



August 15, 2022  
File No.: H22204

VED Homes  
c/o Mr. Scott J. Patterson  
Patterson Planning Consultants Inc.  
Kitchener, ON

Attention: Mr. Patterson

**Re:     Scoped Hydrogeological Assessment**  
**Proposed VED Development at Adelaide St, Arthur, Ontario**

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This letter presents a scoped hydrogeological assessment for the proposed VED residential development at Adelaide Street in Arthur, Ontario.

This assessment has been scoped to supplement the geotechnical investigation completed by CVD engineering and it is intended that this assessment be read in conjunction with the geotechnical investigation report (CVD, August 2022). The assessment summarizes the water table configuration and its seasonal fluctuation at the property, so that the basement elevations of the proposed townhouses are set an appropriate distance above the high water table.

### **Investigation Results**

The CVD geotechnical investigation included the installation of three monitoring wells, BH4, BH7 and BH9 (see CVD Geotech report and the attached Figure 1). These wells were monitored for water levels conducted on five (5) occasions from the end of April to the end of July 2022.

Table 1 (attached) presents the water level and elevation data as well as a hydrograph of the data during the monitoring period. As indicated in the table, the water table fell by approximately 0.7 to 1.0 m during the three months from early-spring to mid-summer.

Also attached to this letter is Figure 1, which presents interpreted “high” water table contours using the highest water levels measured from April 22, 2021. As indicated, the water table is sloped in a southerly direction at a gradient of about 0.015 m/m.

### **Water Table vs Basement Elevations**

K. Smart Associates have utilized the high water table contours from Figure 1 to design the elevations of the proposed residences to provide an appropriate offset distance between the high water table and the basement floor elevations.

On this basis, the basement off-sets have been designed to ensure there is no groundwater ingress of the basements in the future. As a result, only standard perimeter weeping tile and sump pump systems are recommended to handle any temporary surface water drainage that may reach the foundation level from time to time.

Should you have any questions regarding this assessment, please do not hesitate to contact us.

Yours truly,

**CHUNG & VANDER DOELEN ENGINEERING LTD.**



William (Sandy) Anderson, M.Sc., P.Eng.  
Senior Hydrogeologist and Engineer

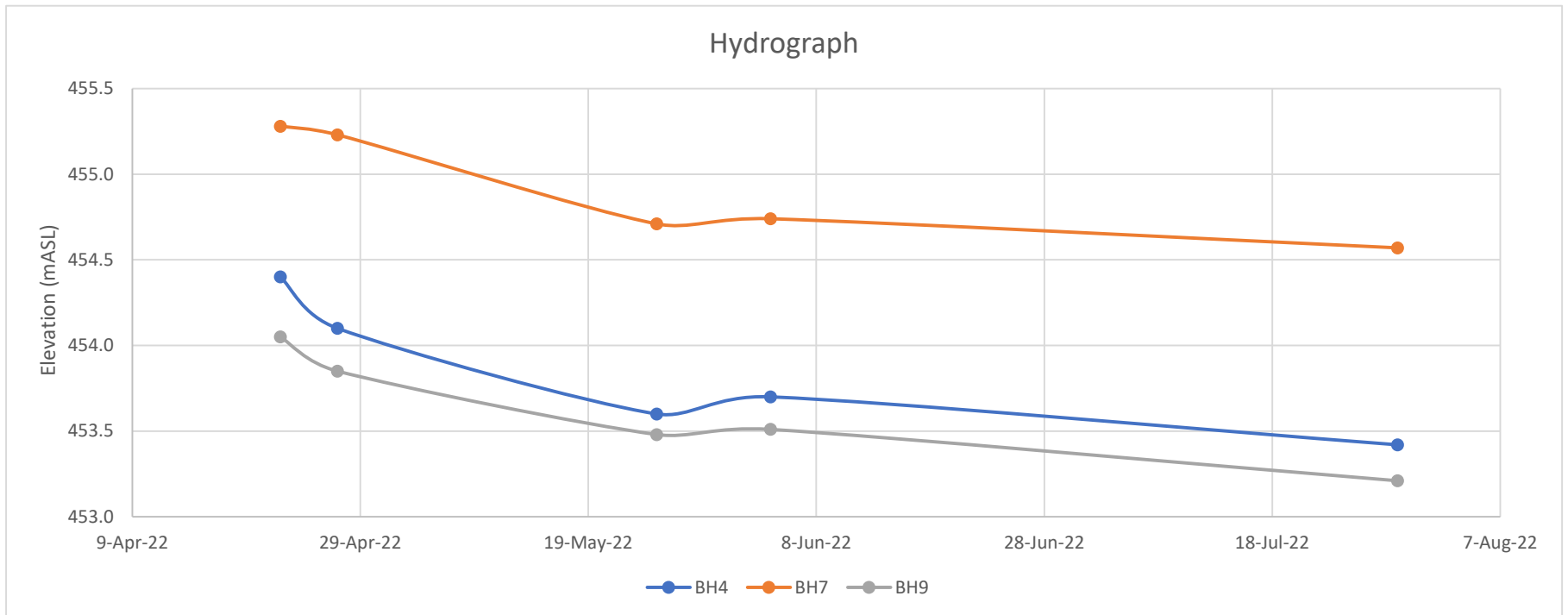


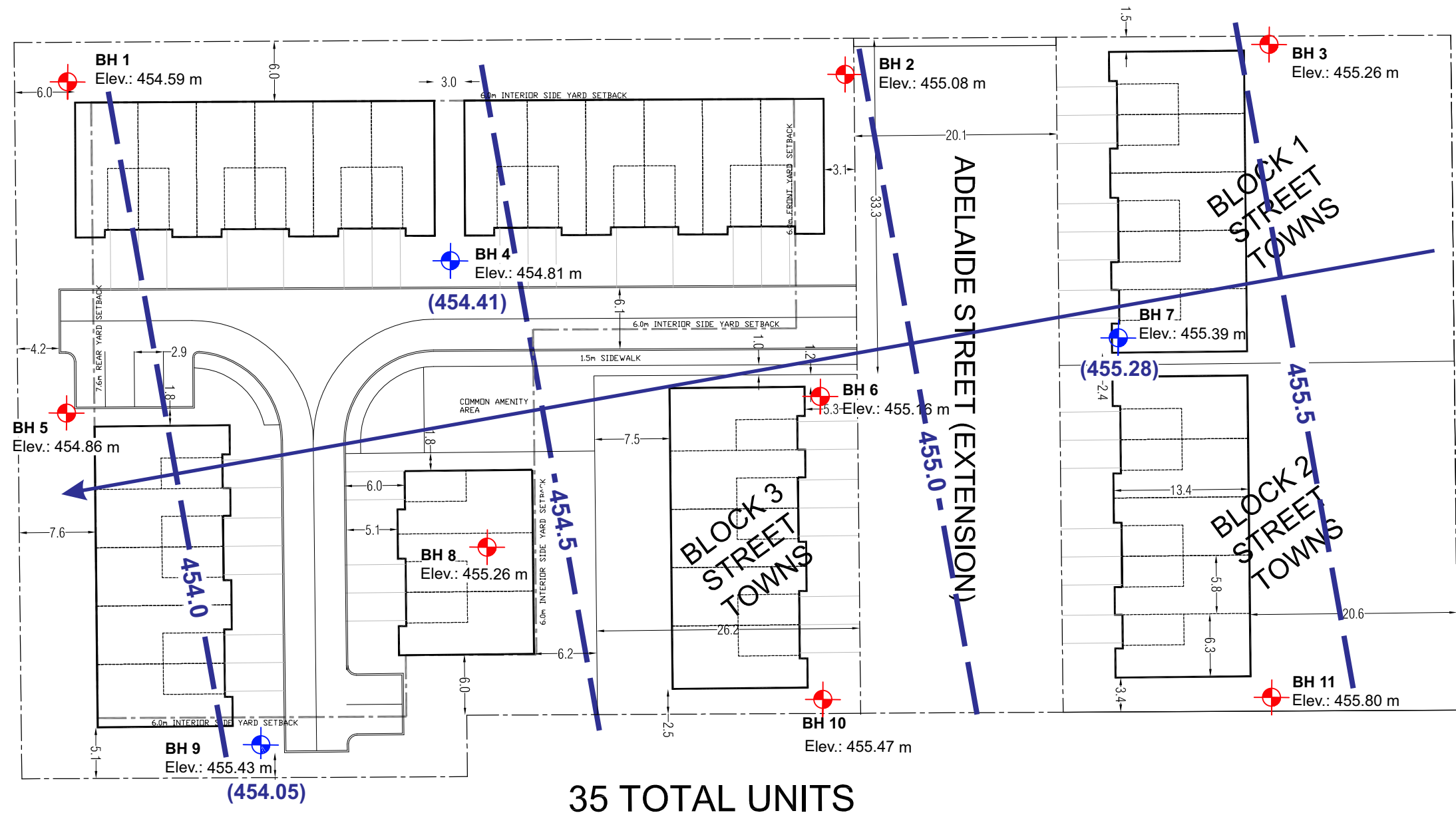
**Table 1 - Summary of Water Levels, Elevations & Fluctuations**

**Adelaide St., Arthur  
CVD Engineering - H22204**




Well	Ground Elevation (m ASL)	Top Pipe Elevation (m ASL)	Water Level (m Below Ground)					Water Elevation (m Above Sea Level)					Fluctuation Relative to April 22, 2022 (m)	
			22-Apr-22	27-Apr-22	25-May-22	4-Jun-22	29-Jul-22	22-Apr-22	27-Apr-22	25-May-22	4-Jun-22	29-Jul-22	25-May-22	29-Jul-22
BH4	454.81	455.77	0.41	0.71	1.21	1.11	1.39	454.40	454.10	453.60	453.70	453.42	-0.80	-0.98
BH7	455.39	456.15	0.11	0.16	0.68	0.65	0.82	455.28	455.23	454.71	454.74	454.57	-0.57	-0.71
BH9	455.43	456.45	1.38	1.58	1.95	1.92	2.22	454.05	453.85	453.48	453.51	453.21	-0.57	-0.84

- Notes: 1) All Elevations Referenced to Geodetic Survey  
 2) Negative Water Level Fluctuation is a Drop in Water Level from Initial



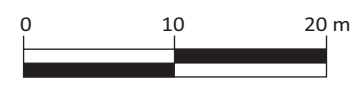


**LEGEND**

-  CVD Borehole with Monitoring Well
-  CVD Borehole (No Well)
- (277.19)** Water Table Level Elevation April 22, 2022 (mASL)
- 454.41 -** Interpreted Water Table Contour (mASL)
-  Interpreted Shallow Groundwater Flow Direction



Baseplan: Patterson Planning Consultants Inc.



**Figure 1**  
Spring Water Table Contour (Apr 22 2022)

Hydrogeological Investigation  
Adelaide St Development  
Arthur, Ontario

