May 5, 2022

Exact Construction LTD
RR #3
8262 Wellington Road 19
Fergus, ON
N1M 2W4

Attn: Kevin Vanleeuwen

Re: Supplementary Groundwater Level Monitoring
31 Church Street
Alma, Ontario

Hydrogeology Consulting Services (HCS) was retained by Exact Construction LTD to conduct twelve months of groundwater elevation monitoring at the above-referenced property as part of a hydrogeological investigation for the proposed subdivision development. This supplementary report should be appended to the HCS hydrogeological investigation report (Revision 1 dated November 11, 2021).

Water levels were manually measured using an electronic water level tape in all three monitoring wells on the property on a quarterly basis between April 22, 2021 and April 20, 2022. Electronic pressure transducers (dataloggers) were installed in each of the monitoring wells on the property to continuously record changes in water level during the monitoring period.

The attached Table 1 provides a summary of water levels measured below ground surface on each monitoring event and related to a geodetic datum (i.e. metres above sea level).

The attached Figures 1-3 show hydrographs of the datalogger data related to groundwater depth below ground surface, which have been barometrically compensated. The attached Figures 4-6 show hydrographs of the same datalogger data related to groundwater elevation in metres above sea level, which have also been barometrically compensated. The seasonal fluctuation in groundwater levels over the twelve month monitoring period is 2.35 m or less in all wells.

Generally the hydrographs for all wells show a gradual decline from April to late September, 2021 followed by recovery of water levels until early January, 2022, followed by more minor fluctuations through the winter and early spring of 2022. It is noted the hydrographs for all three wells show fairly abrupt fluctuations in groundwater levels late September and early October, 2021. Although it is possible this relates to infiltration of precipitation in the fall, the reason(s) for these fluctuations are not readily apparent.

Based on the observations and discussions above, it is concluded that the overall change in measured groundwater elevations beneath the subject property between April 2021 and April 2022 was less than 2.35 m. This fluctuation correlates relatively well with typical seasonal groundwater fluctuations in Southern Ontario.

Groundwater Levels and Groundwater Conditions

It is noted measured groundwater levels in BH 02-20 indicate the piezometric groundwater elevation in the confined water-bearing soils was very close to the ground surface, and exhibited pressurized and even artesian conditions during the monitoring period.

It is important to note; however, that BH 02-20 is screened in a confined saturated granular deposit at a depth of 7.82 mBGS, and that the measured water levels do not indicate shallow groundwater is encountered in near surface soils or exhibits flowing conditions on the property. Similarly, it is important to note that BH 01-20 and BH 03-20 are screened in a confined saturated silt deposit at a depth of 5.89 – 7.37 mBGS, and that the measured water levels in these locations also do not indicate shallow groundwater is encountered in near surface soils. The near-surface soils underlying the subject property are low permeability clayey-silt deposits that do not contain significant groundwater and do not represent an aquifer.

We trust this report satisfies your present requirements, and we thank you for this opportunity to be of service. If you have any questions, or require further hydrogeological consulting services, please feel free to contact the undersigned directly.

Respectfully submitted,

PROFESSIONAL GEOSCIENTIST
5-May-2022
CHRIS HELMER
PRACTICING MEMBER
2285
ONTARIO

Chris Helmer, B.Sc., P.Geo.
Senior Hydrogeologist
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encl. Table 1 – Groundwater Level Measurements
encl. Figures 1-3 – Measured Groundwater Levels Hydrographs
encl. Figures 4-6 – Measured Groundwater Elevations Hydrographs

31 Church Street, Alma, Ontario
Table 1 - Groundwater Level Measurements

Name	Ground Surface Elevation (mASL)	Stickup (m)	14-Dec-20			22-Apr-21			15-Jul-21			29-Oct-21		
			WL (mBTOP)	WL (mBGS)	WL (mASL)	WL (mBTOP)	WL (mBGS)	WL (mASL)	WL (mBTOP)	WL (mBGS)	WL (mASL)	WL (mBTOP)	WL (mBGS)	WL (mASL)
BH 01-20	442.63	1.01	8.41	7.40	435.23	1.95	0.94	441.69	3.49	2.48	440.15	2.32	1.31	441.32
BH 02-20	438.21	0.97	1.03	0.06	438.15	1.02	0.05	438.16	1.35	0.38	437.83	1.15	0.18	438.03
BH 03-20	447.02	0.98	2.24	1.26	445.76	2.39	1.41	445.61	3.01	2.03	444.99	2.39	1.41	445.61

Name	Ground Surface Elevation (mASL)	Stickup (m)	10-Jan-22			20-Apr-22		
			WL (mBTOP)	WL (mBGS)	WL (mASL)	WL (mBTOP)	WL (mBGS)	WL (mASL)
BH 01-20	442.63	1.01	2.46	1.45	441.18	2.47	1.46	441.17
BH 02-20	438.21	0.97	1.20	0.23	437.98	1.06	0.09	438.12
BH 03-20	447.02	0.98	2.54	1.56	445.46	2.44	1.46	445.56

Measurement is considered erroneous
mASL - metres Above Sea Level
mBGS - metres Below Ground Surface

FIGURE 1
BH 01-20 - GROUNDWATER LEVEL MEASUREMENTS
31 Church Street, Alma, Ontario

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FIGURE 2
BH 02-20 - GROUNDWATER LEVEL MEASUREMENTS
31 Church Street, Alma, Ontario

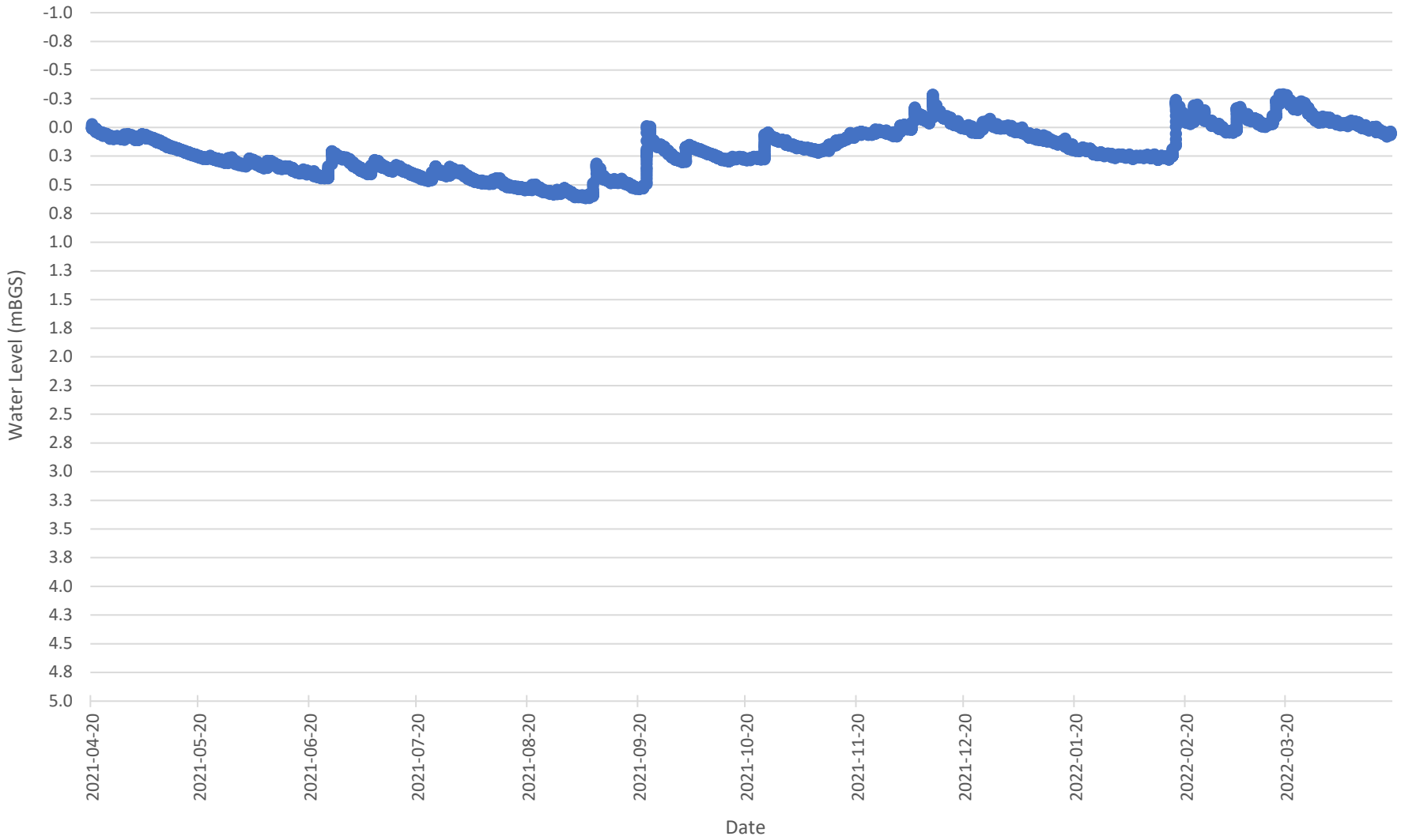

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FIGURE 3
BH 03-20 - GROUNDWATER LEVEL MEASUREMENTS
31 Church Street, Alma, Ontario

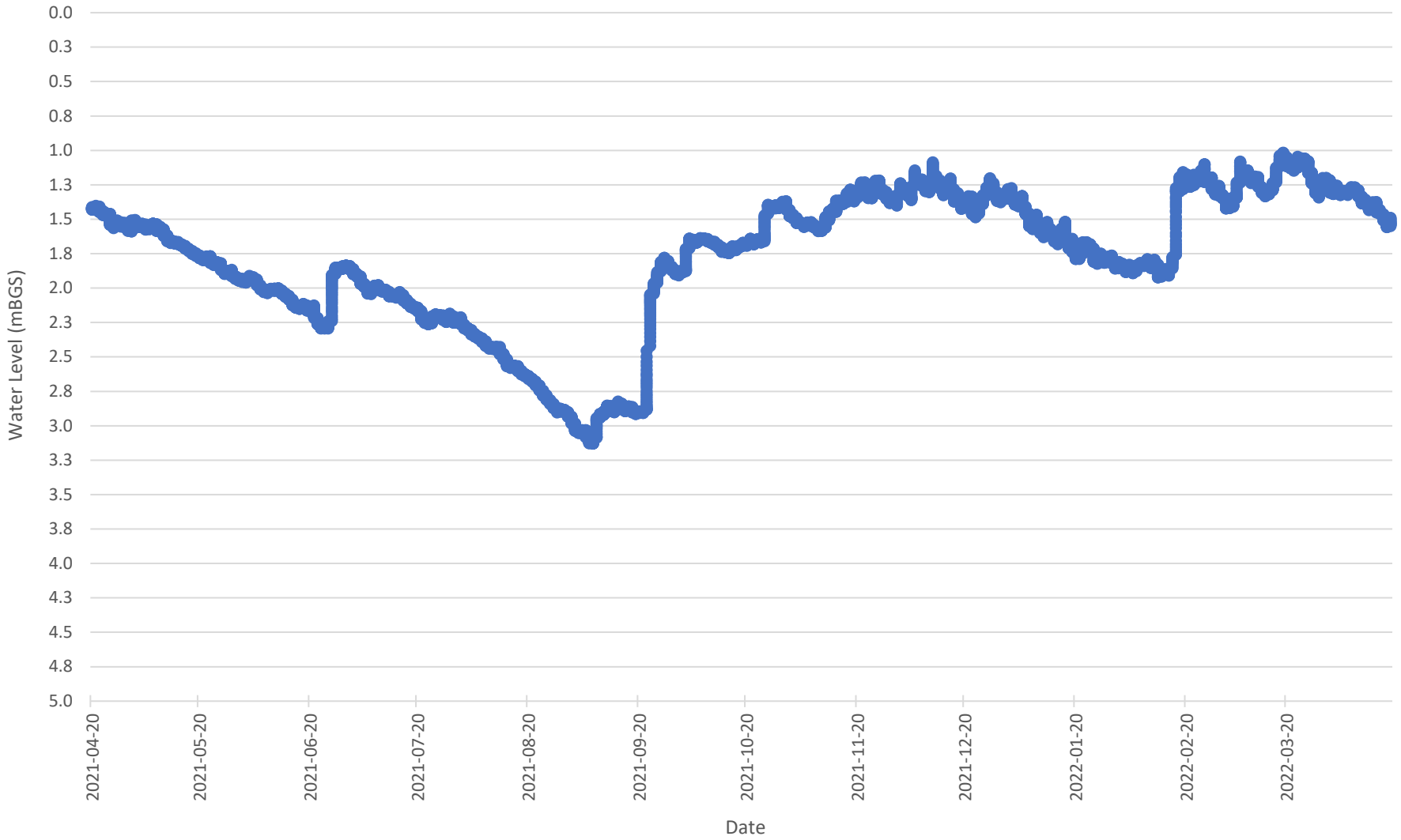

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FIGURE 4
BH 01-20 - GROUNDWATER ELEVATIONS
31 Church Street, Alma, Ontario

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FIGURE 5
BH 02-20 - GROUNDWATER ELEVATIONS
31 Church Street, Alma, Ontario

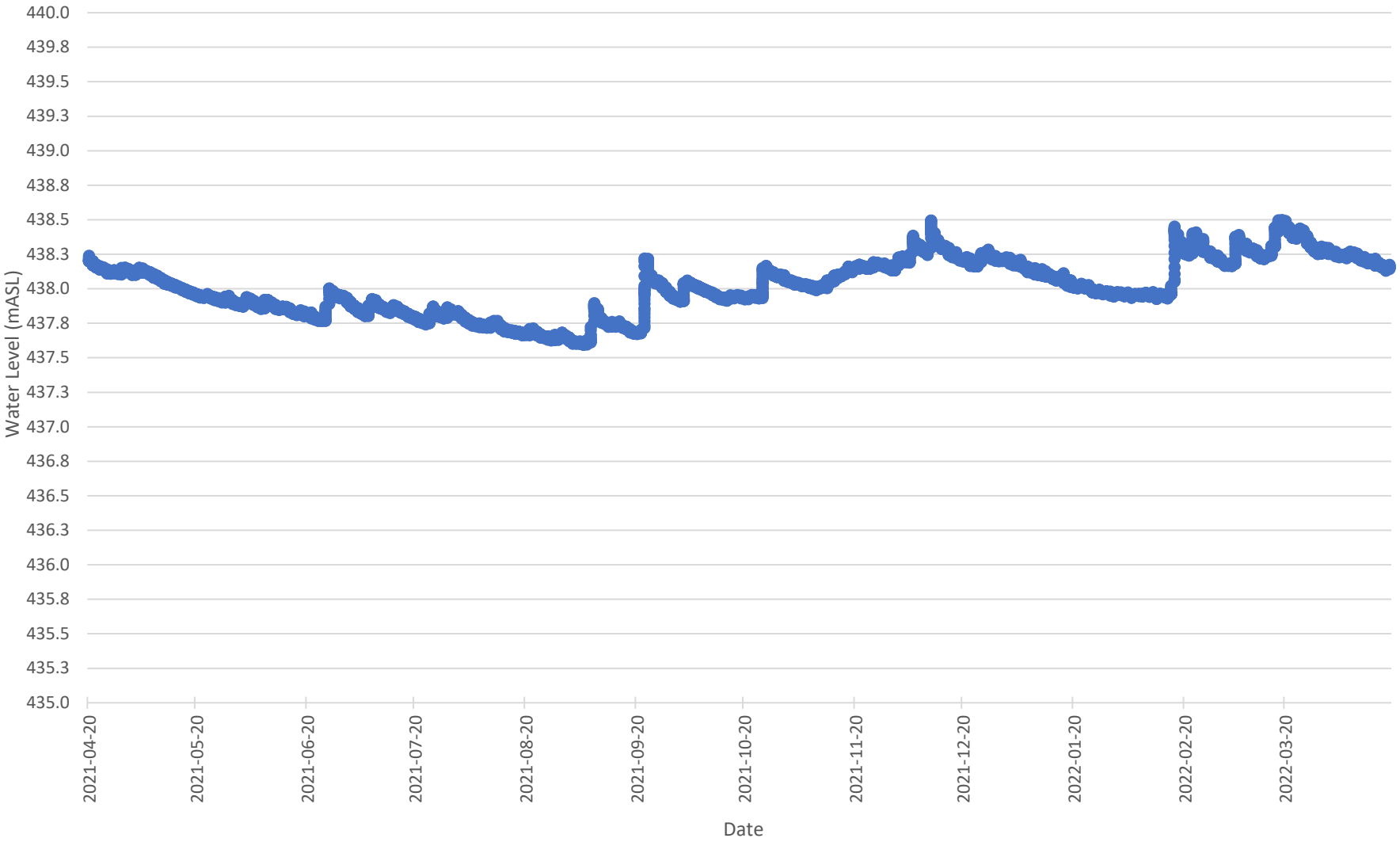

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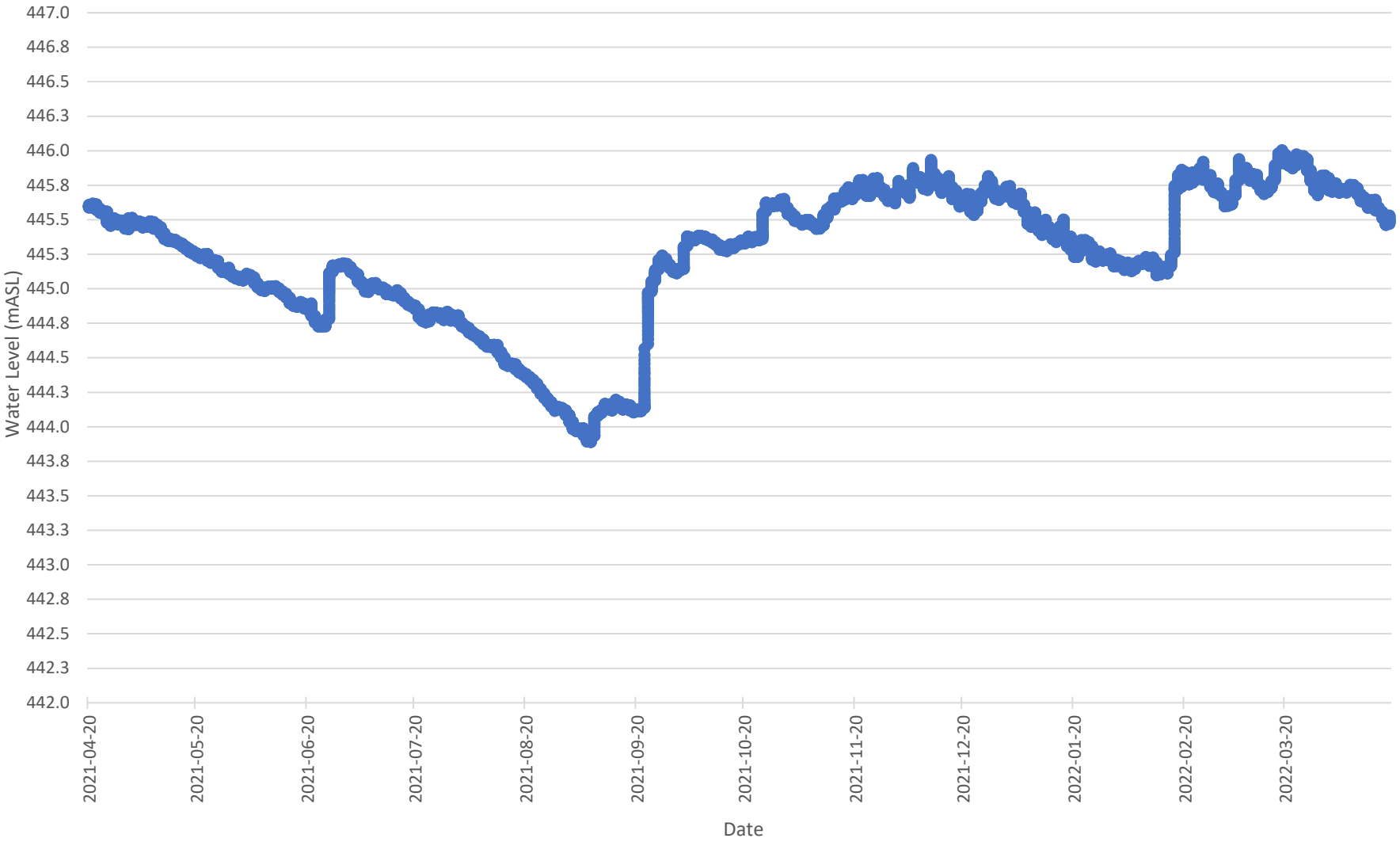
FIGURE 6
BH 03-20 - GROUNDWATER ELEVATIONS
31 Church Street, Alma, Ontario



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