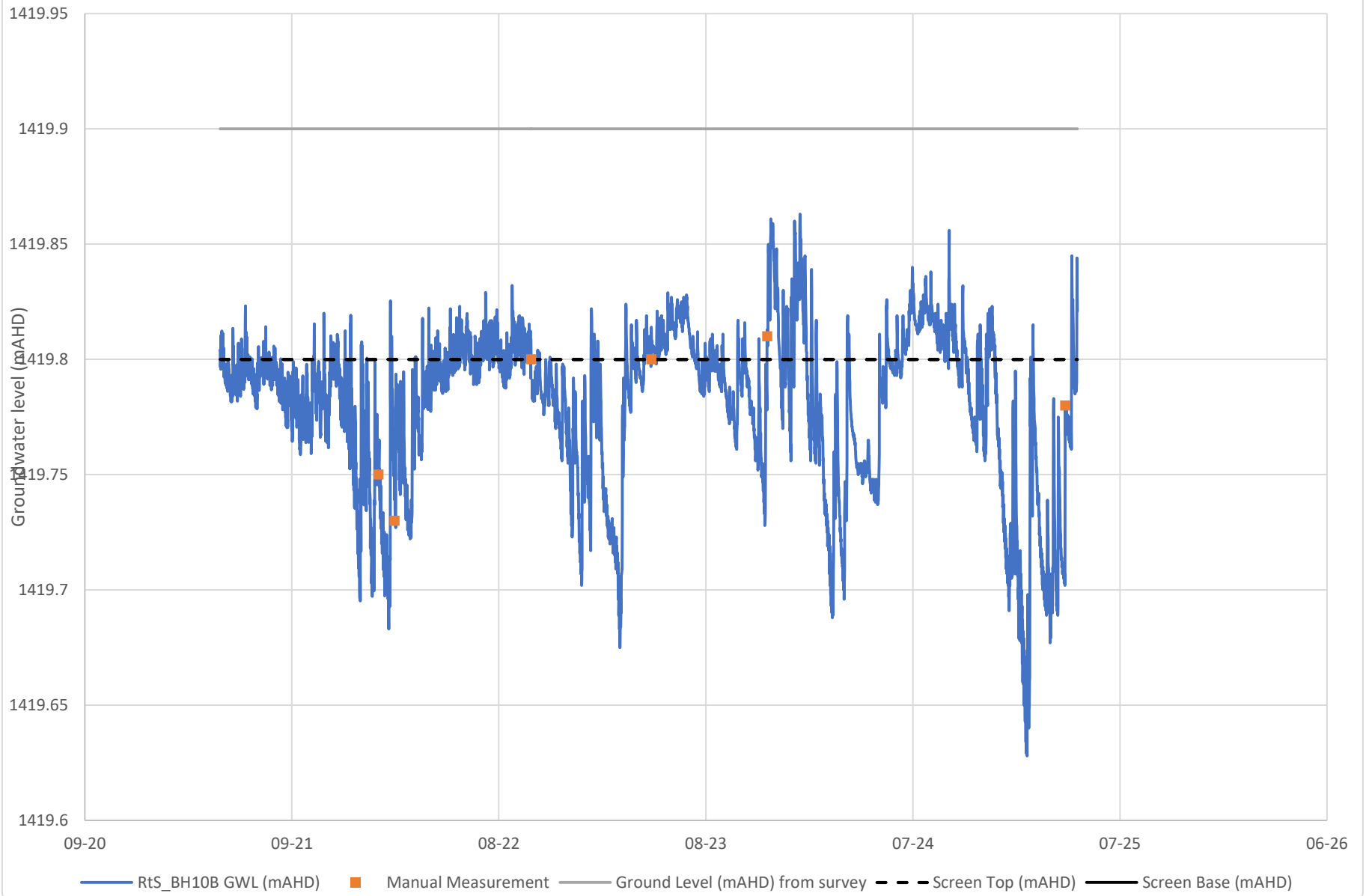
RtS_BH9C



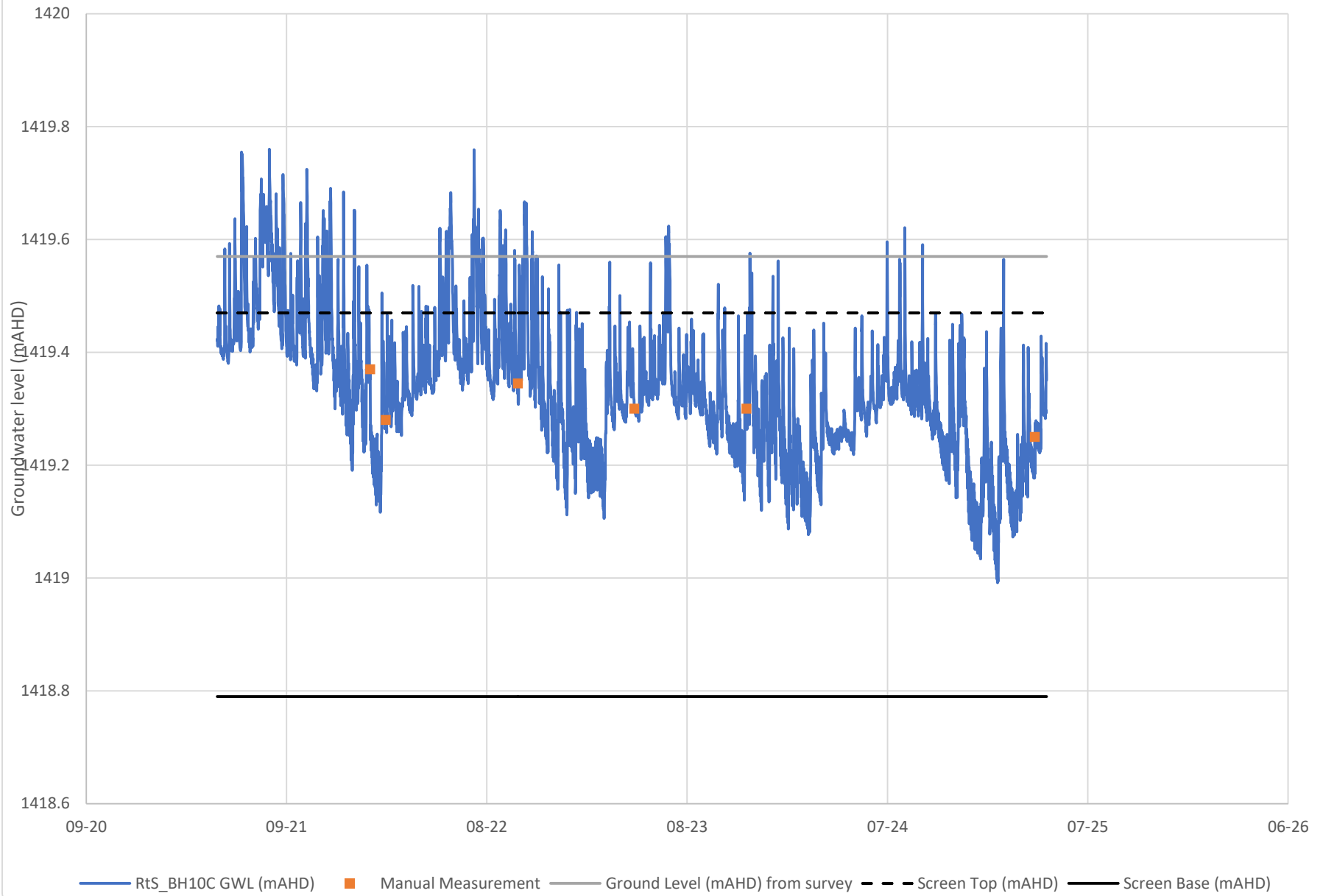
RtS_BH10A



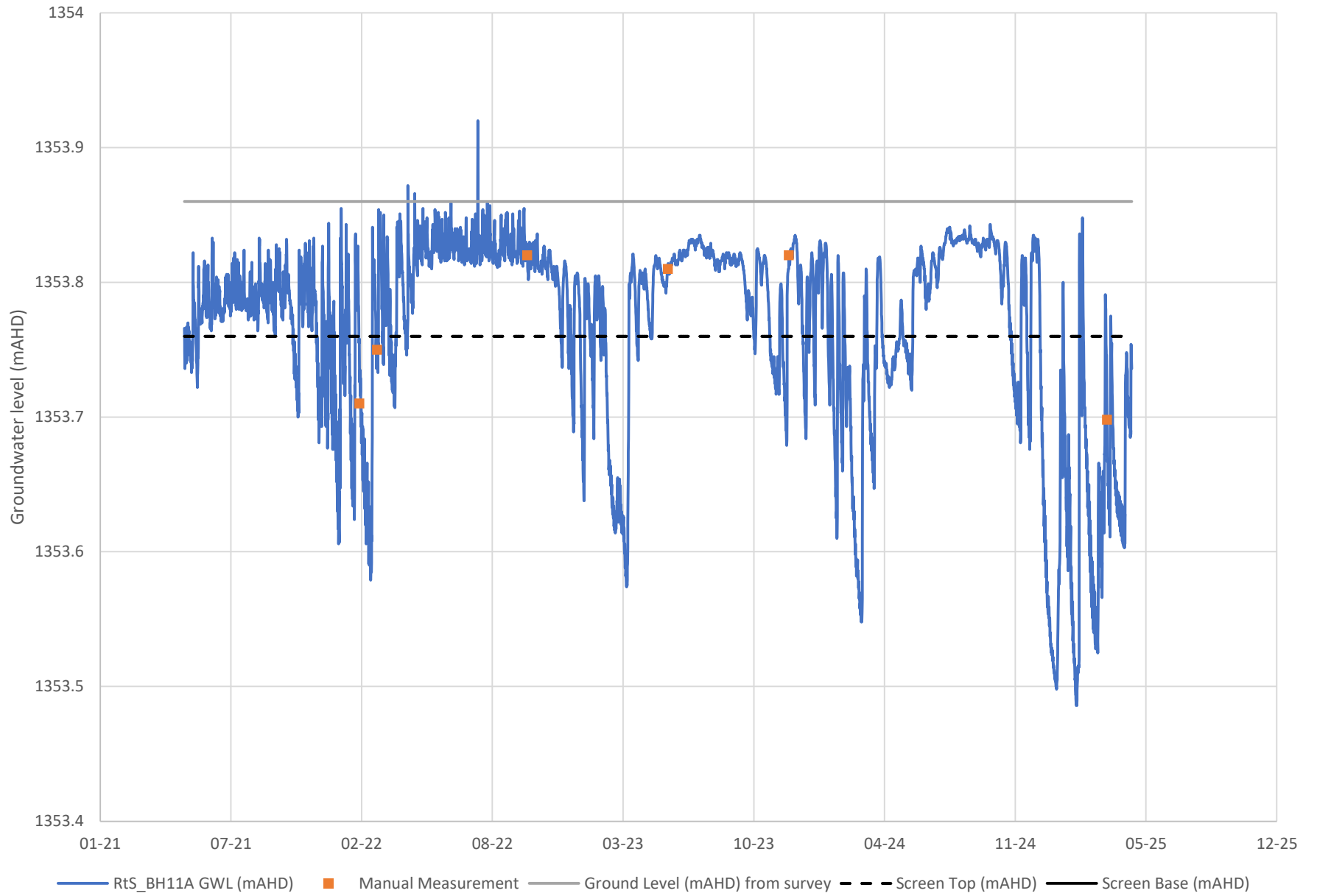
RtS_BH10B



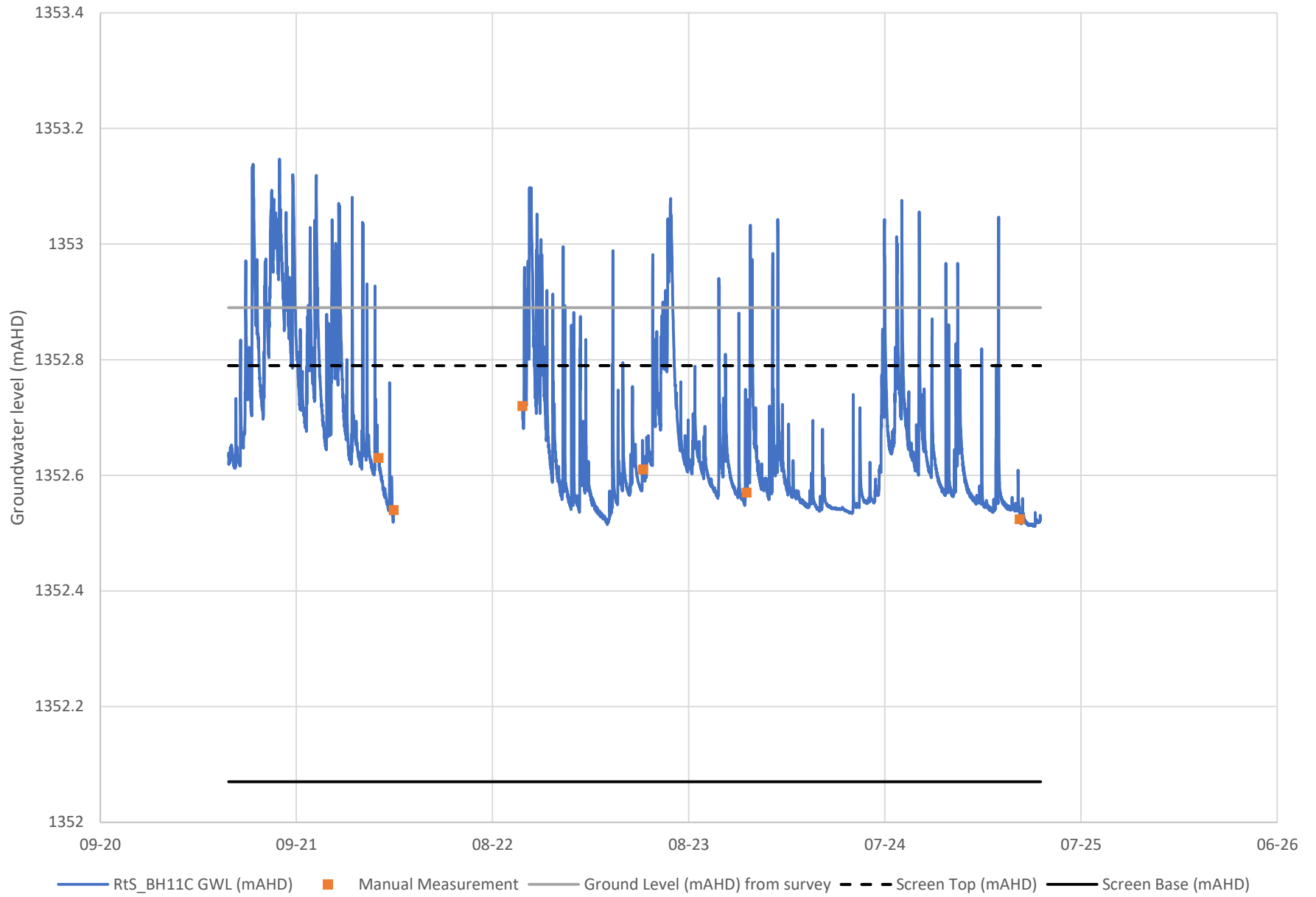
RtS_BH10C



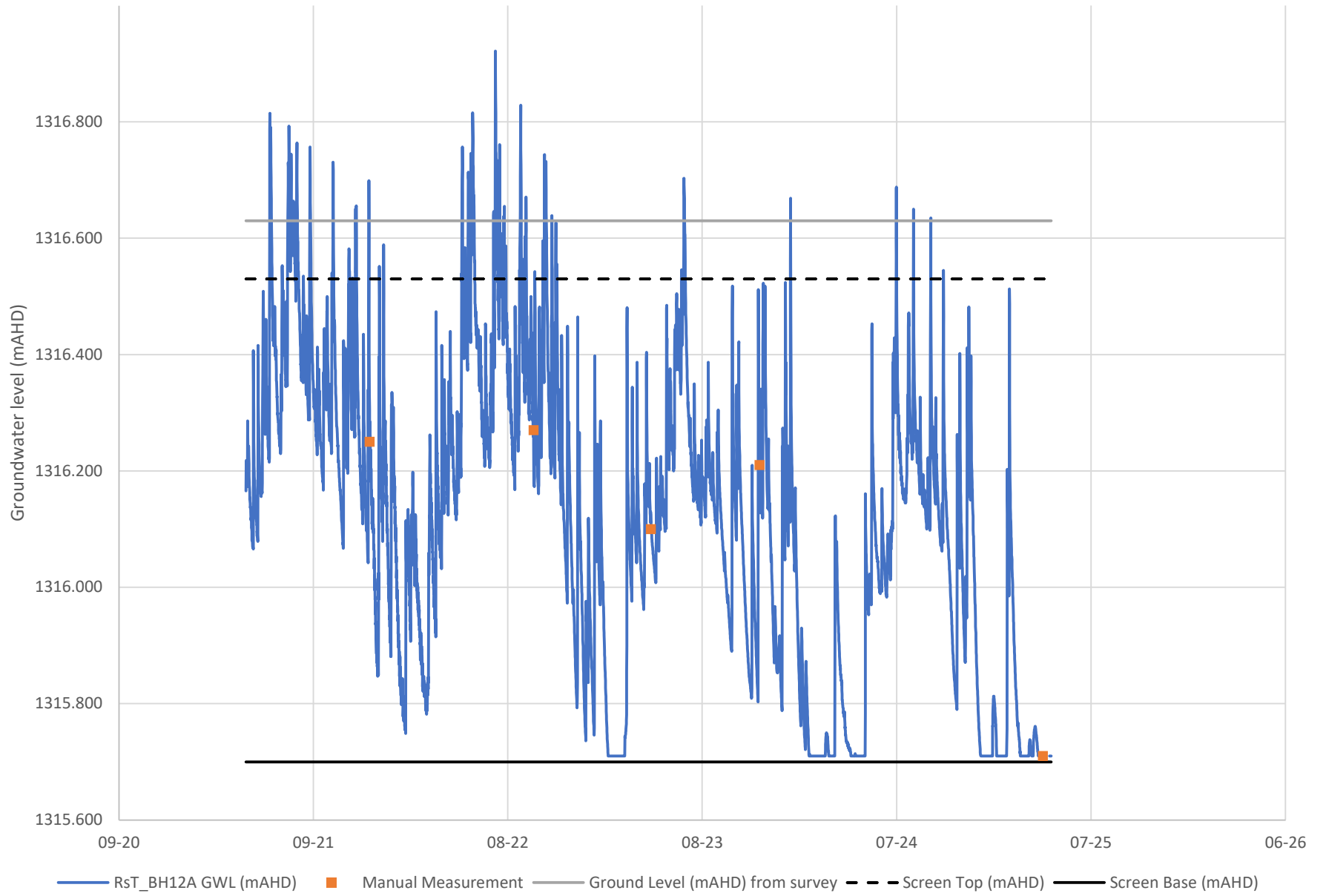
RtS_BH11A



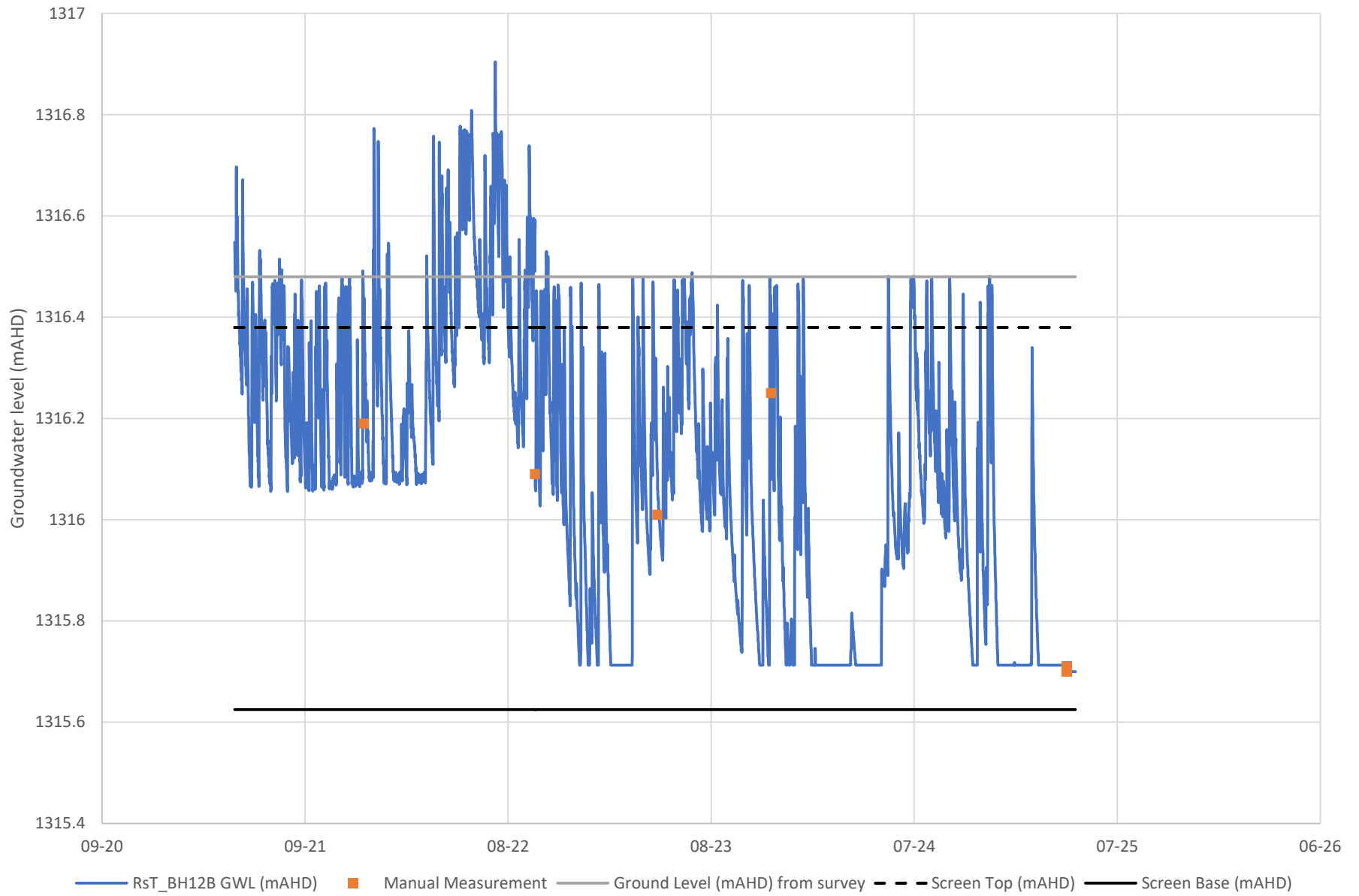
RtS_BH11C



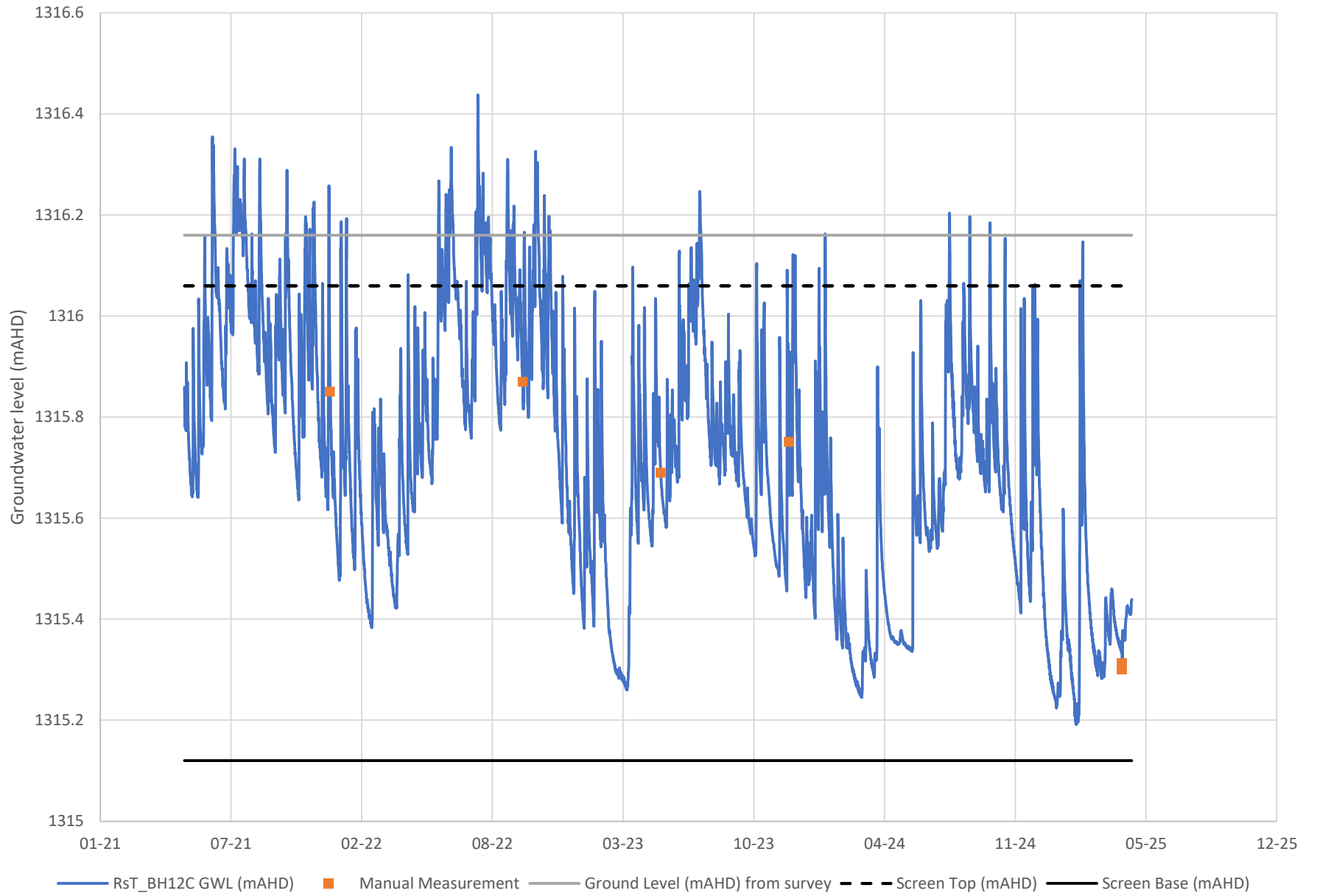
RtS_BH12A



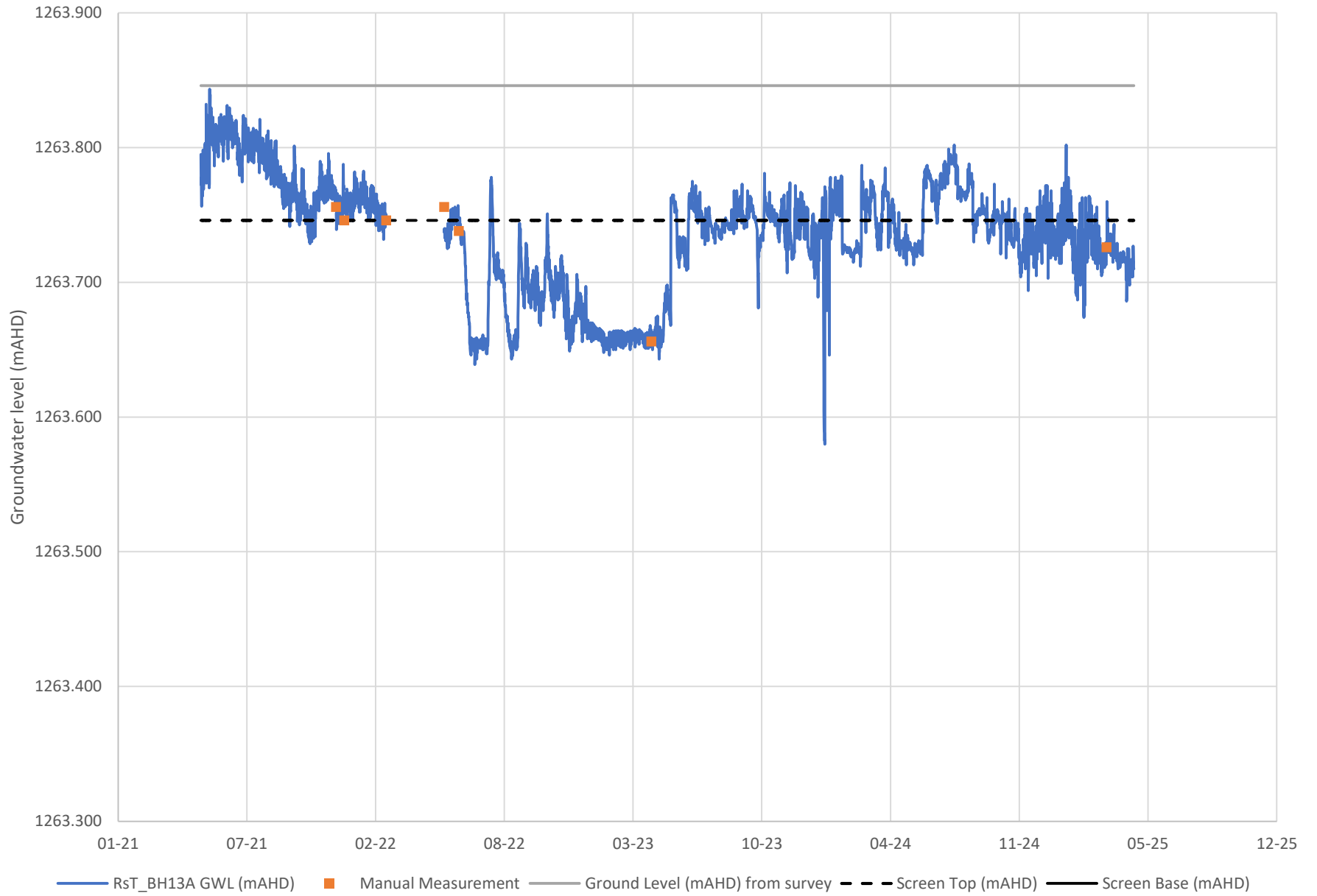
RtS_BH12B



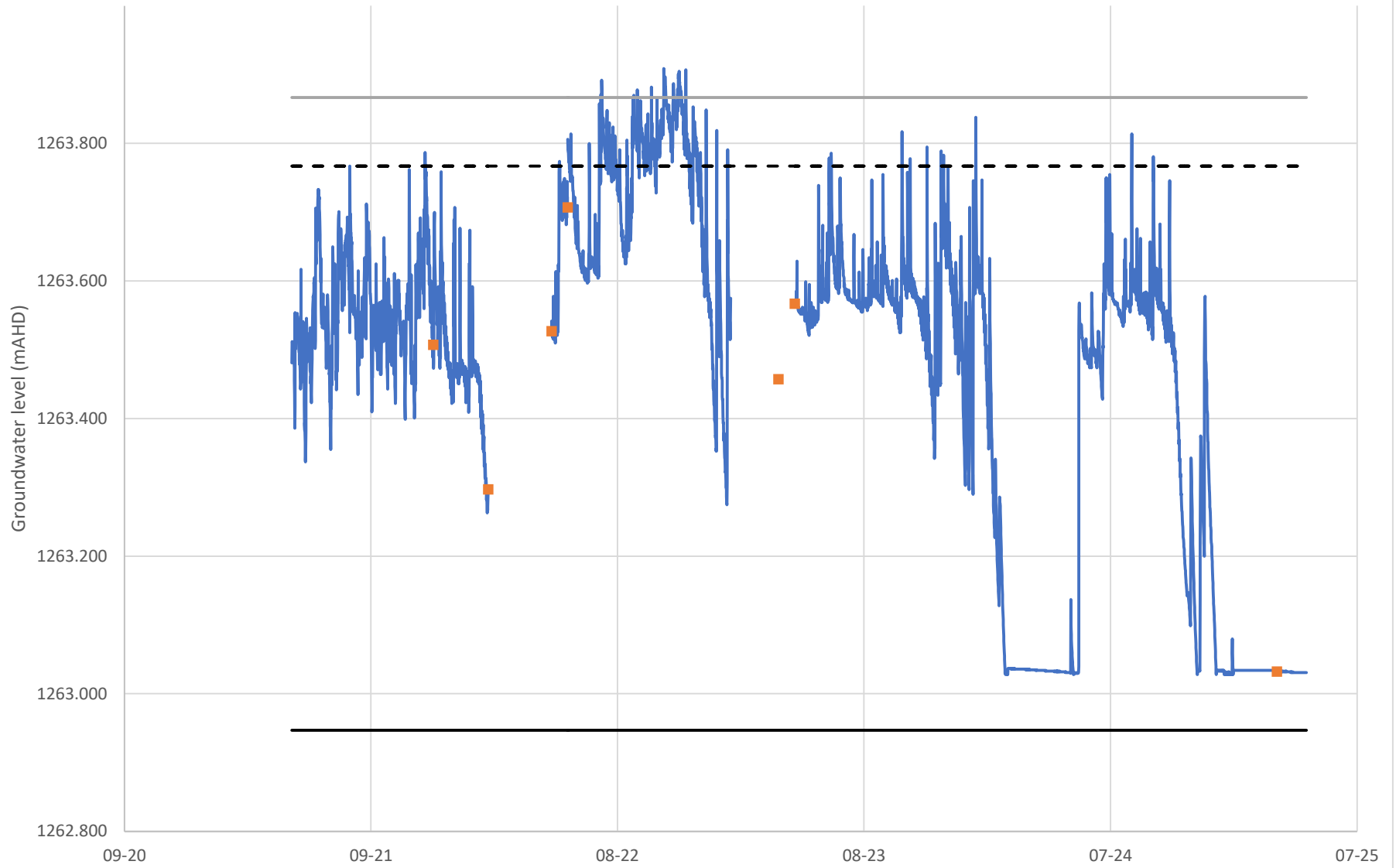
RtS_BH12C



RtS_BH13A



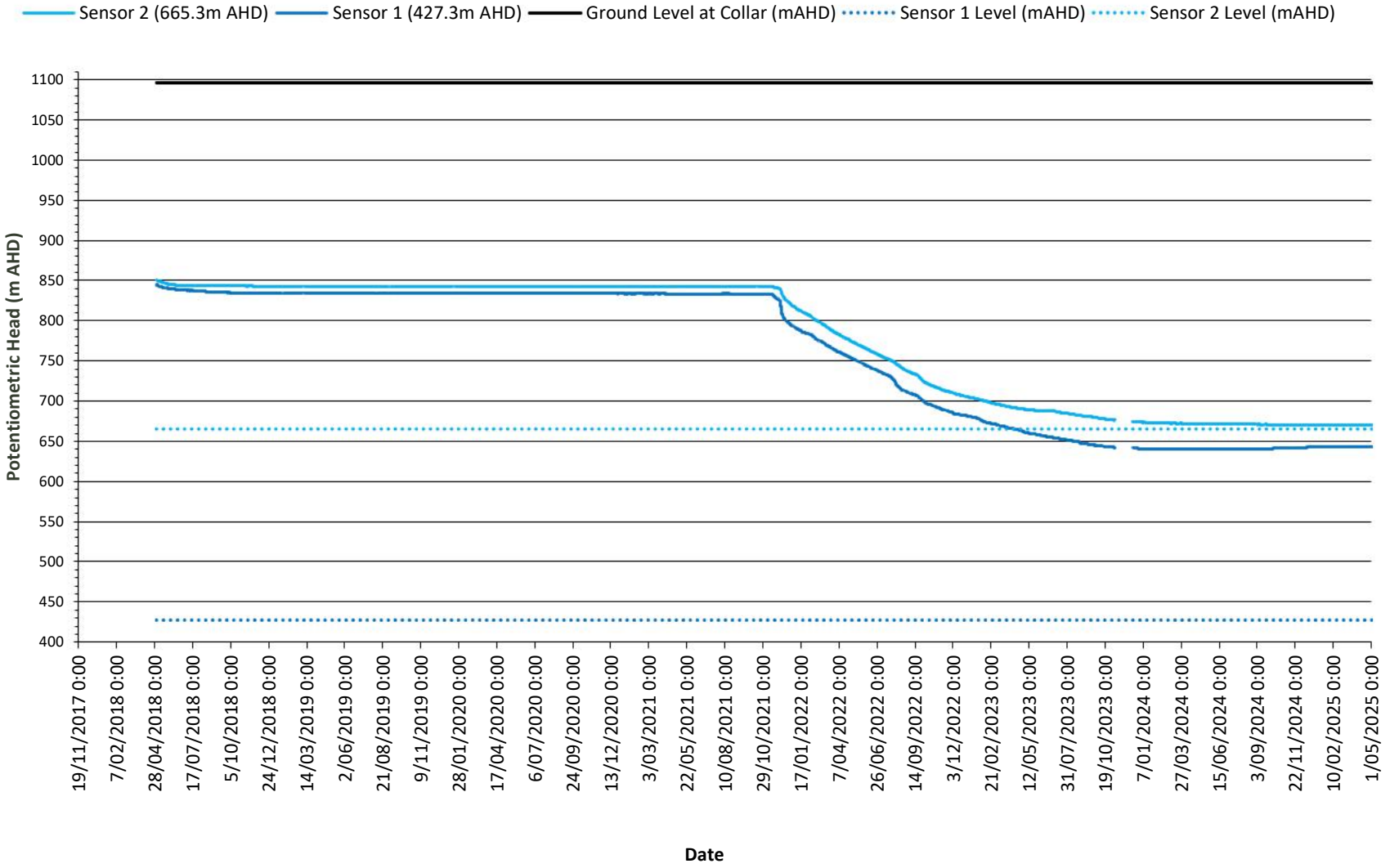
RtS_BH13B



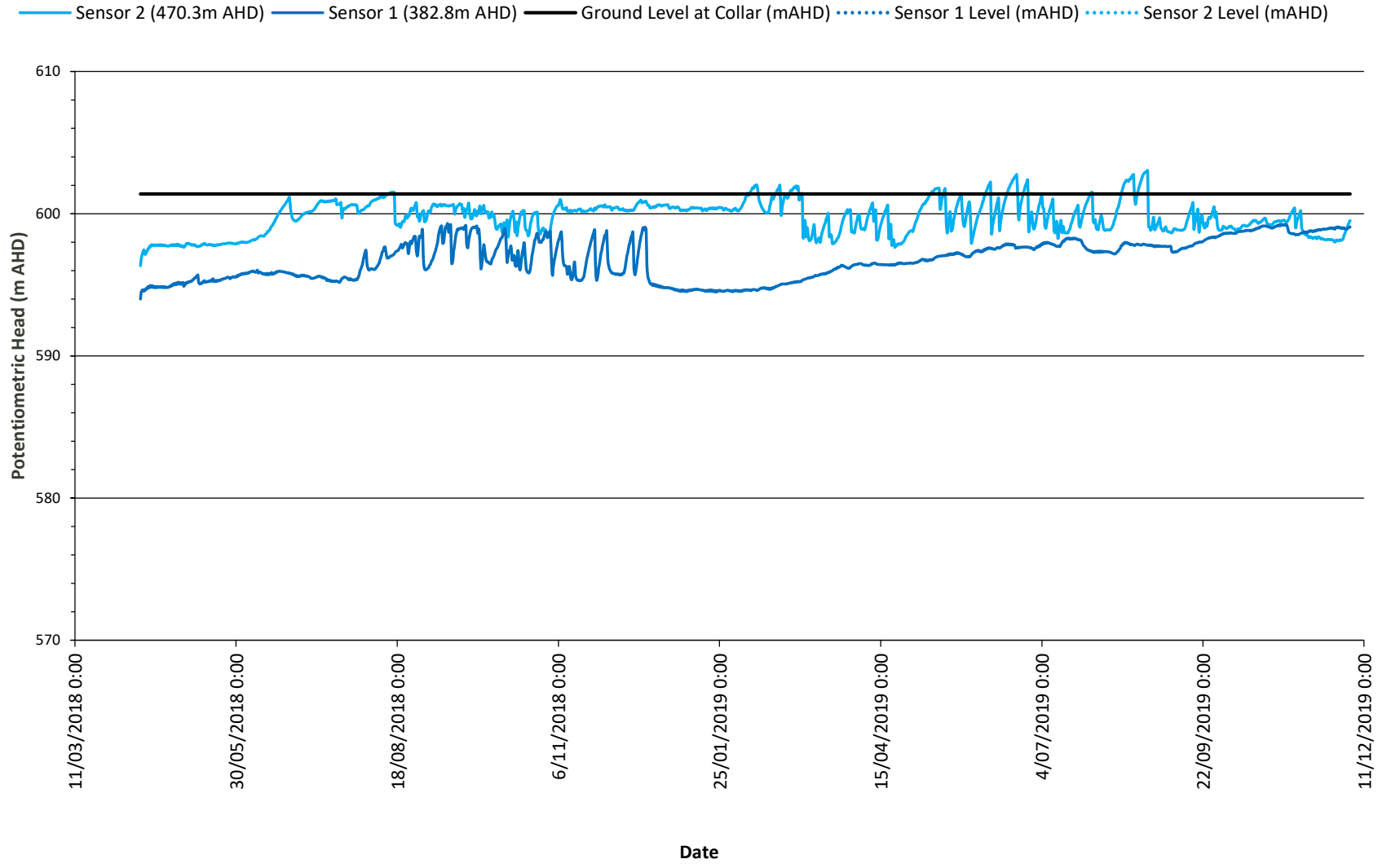
Appendix C - Vibrating Wire Piezometer Hydrographs



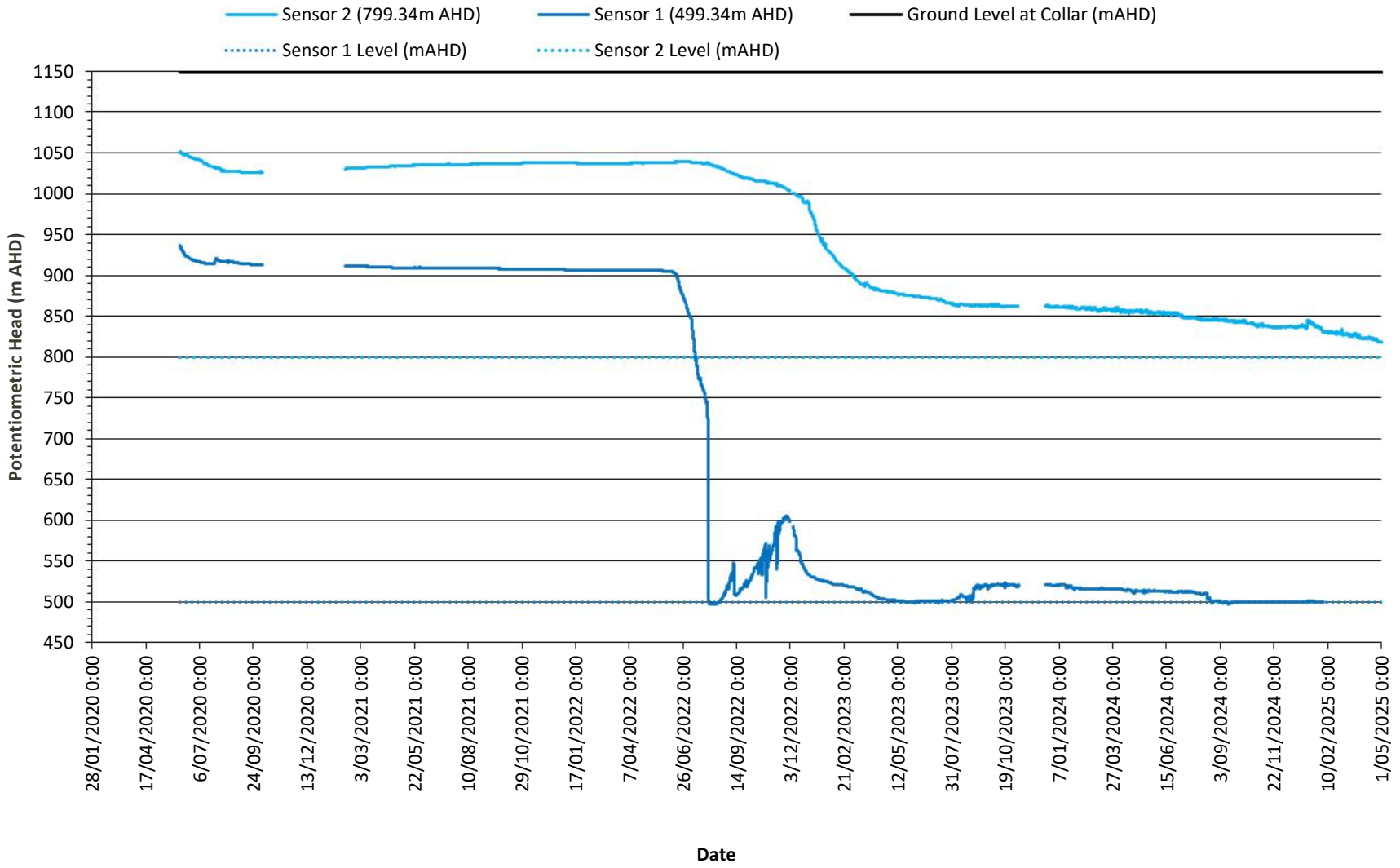
BH8106 Potentiometric Surface



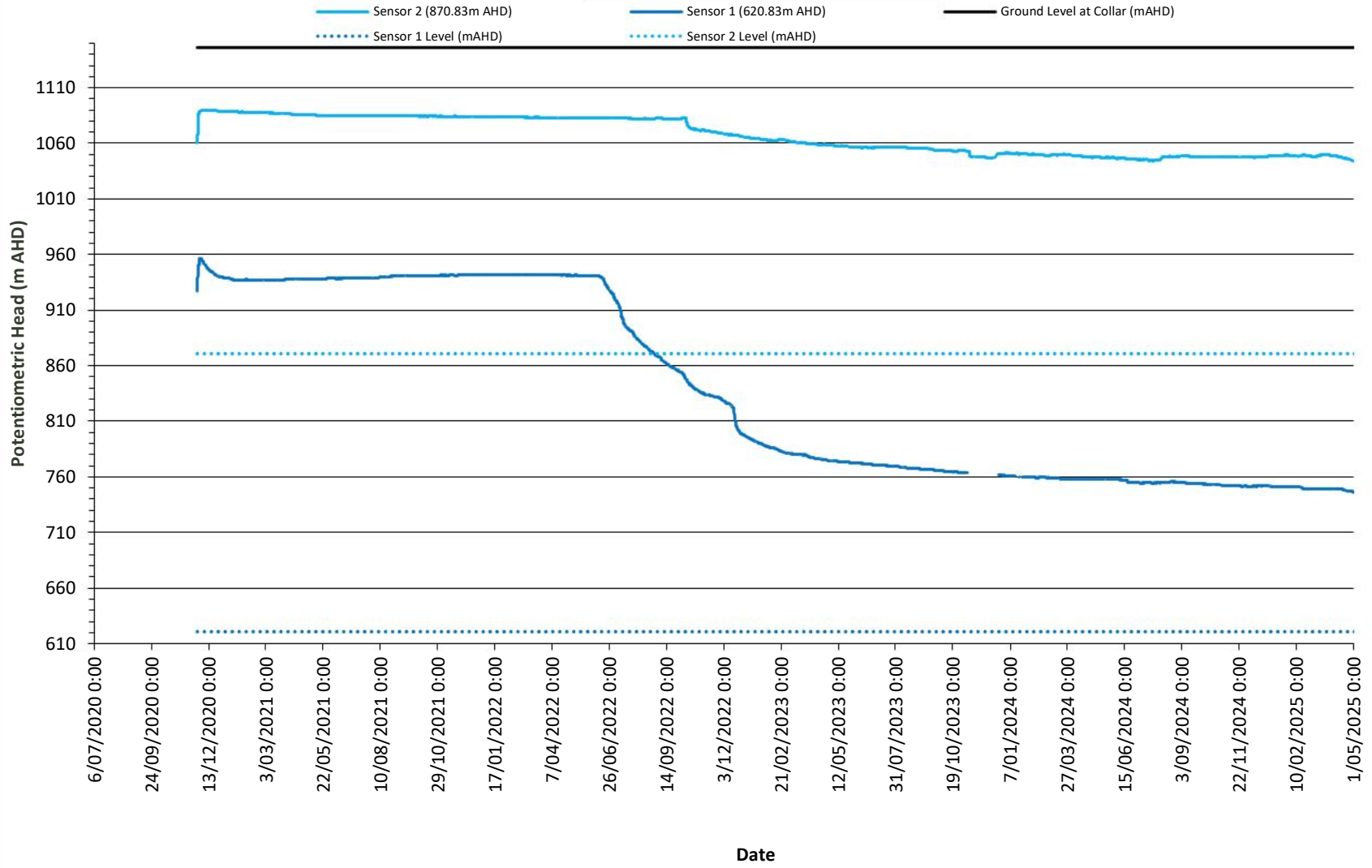
BH6103 Potentiometric Surface



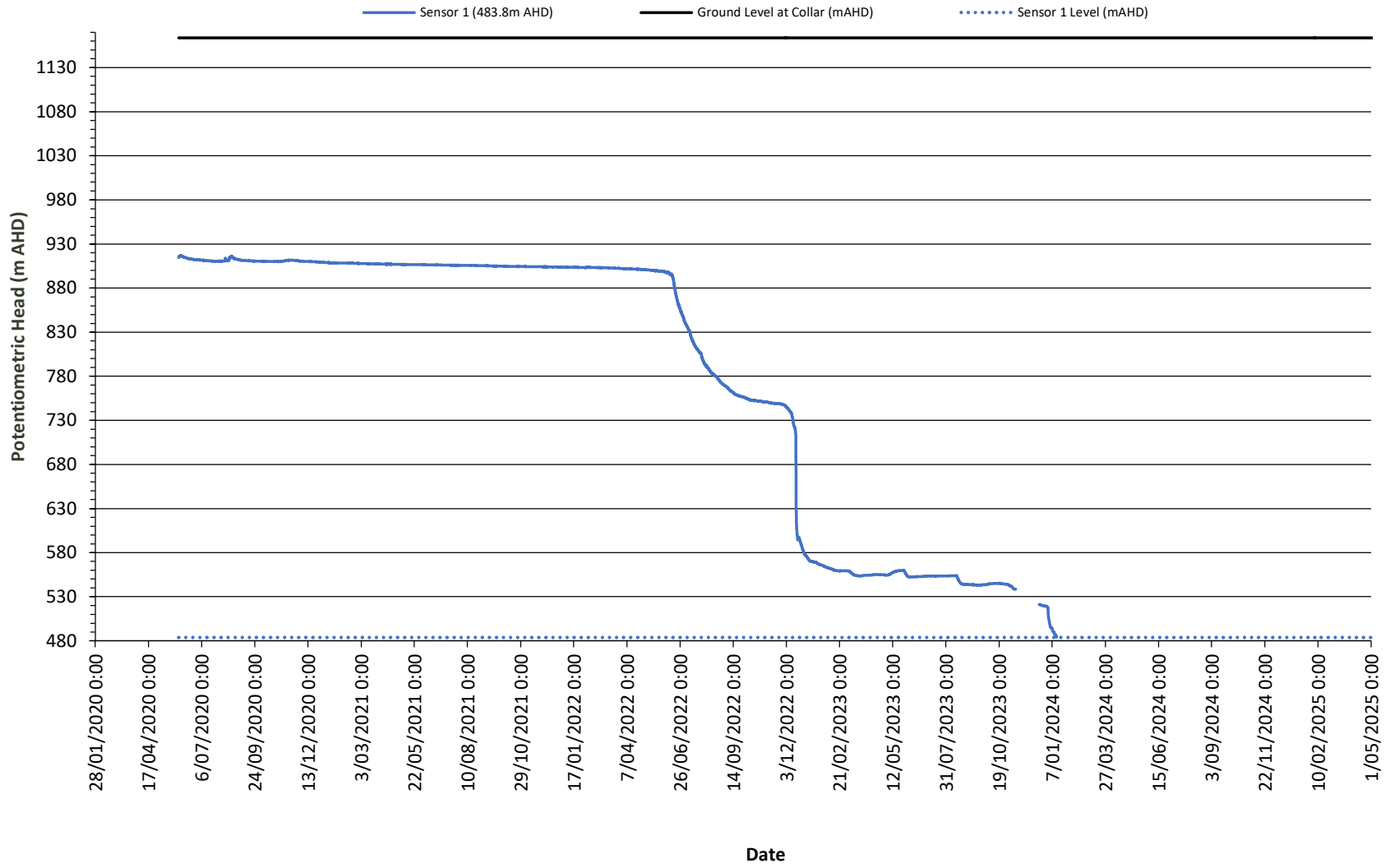
BH5209 Potentiometric Surface



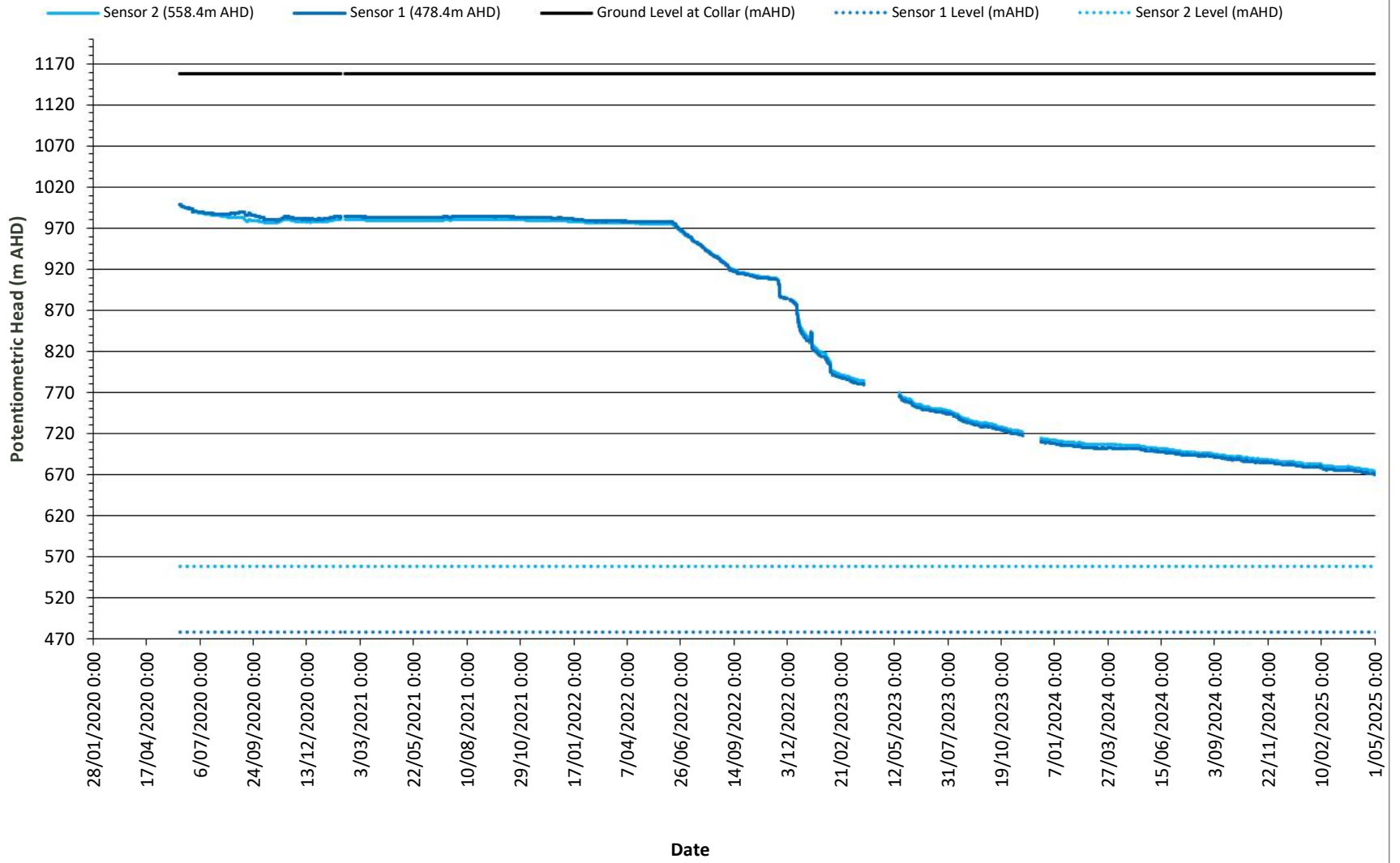
BH5208 Potentiometric Surface



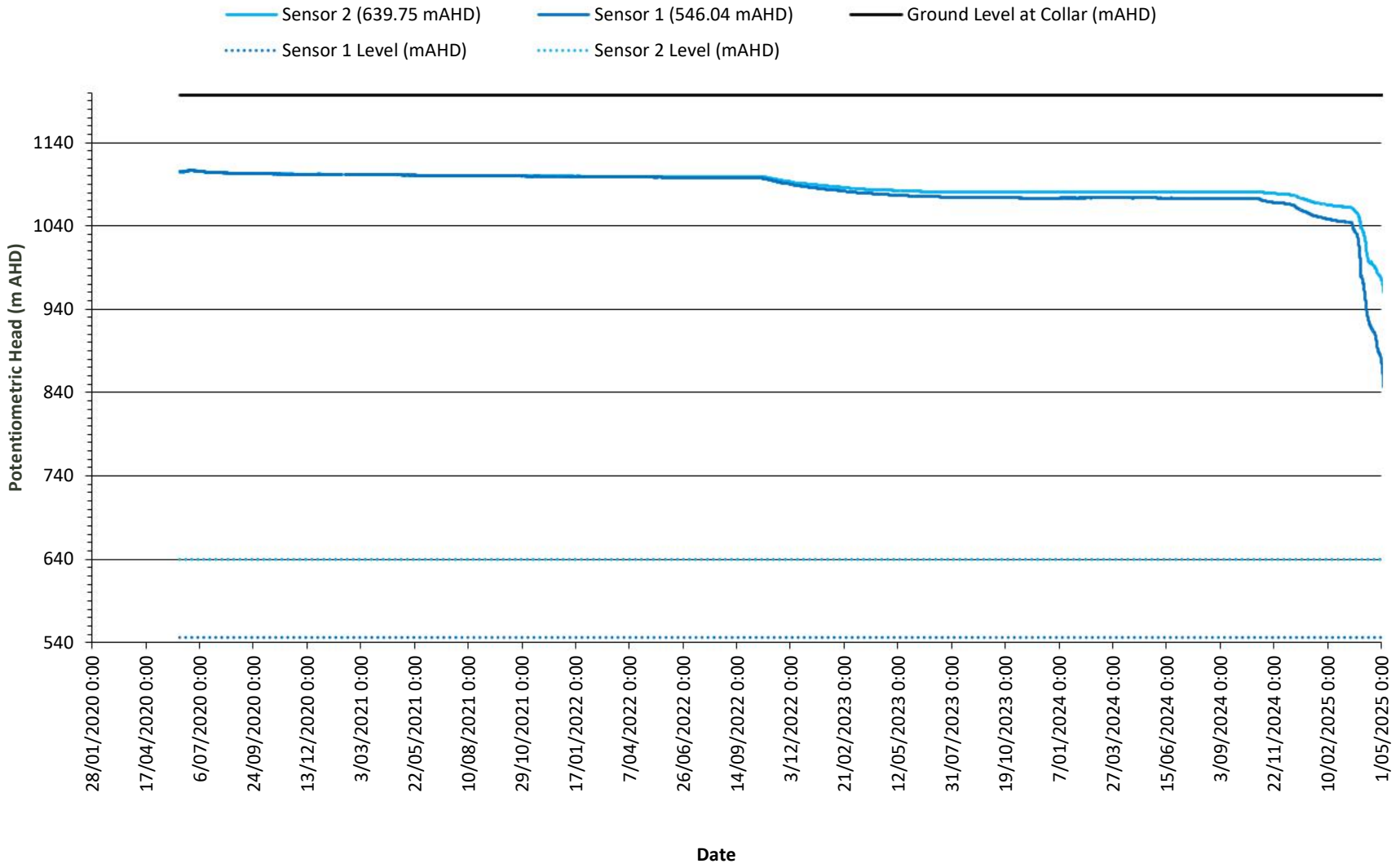
BH5207 Potentiometric Surface



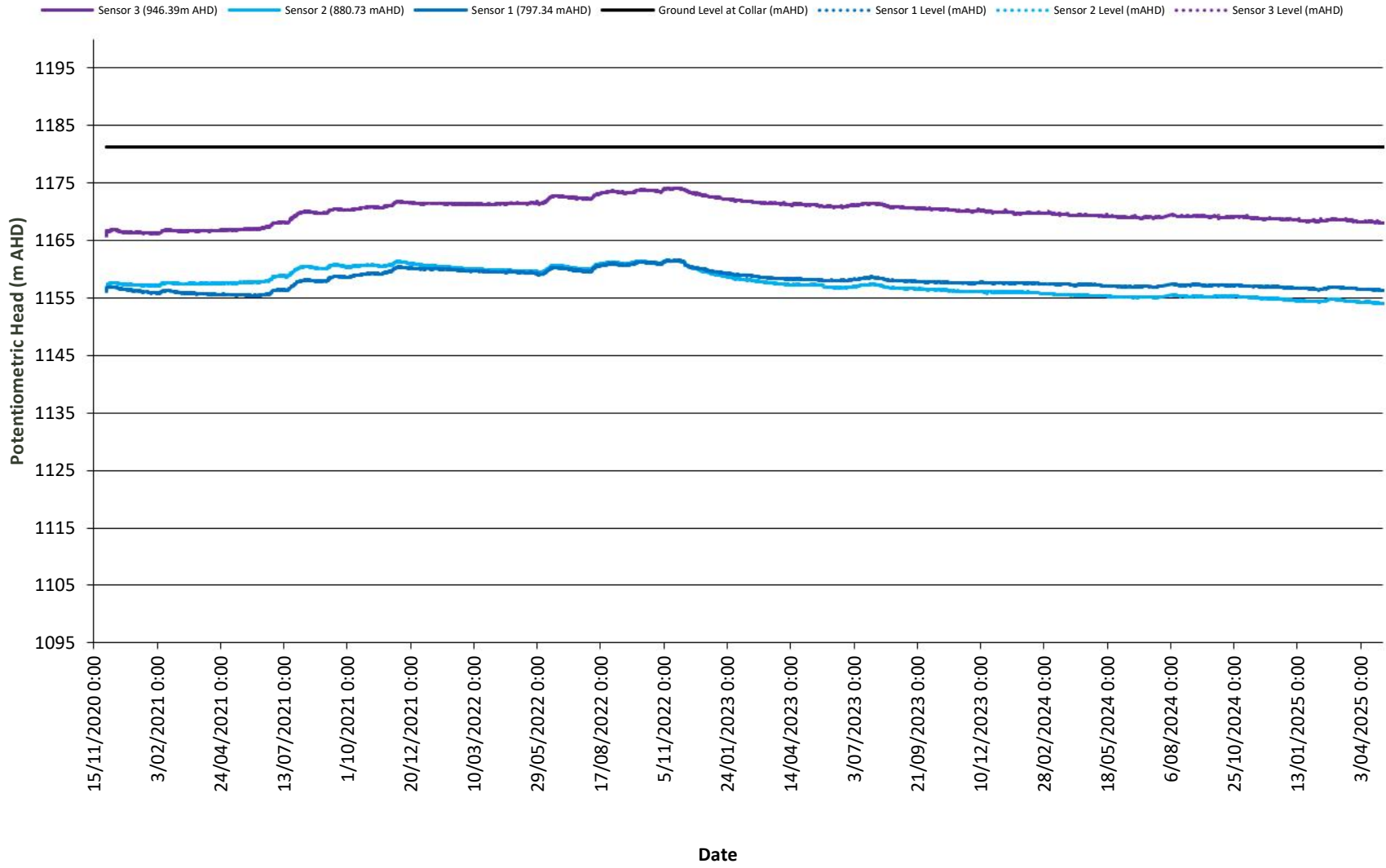
BH5206 Potentiometric Surface



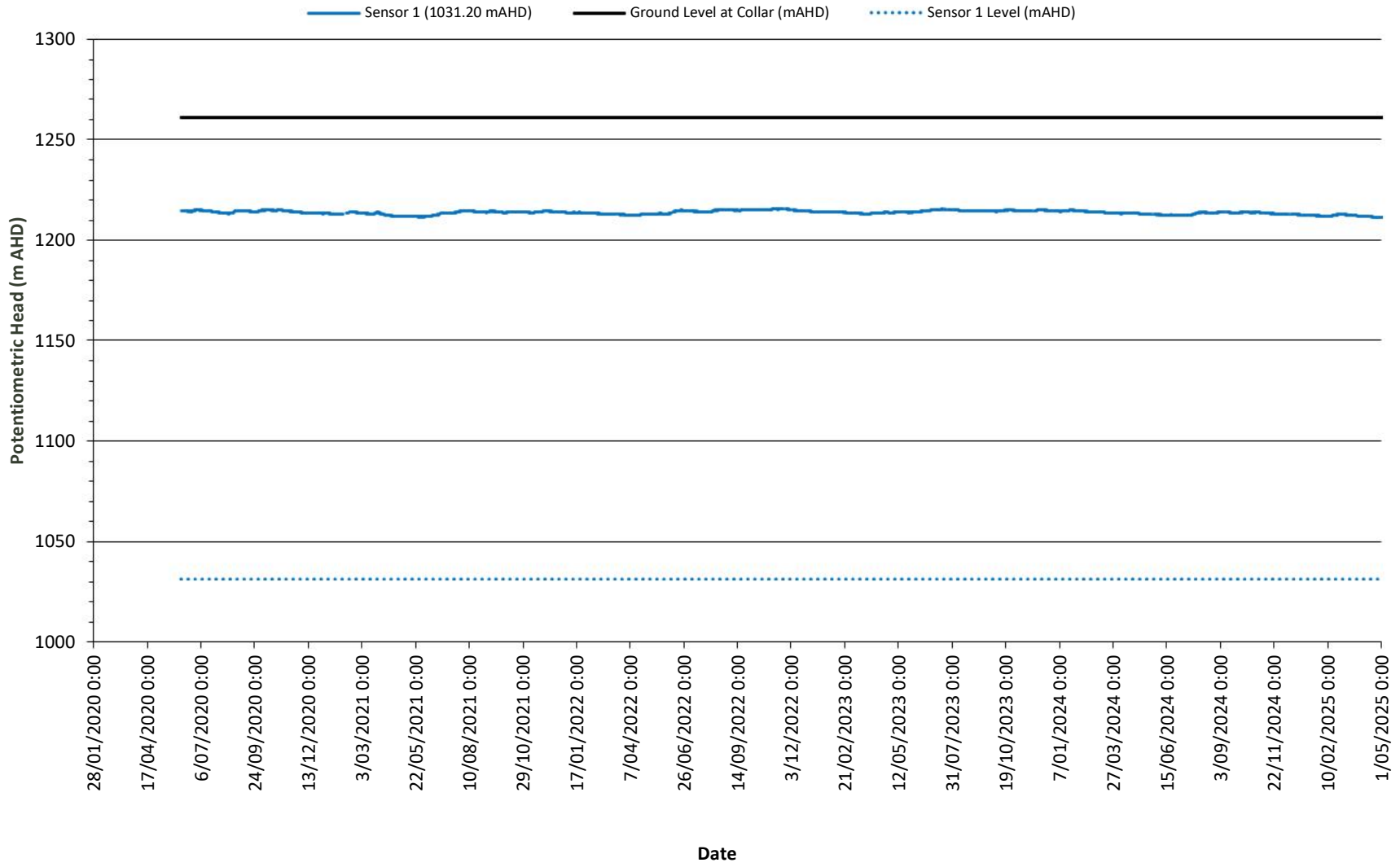
BH5204 Potentiometric Surface



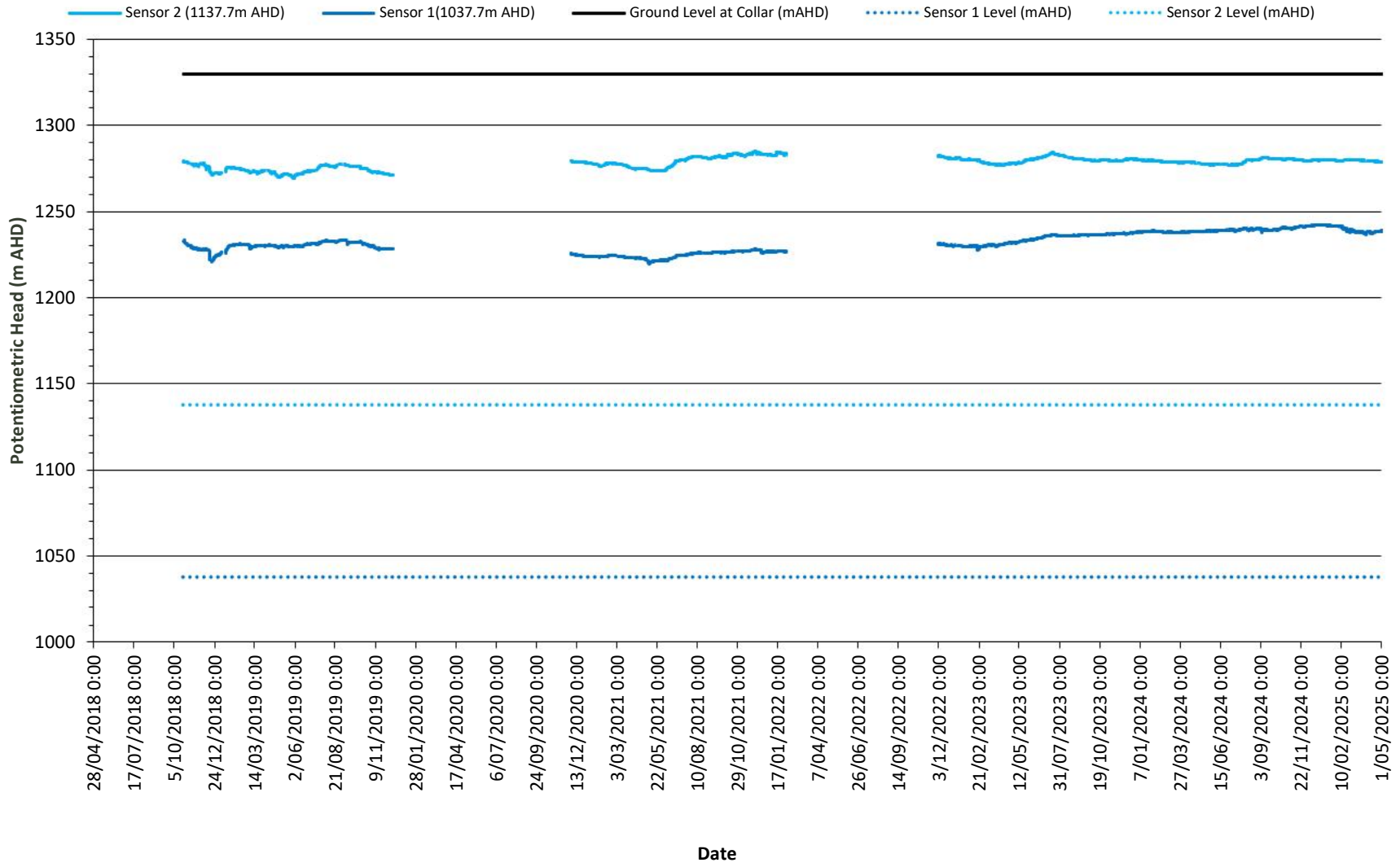
BH5203A Potentiometric Surface



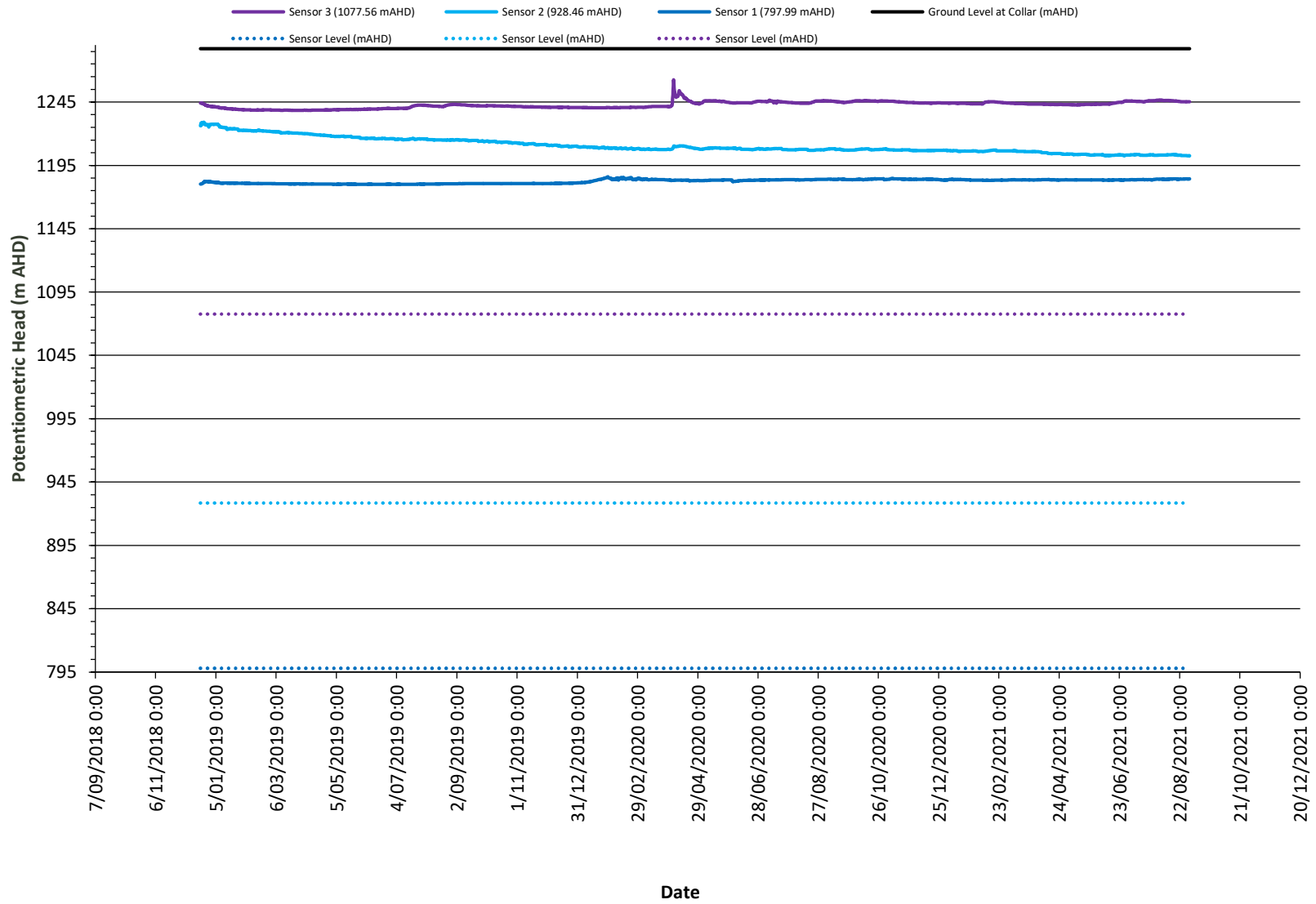
BH5202 Potentiometric Surface



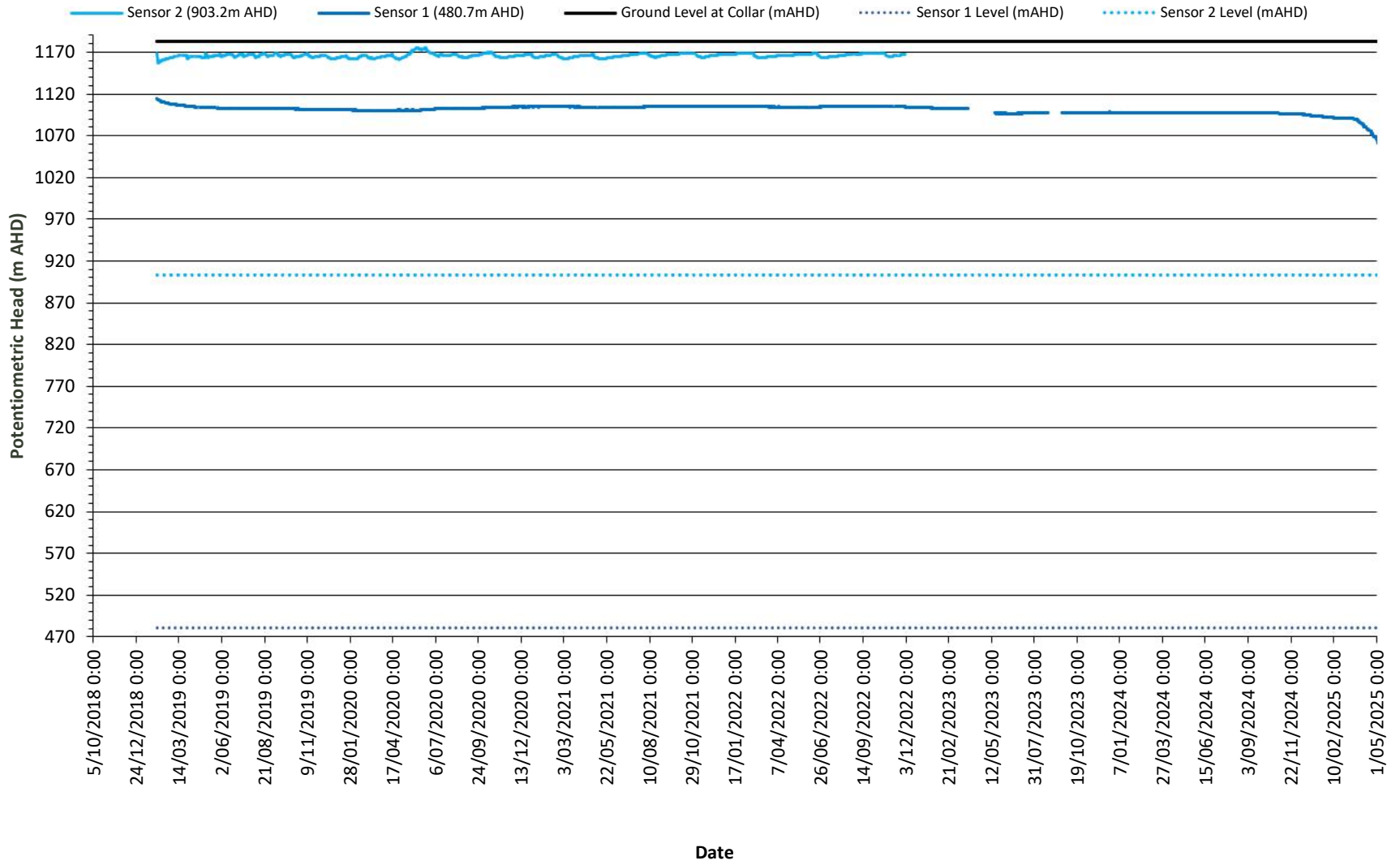
BH5115 Potentiometric Surface



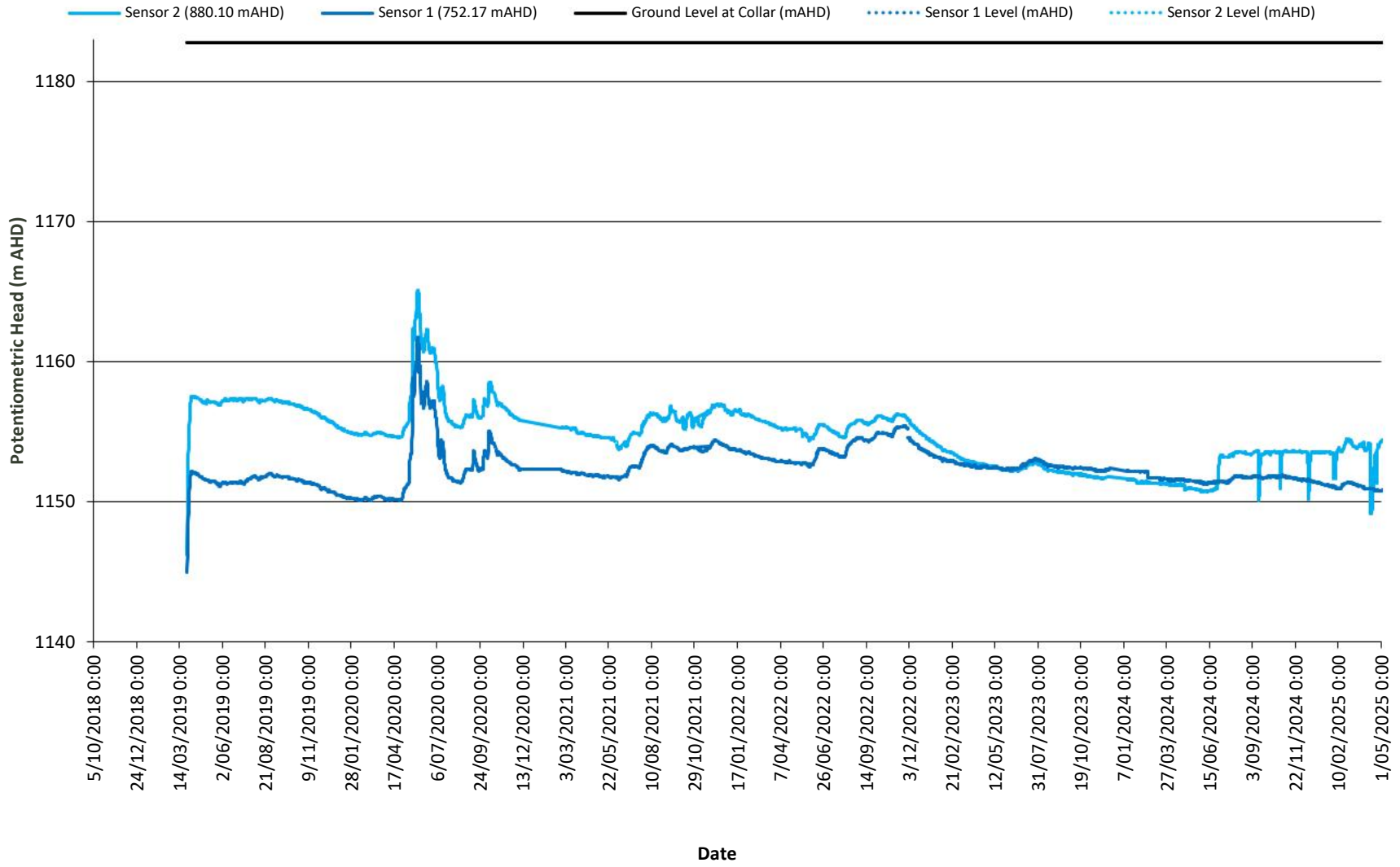
BH5114 Potentiometric Surface



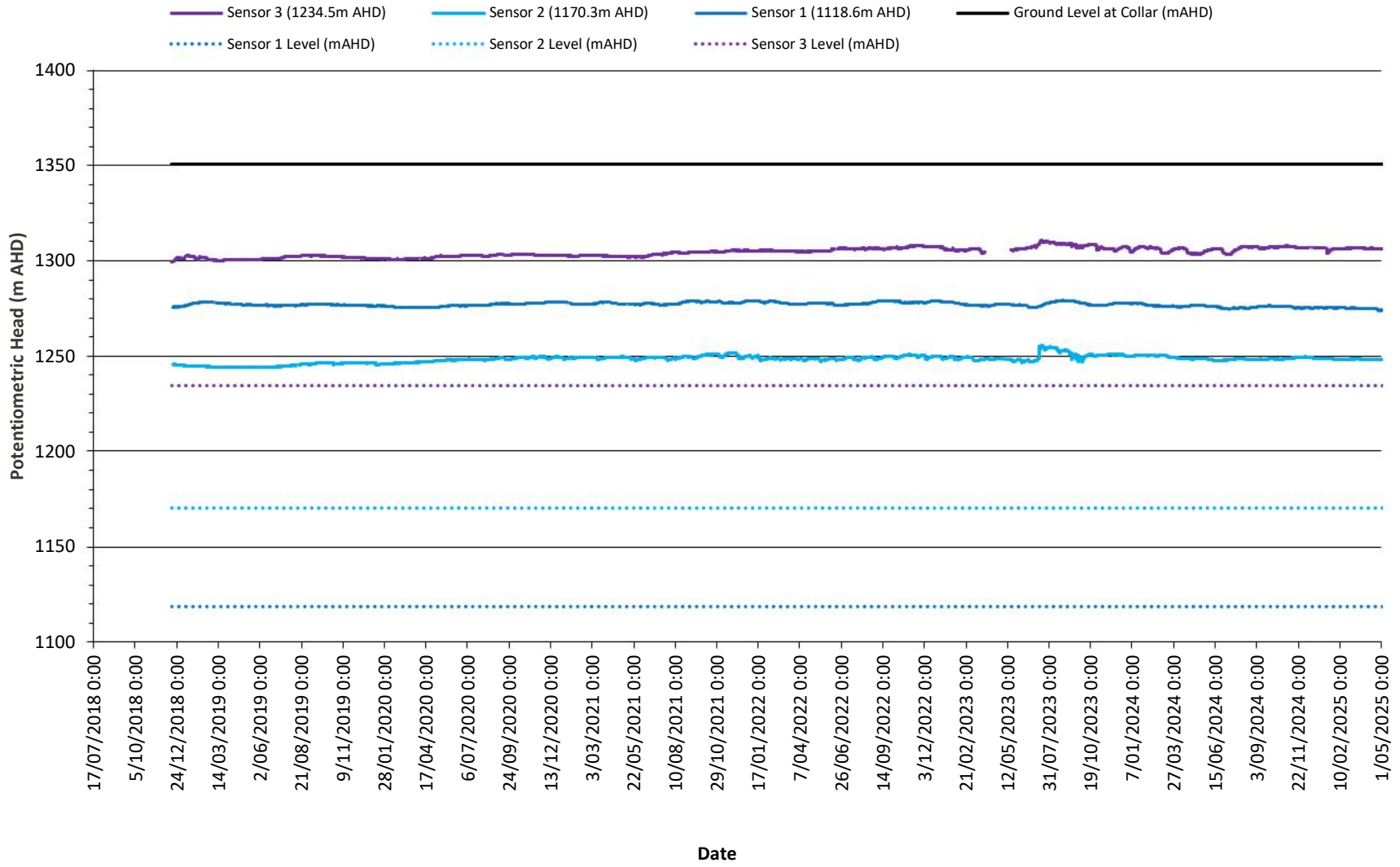
BH5113B Potentiometric Surface



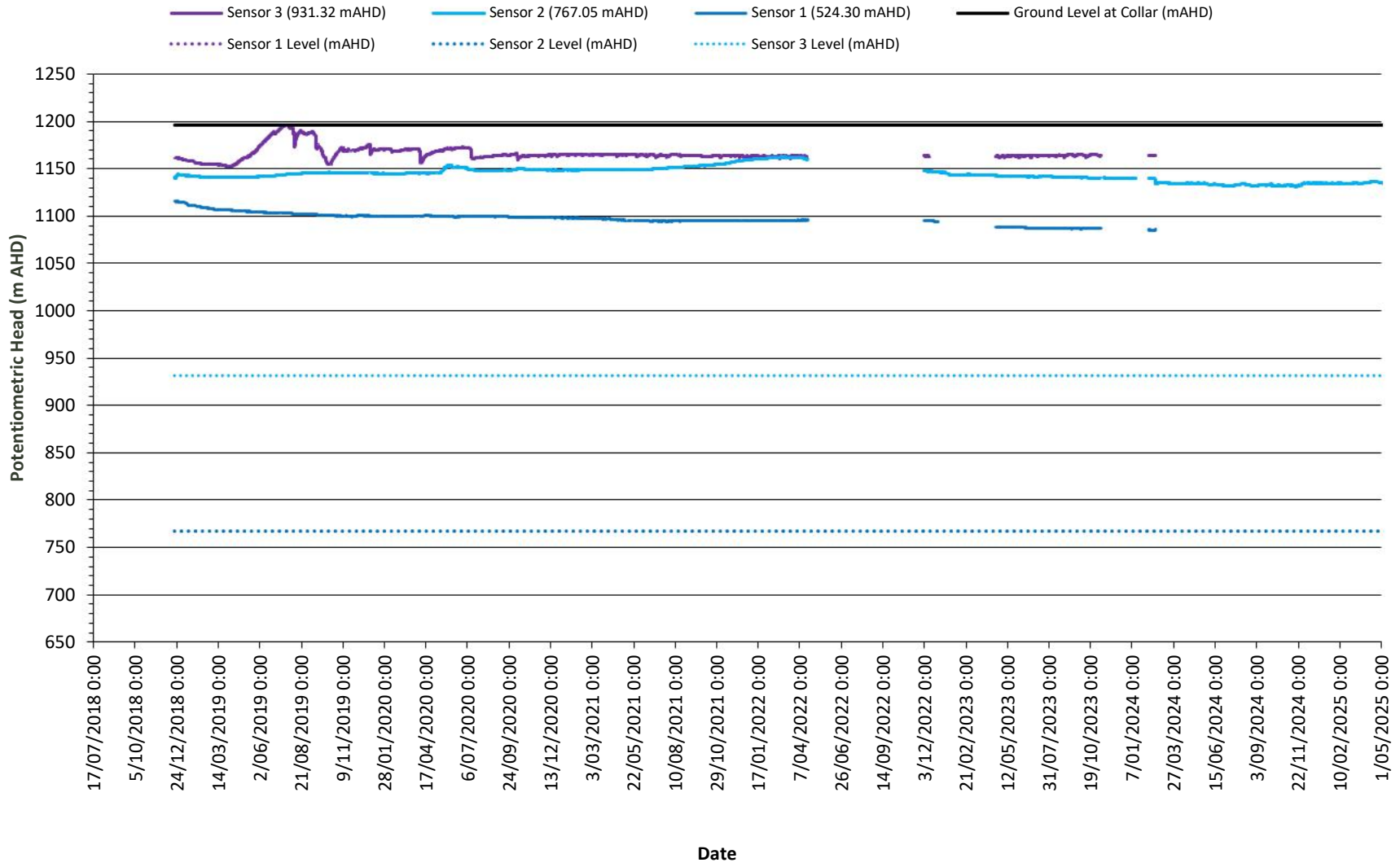
BH5113C Potentiometric Surface



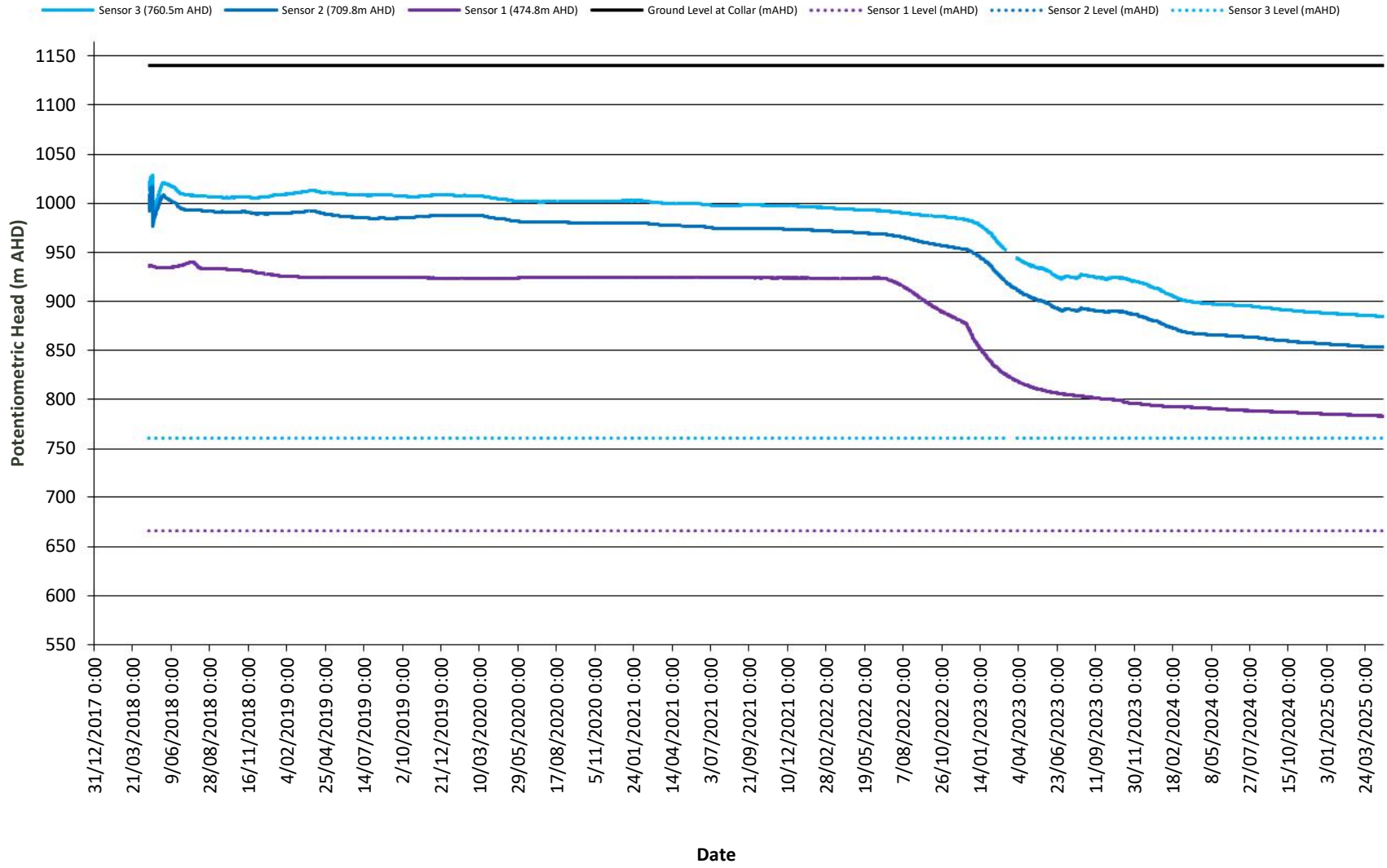
BH5111 Potentiometric Surface



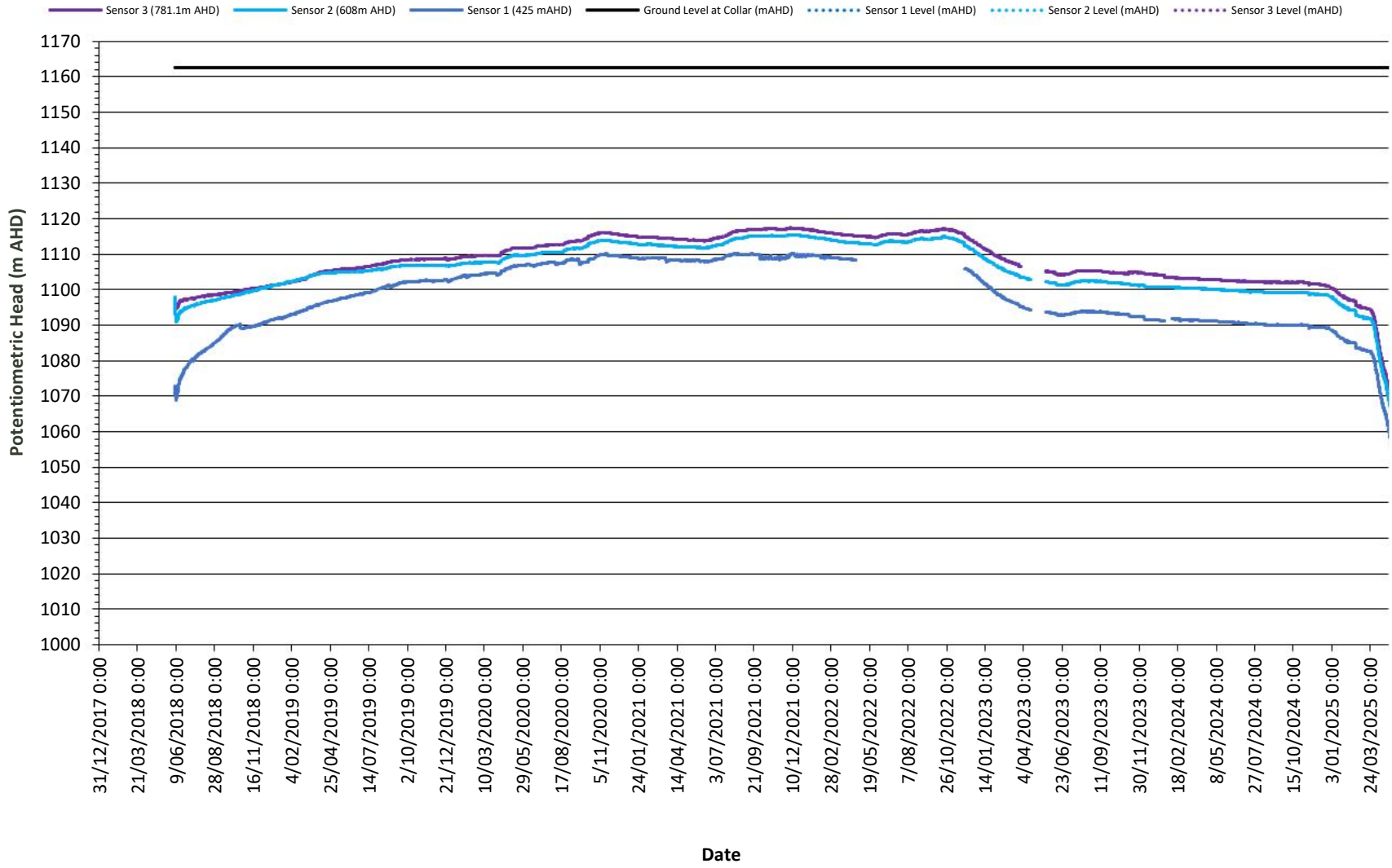
BH5110 Potentiometric Surface



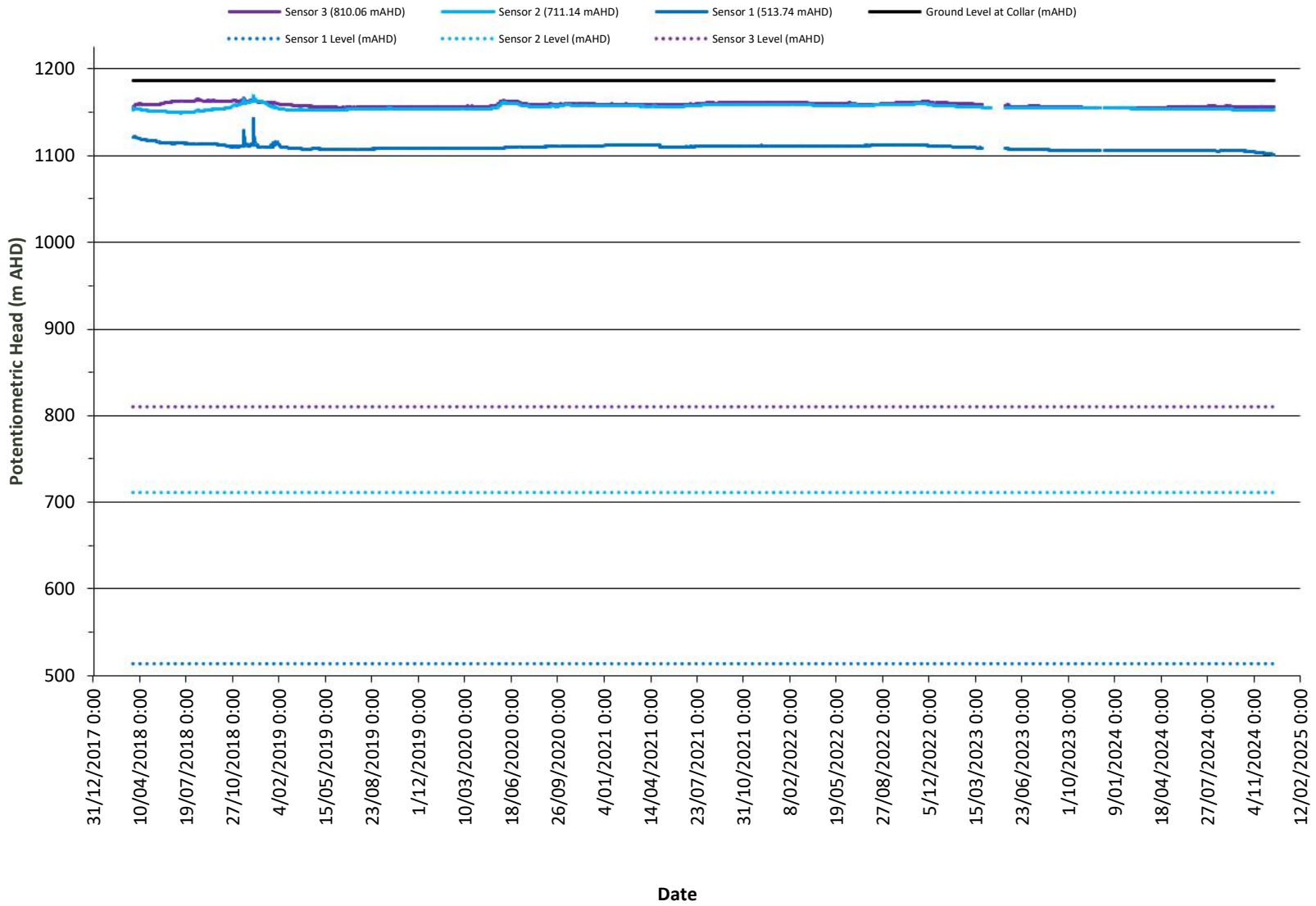
BH5108 Potentiometric Surface



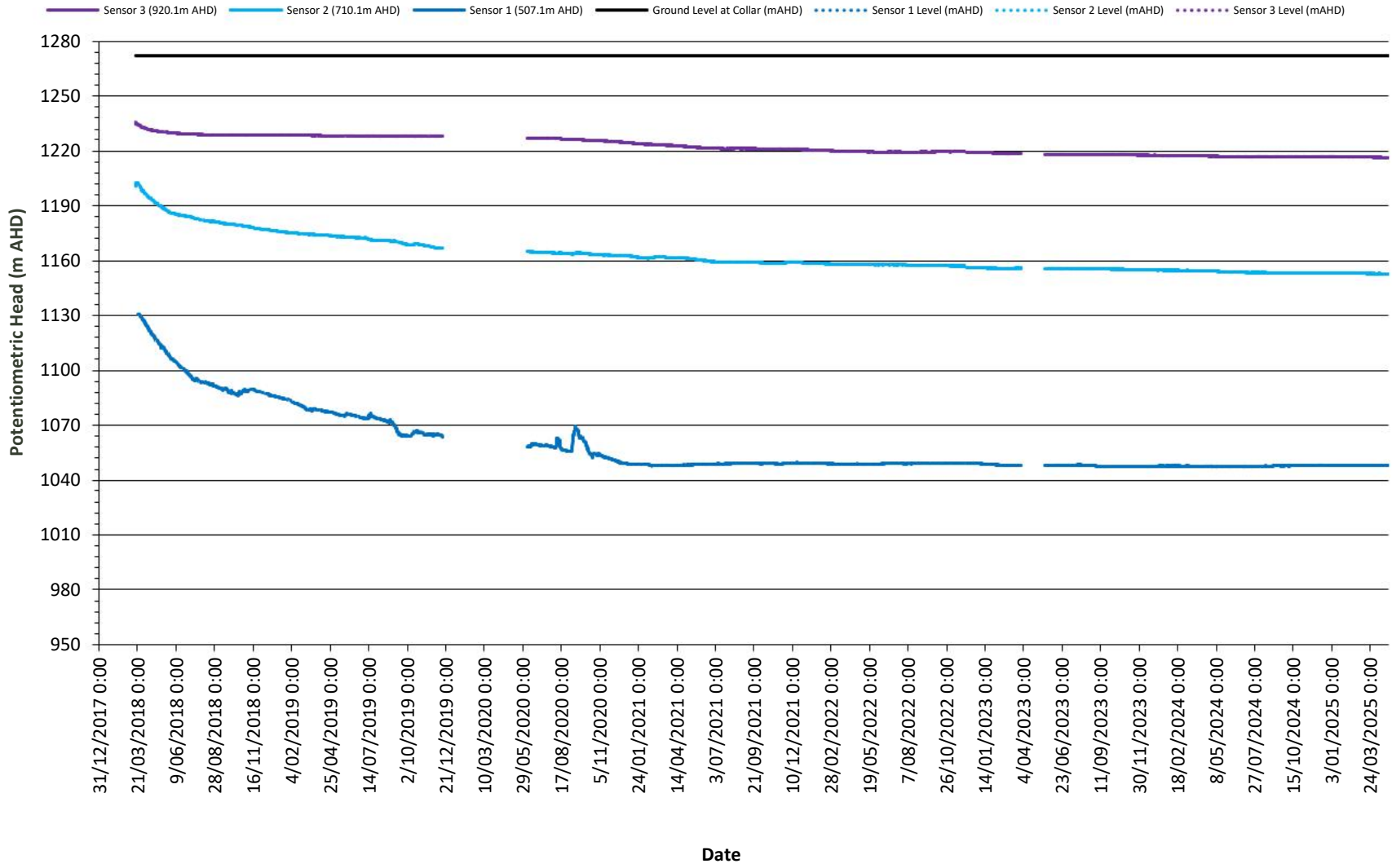
BH5107 Potentiometric Surface



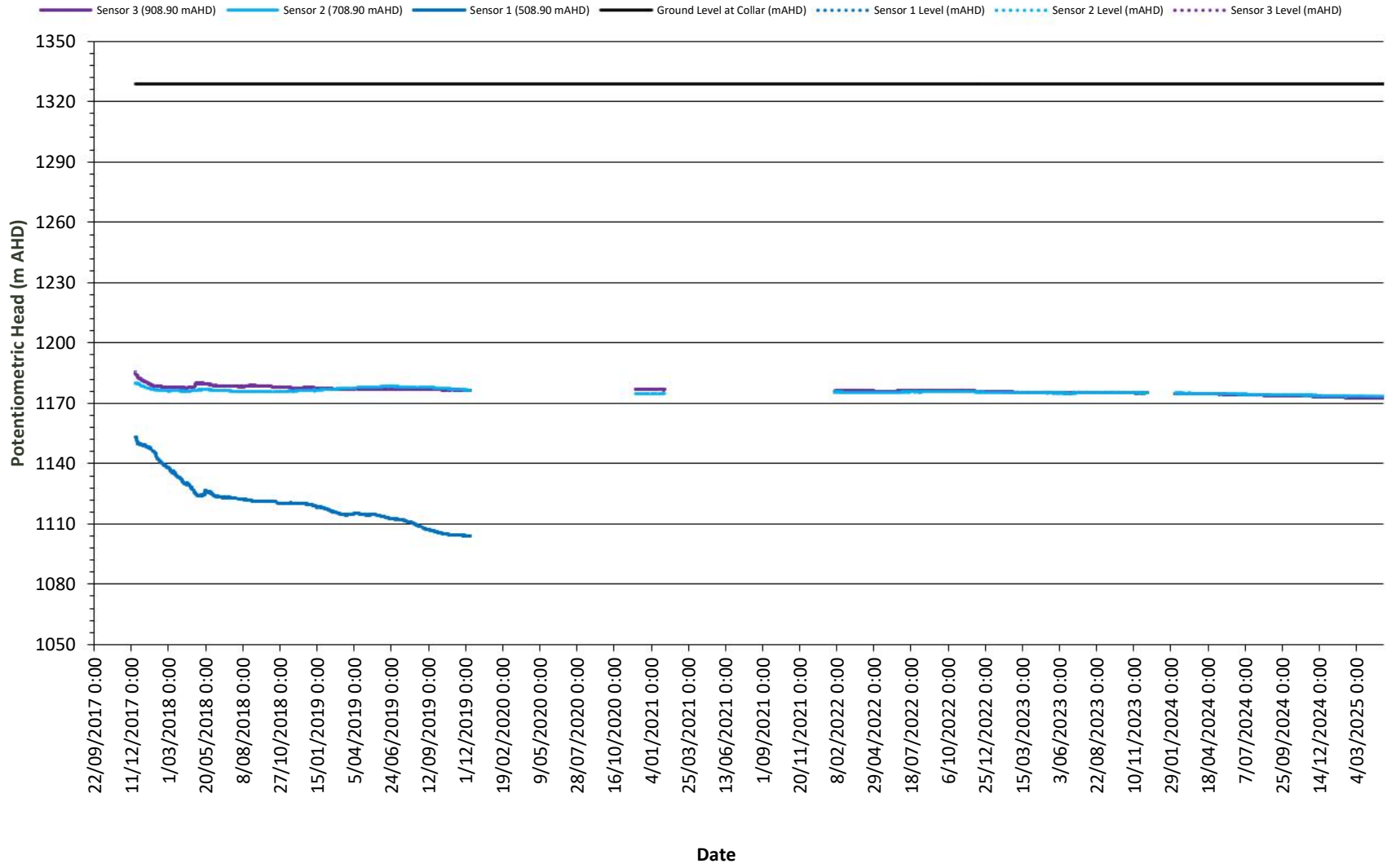
BH5104A Potentiometric Surface



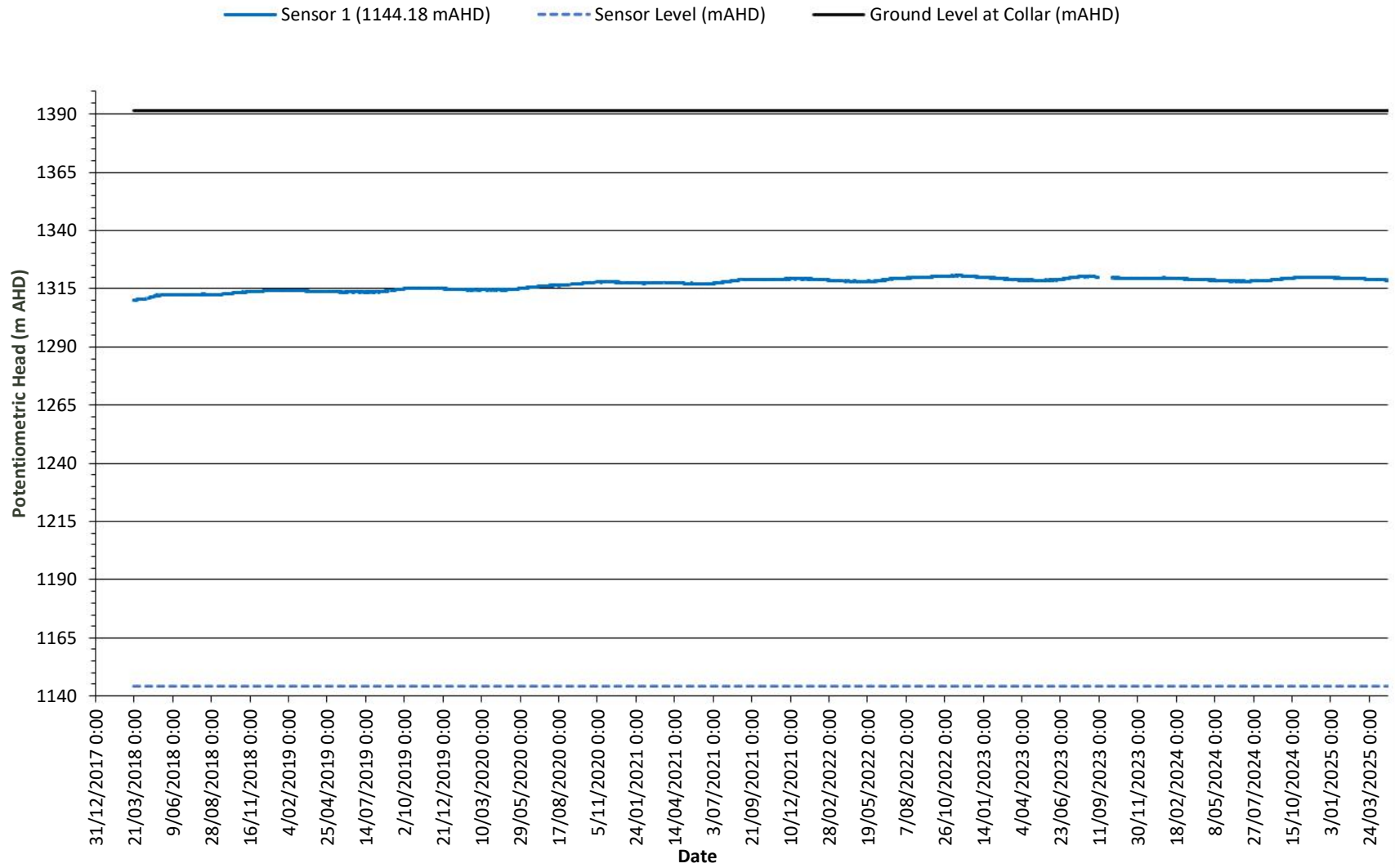
BH5103 Potentiometric Surface



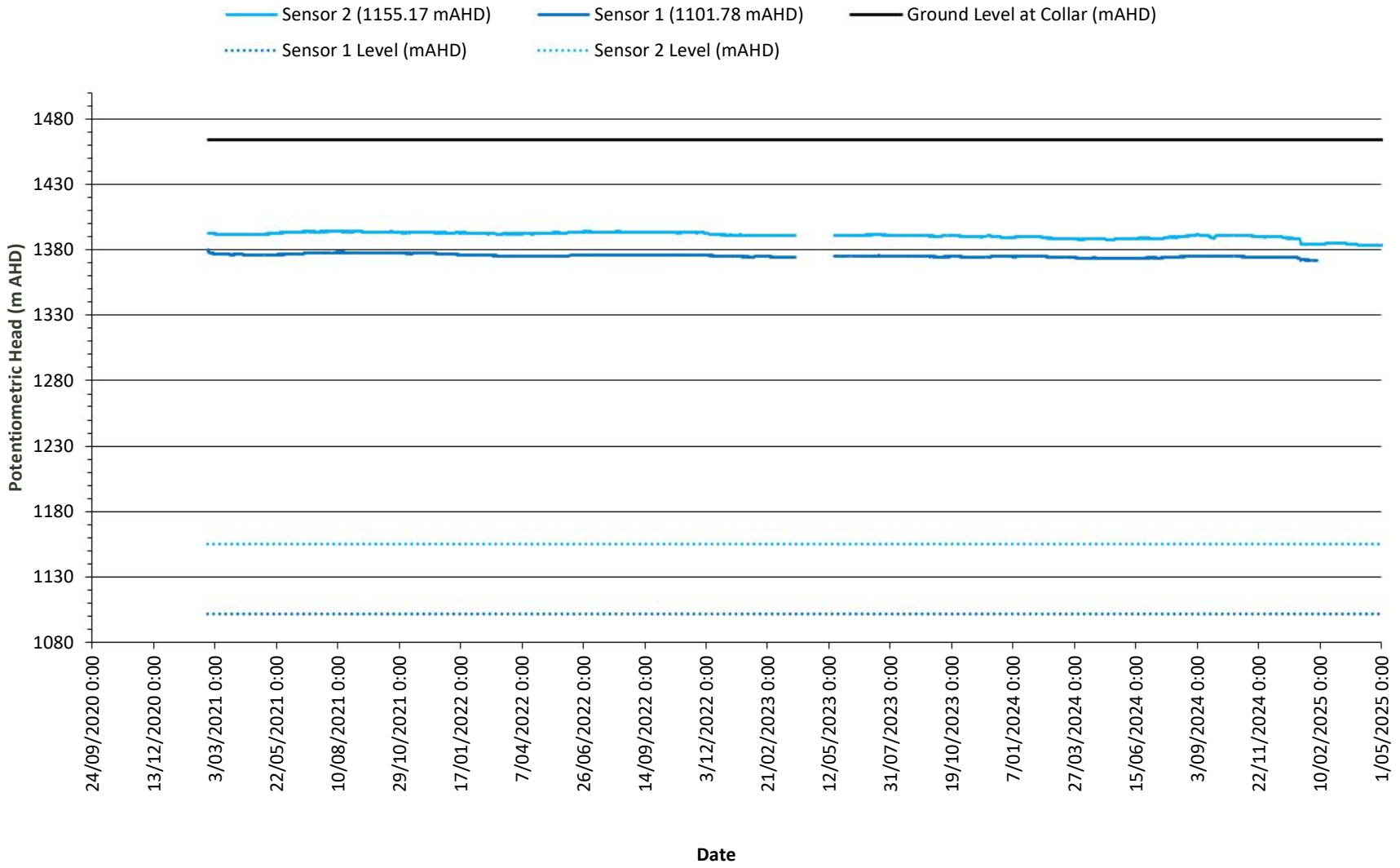
BH5102 Potentiometric Surface



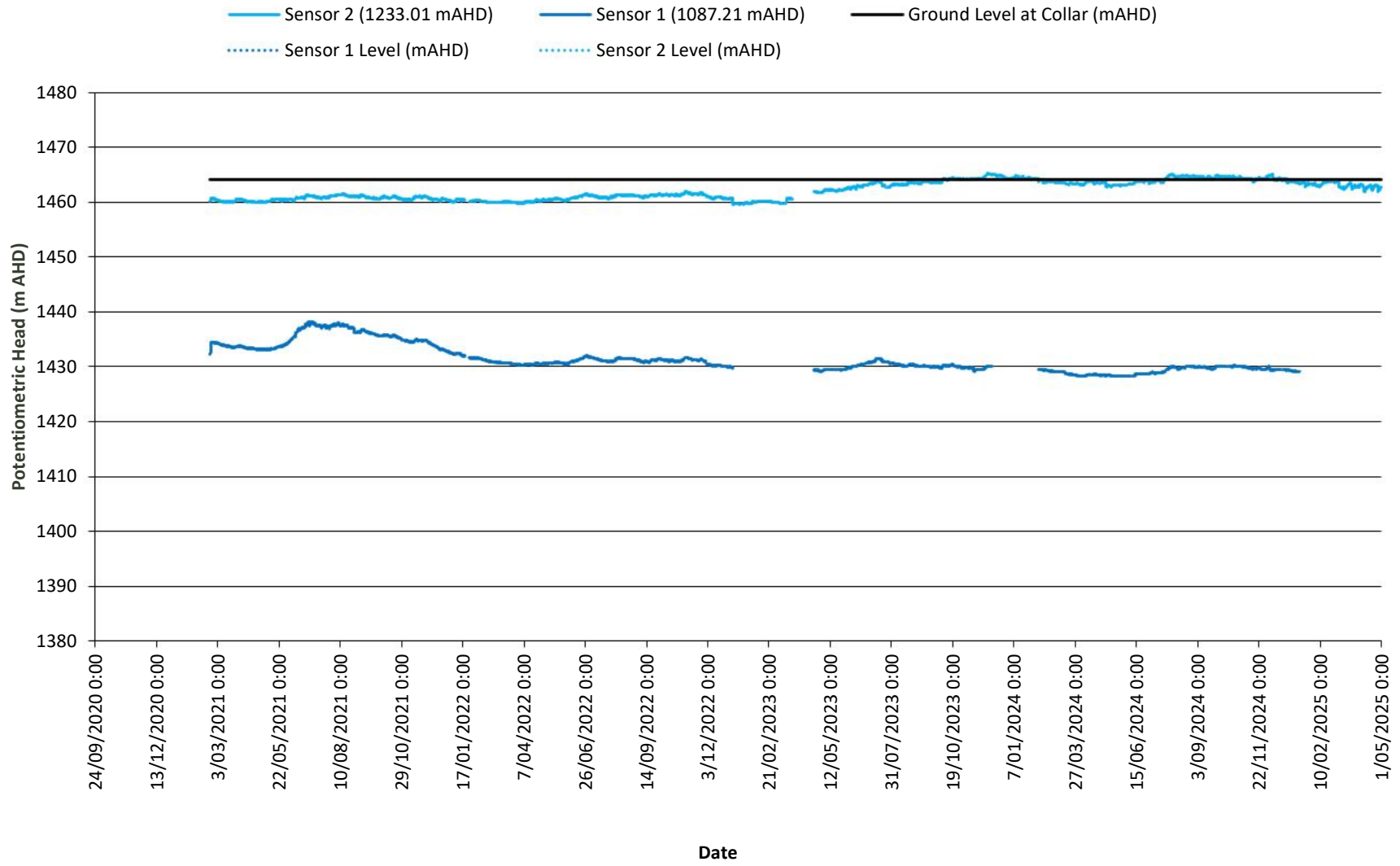
BH5101A Potentiometric Surface



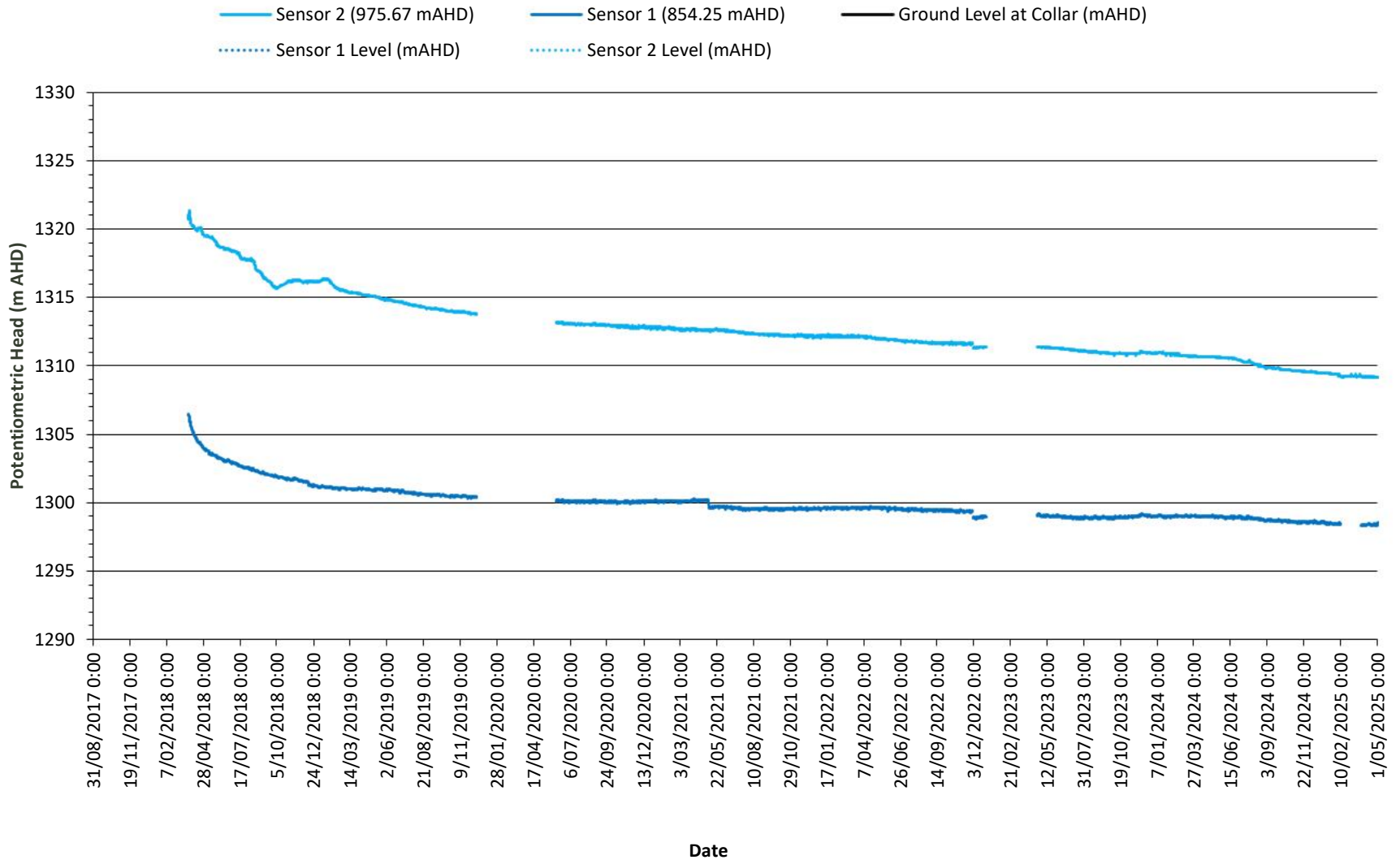
BH4201 Potentiometric Surface



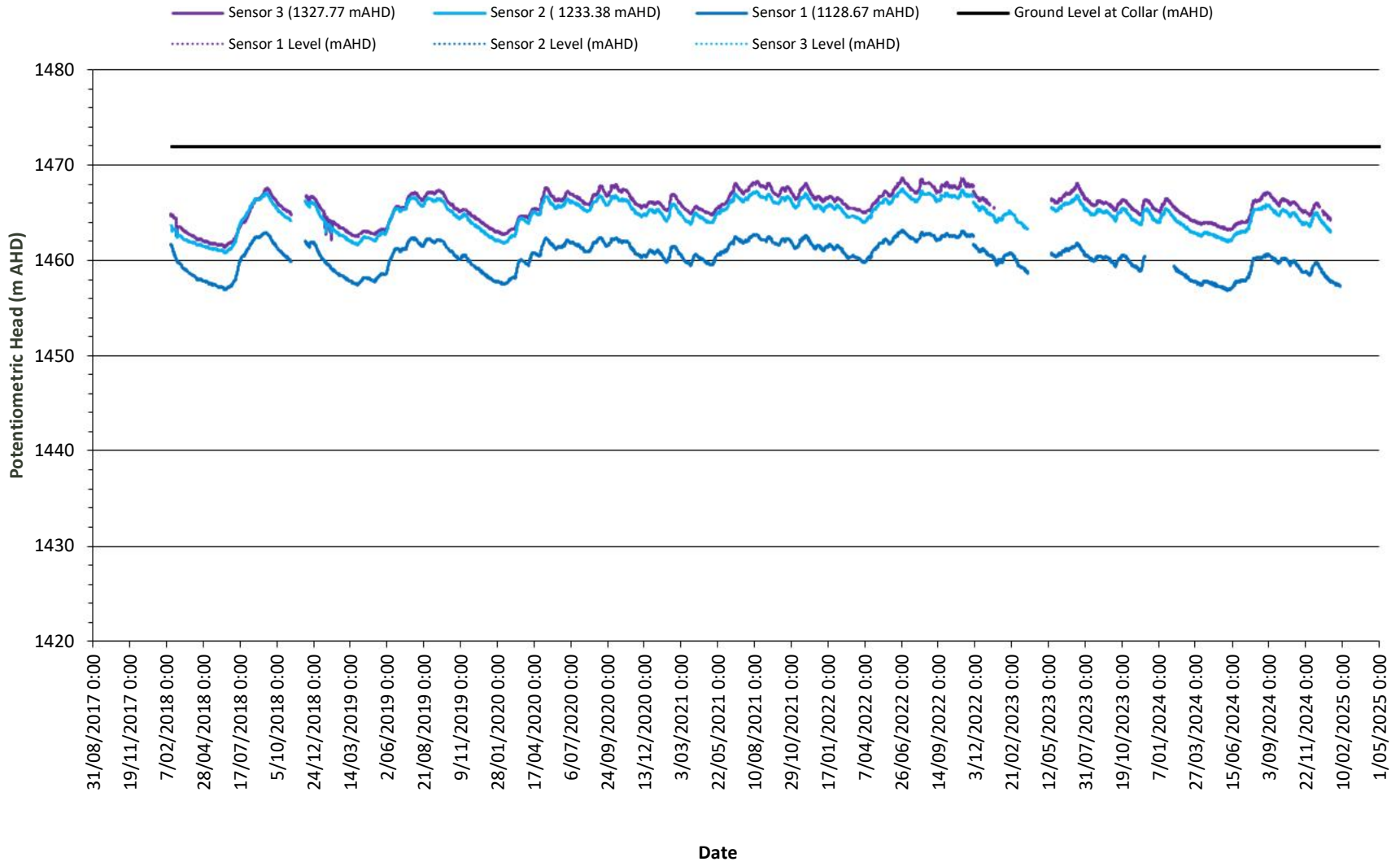
BH4202 Potentiometric Surface



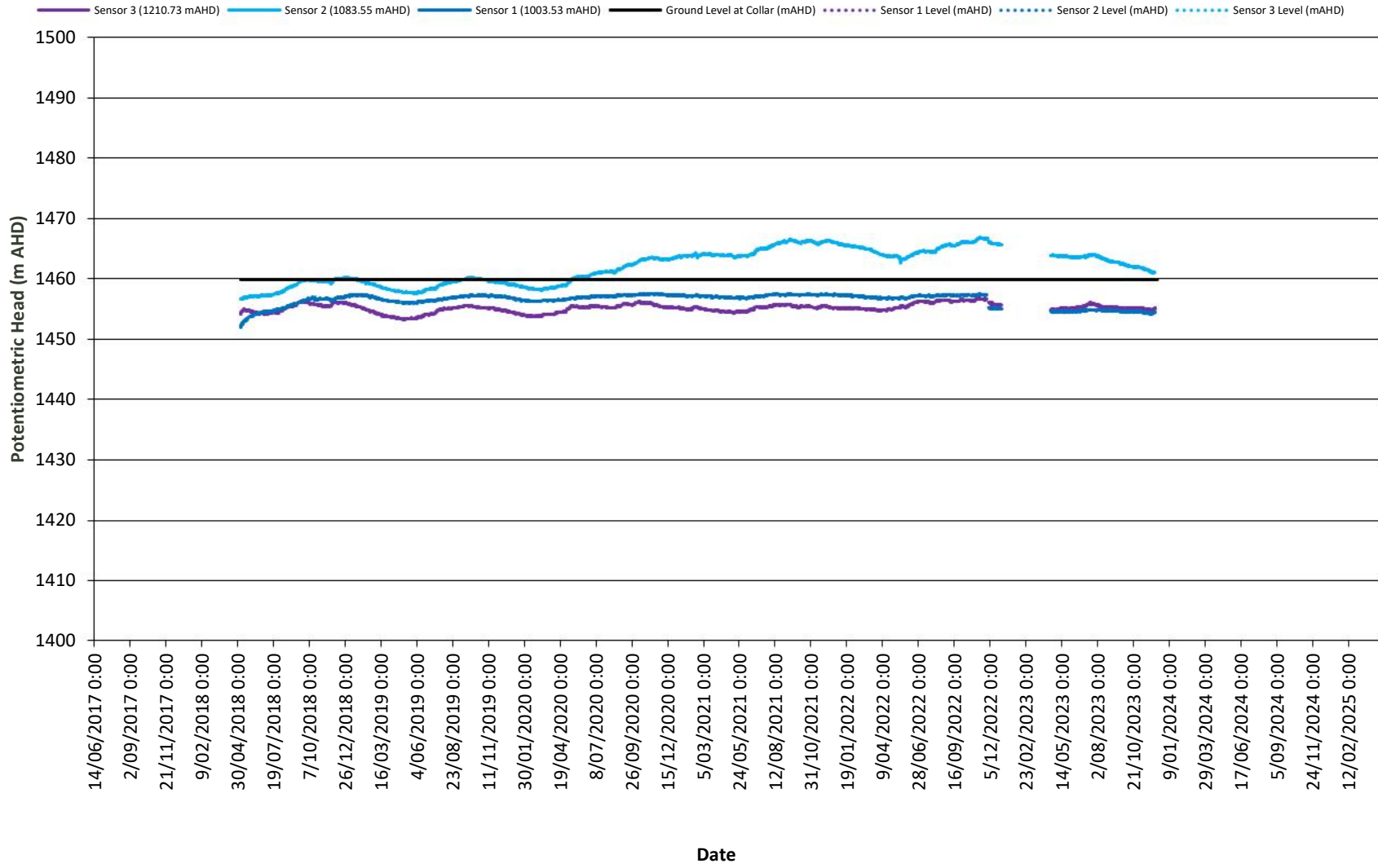
BH4104 Potentiometric Surface



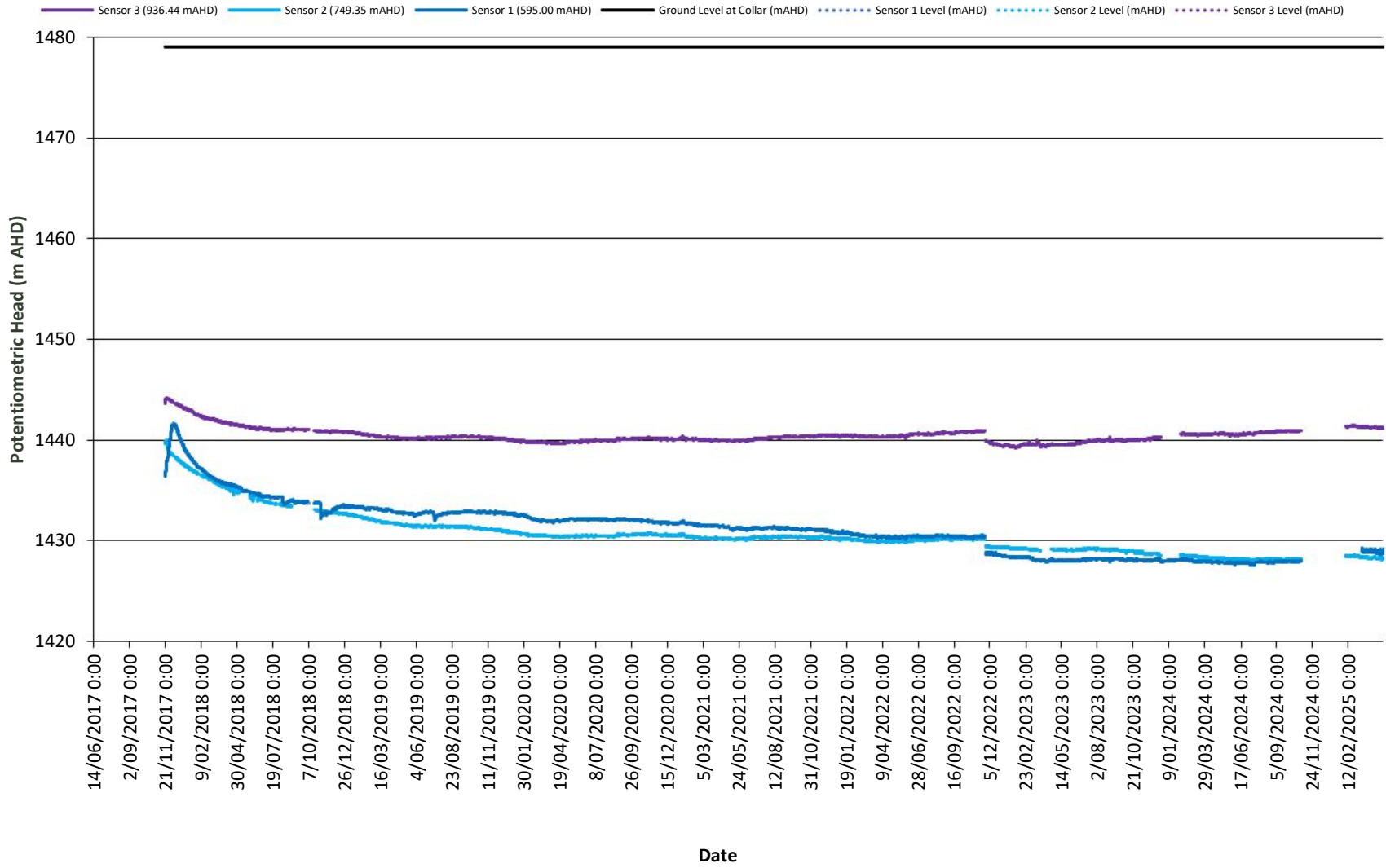
BH4103 Potentiometric Surface



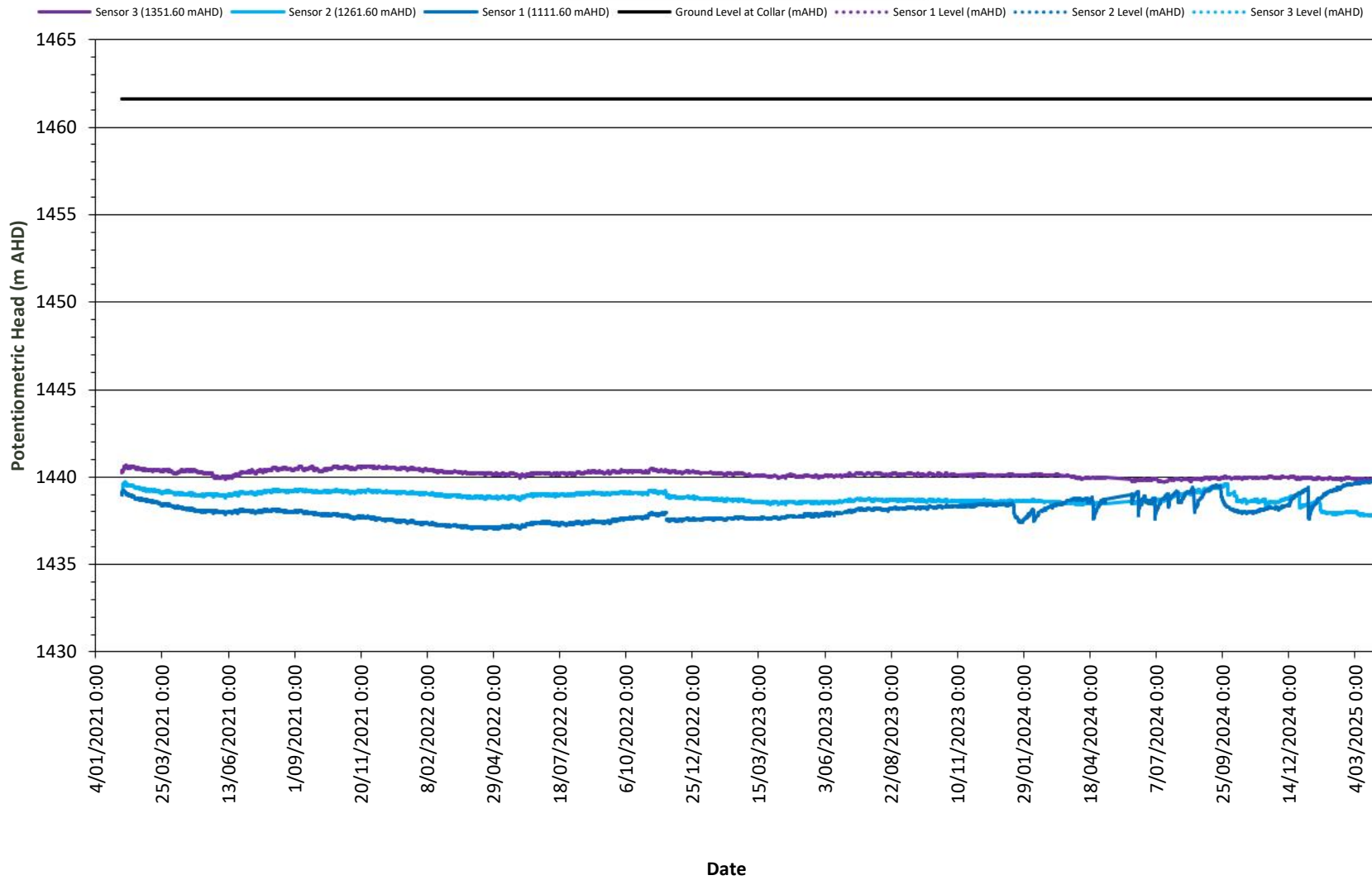
BH4102 Potentiometric Surface



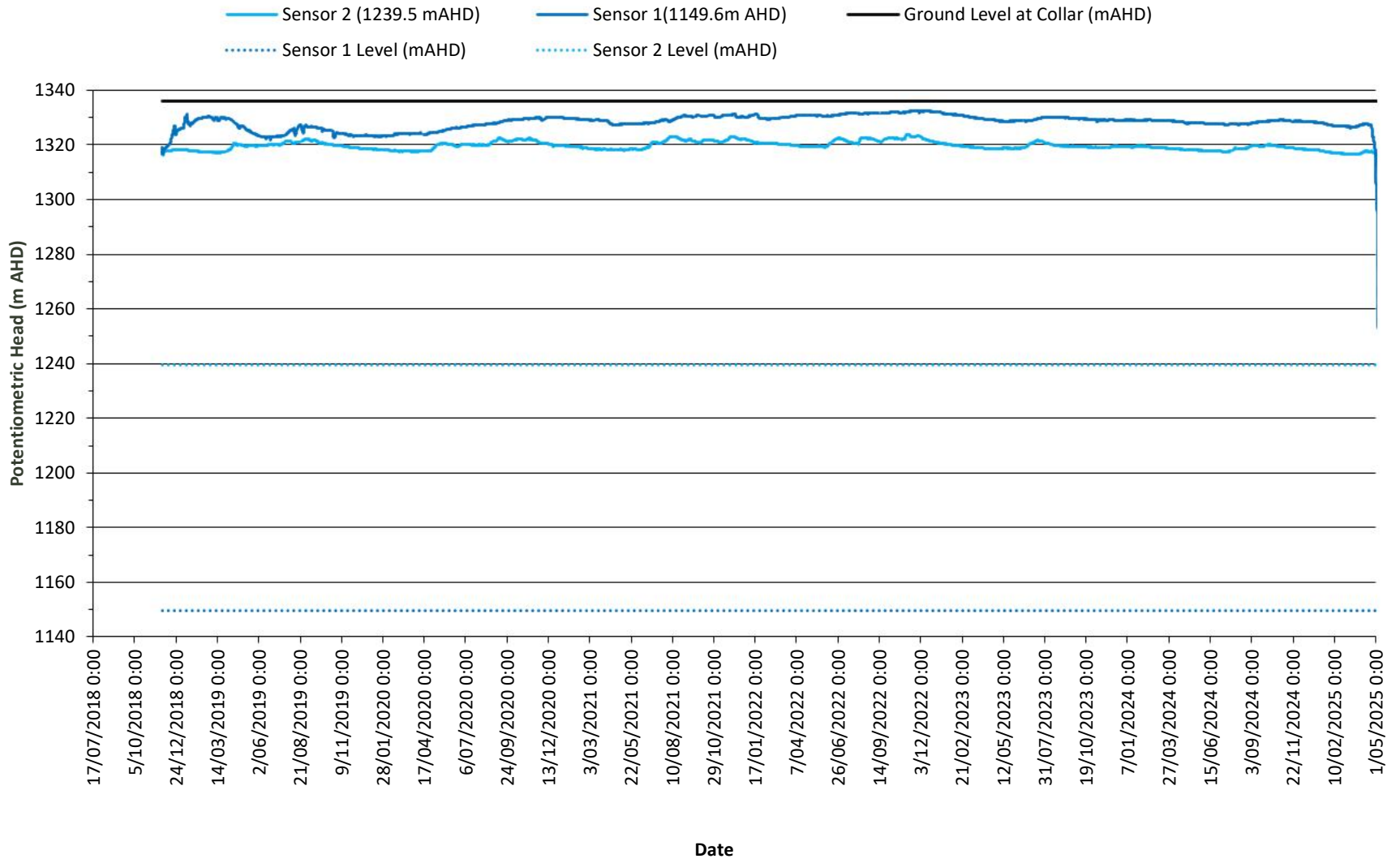
BH4101 Potentiometric Surface



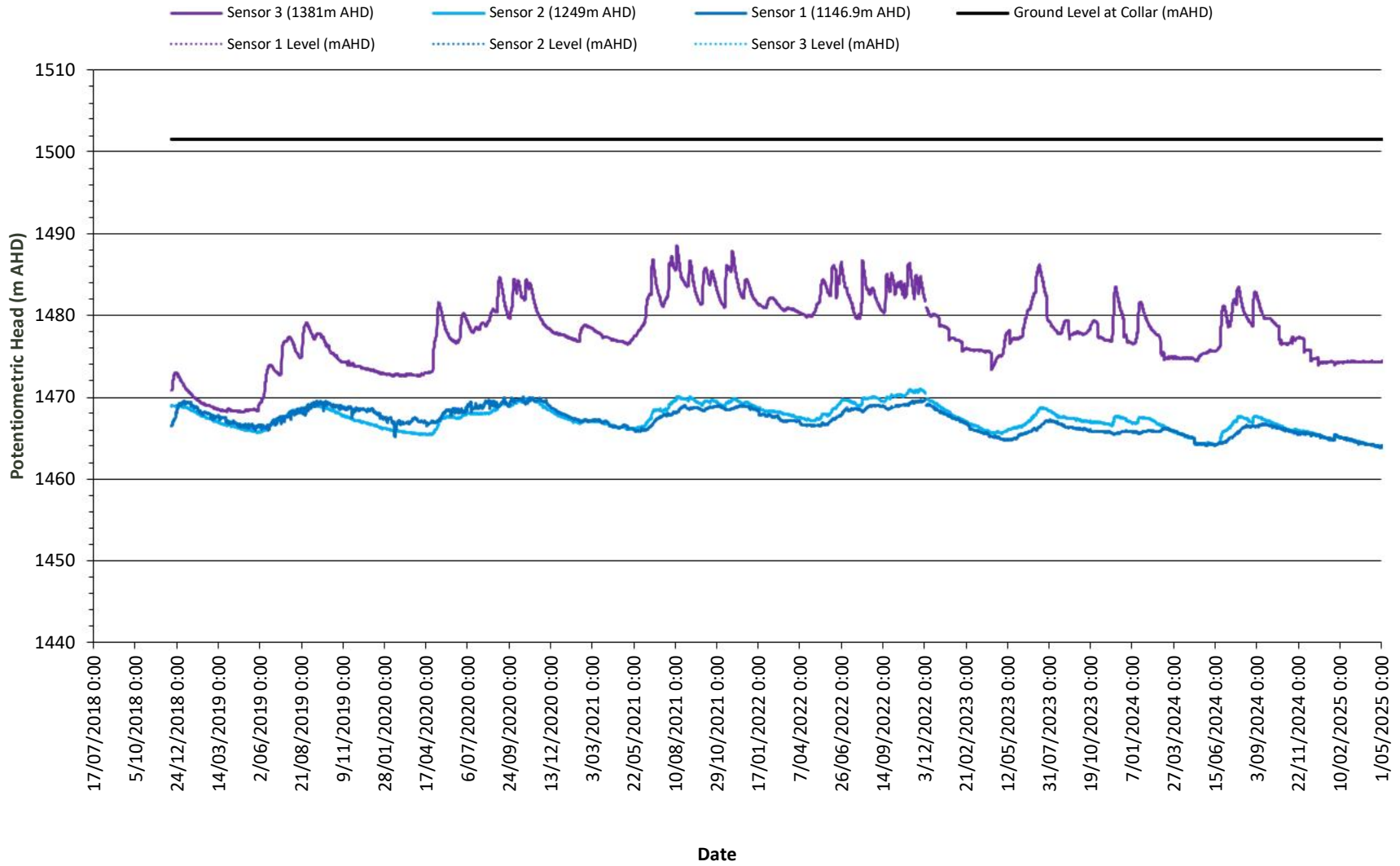
BH3203 Potentiometric Surface



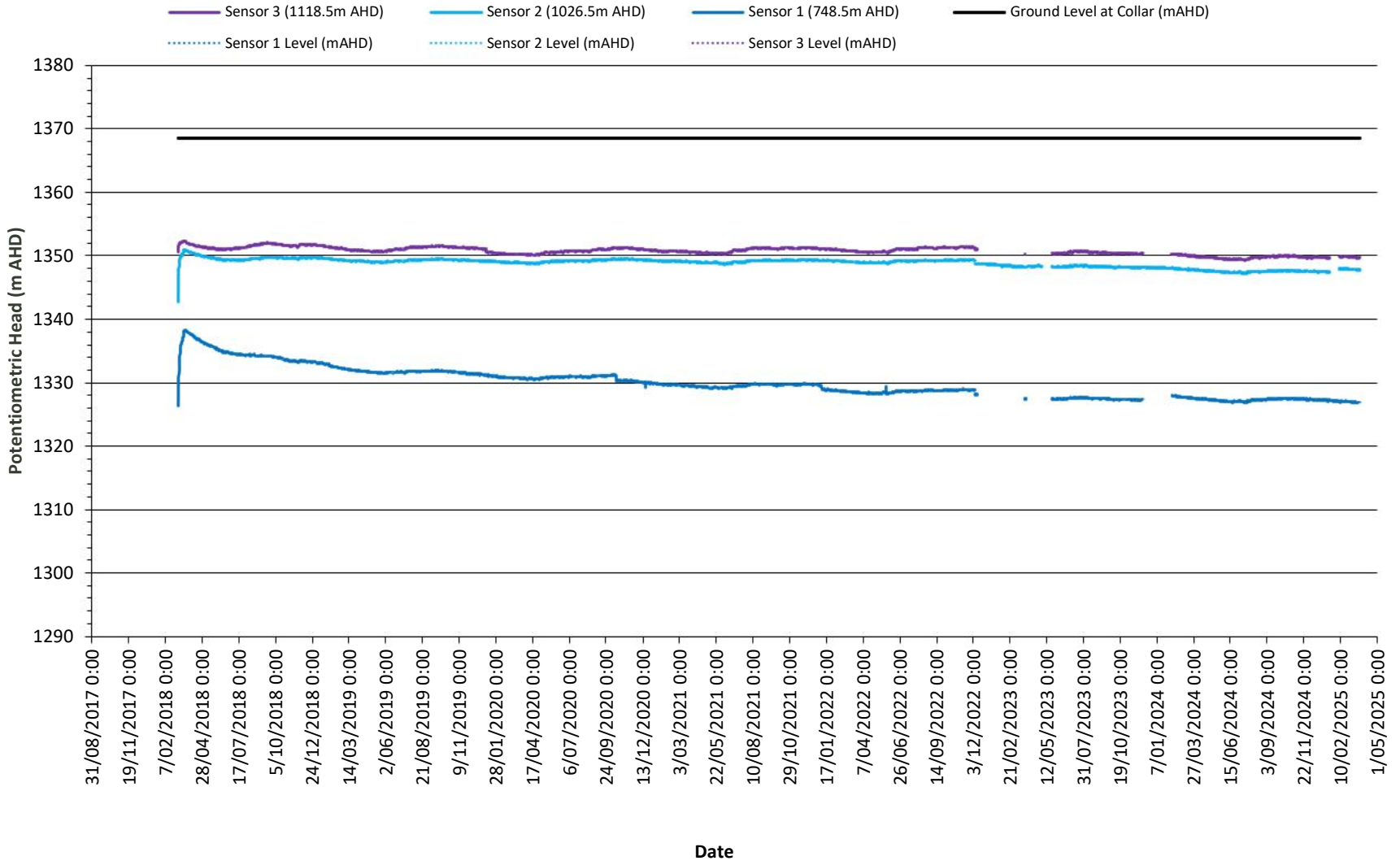
BH3113 Potentiometric Surface



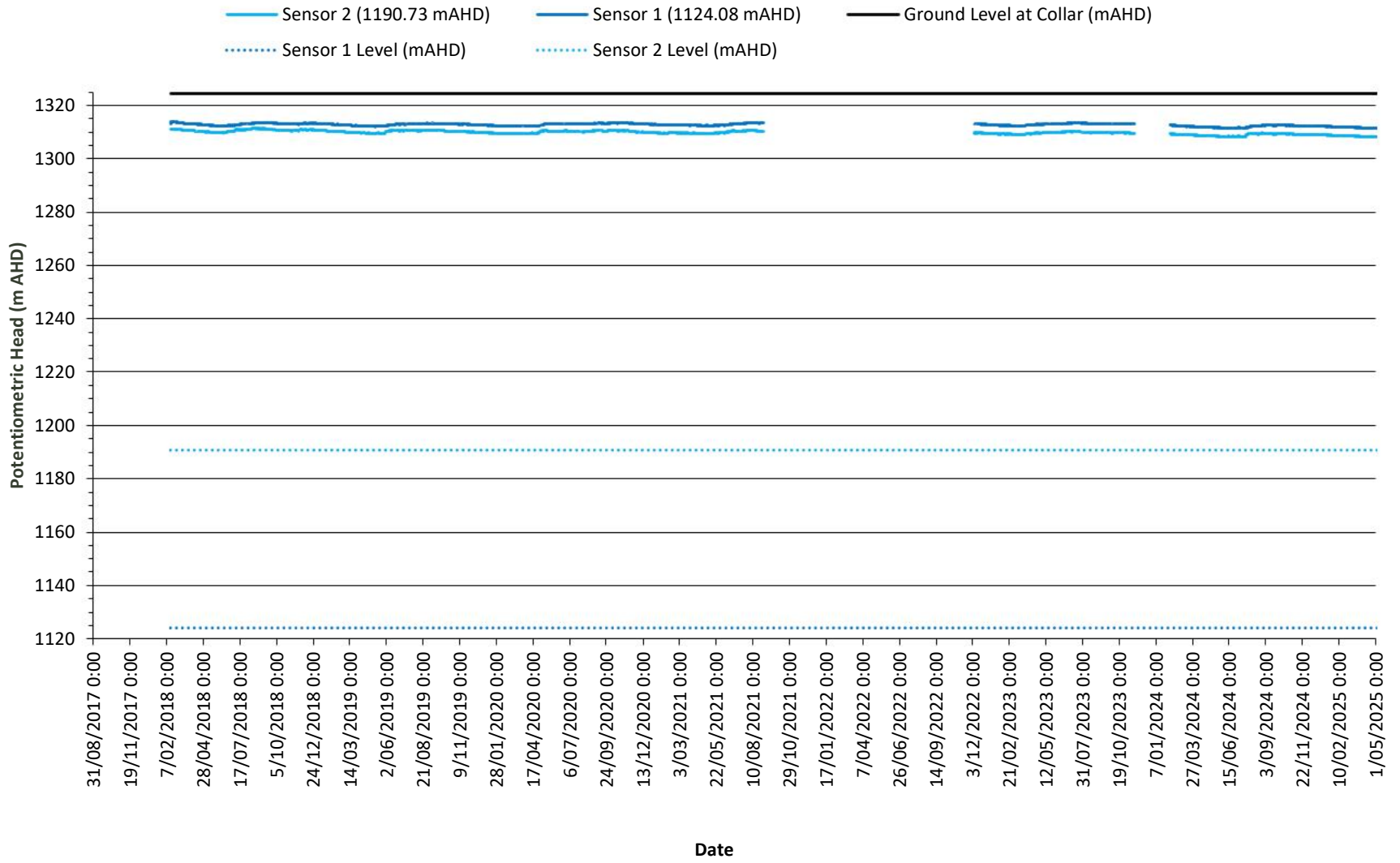
BH3111 Potentiometric Surface



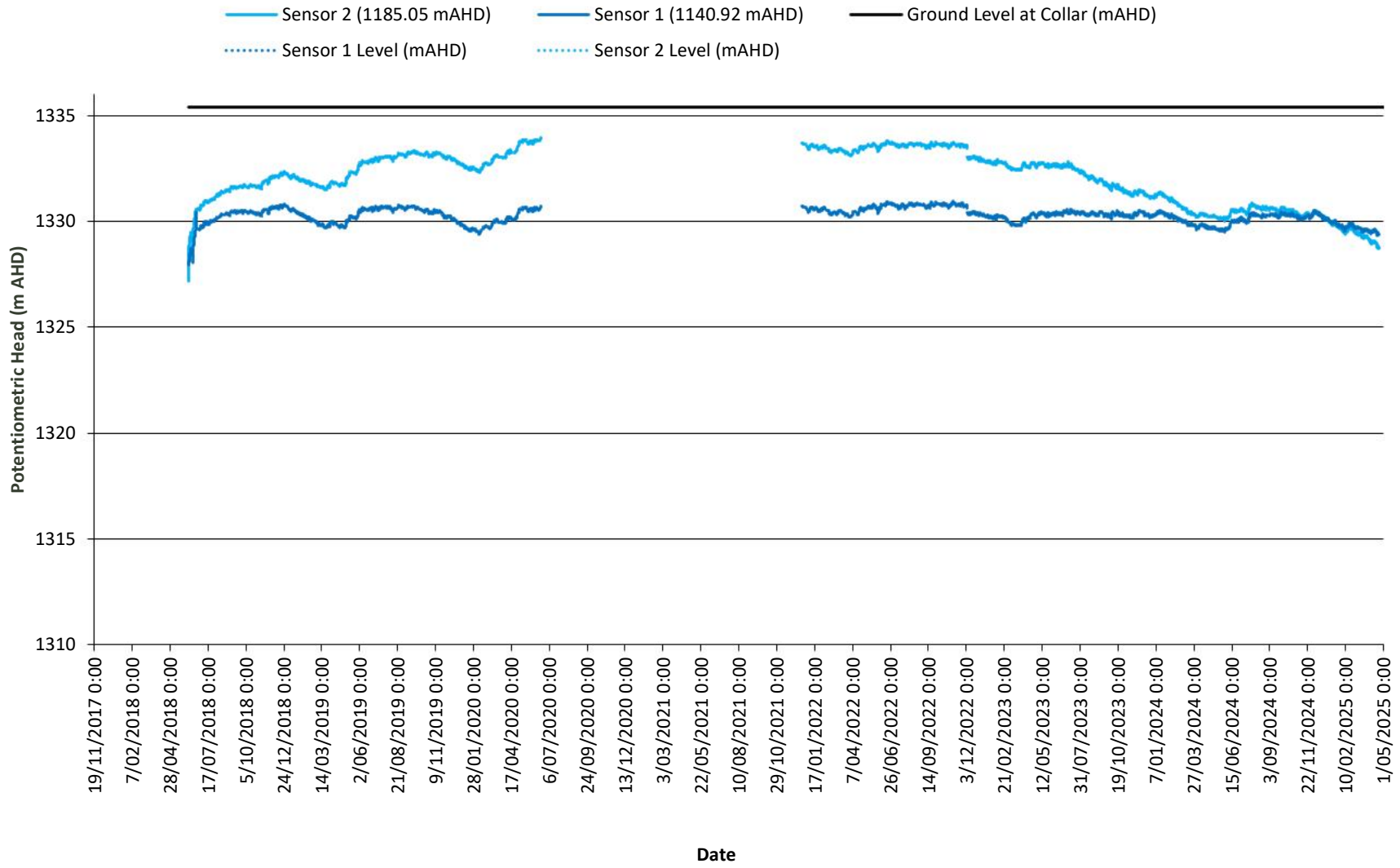
BH3108 Potentiometric Surface



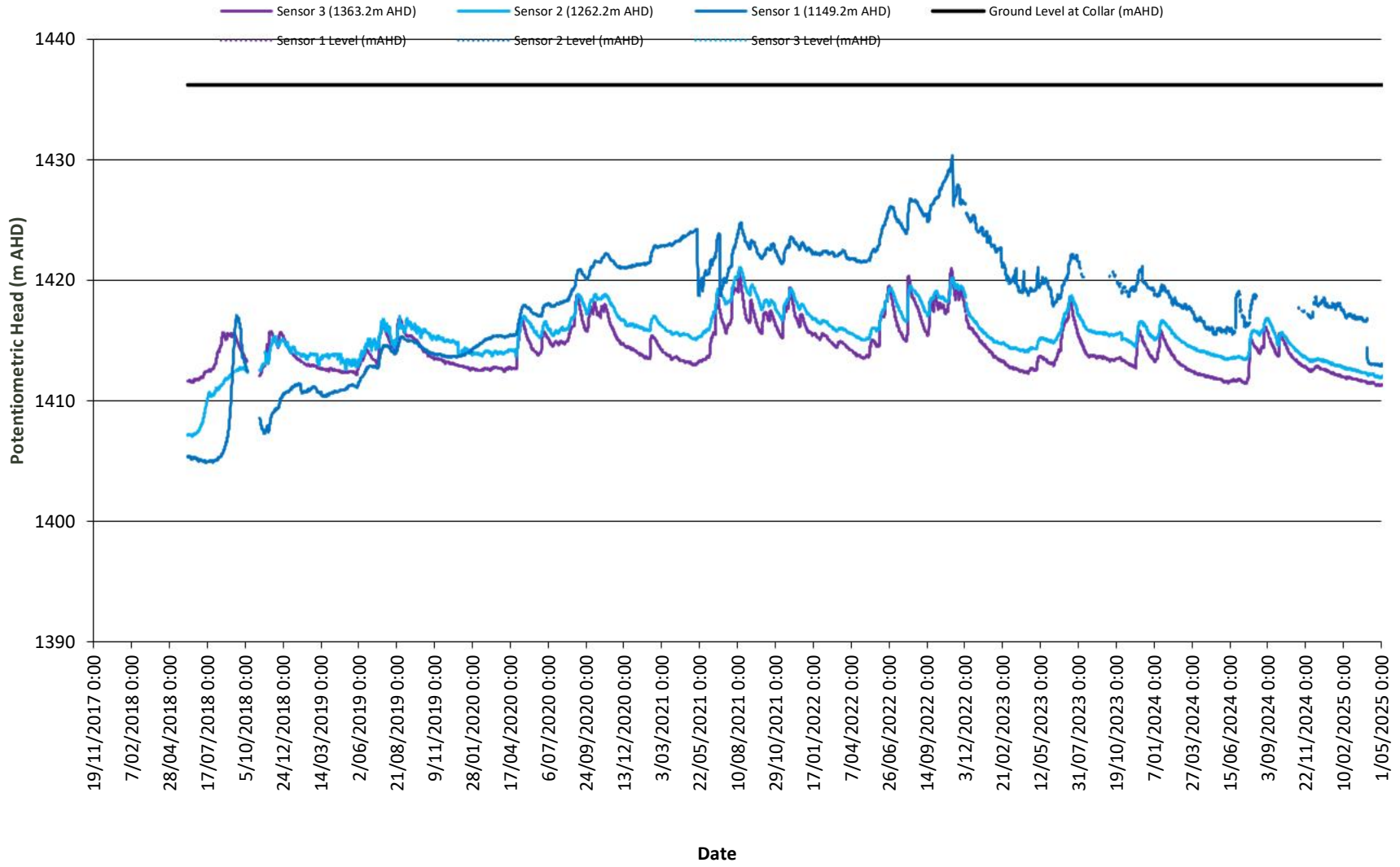
BH3107A Potentiometric Surface



BH3106 Potentiometric Surface



BH3104 Groundwater Elevation



BH2102 Potentiometric Surface

