THORNHILL GROUP, INC.

Professional Hydrogeologists • Water Resources Specialists

June 13, 2023

Mr. Alan M. Day, General Manager
Brazos Valley Groundwater Conservation District
112 West 3rd Street
Hearne, Texas 77859

Re: Supplemental Information for High Timber Resources Permit Applications – Responses to Questions/Comments from District Consultants

Dear Mr. Day:

Thornhill Group, Inc. (TGI) received from you on June 5, 2023 the e-mailed transmittal of questions and comments from Ground Water Consultants (GWC) and Advanced Groundwater Solutions (AGS) regarding the High Timber Resources Aquifer Evaluation Report that TGI prepared and is dated February 10, 2023. This letter provides our responses to those questions and comments.

Note that the report was primarily prepared by Mr. Wesley Bluvstein, P.G. and was signed and sealed by him as a professional geoscientist licensed in Texas. Mr. Bluvstein is no longer with our firm. Therefore, the responses are prepared and submitted by Mr. Eric Seeger, P.G. and me. The GWC/AGS comments are provided below followed by our responses. In-text tables are provided within this letter under the comment in which they are addressed. Otherwise, applicable tables, maps, and other information are provided in the Attachment section to this letter.

GWC/AGS Questions and Comments and TGI Responses

1. *Table 2 does not provide information on all of the wells screening sands of the Simsboro Aquifer located within one mile of the proposed wells as shown on Figures 2 and 2-A. Please add the missing wells to Table 2.*

   Table 2 has been corrected and the missing wells have been added (see Attachment).

2. *A geophysical log that is located about 2,000 feet south of High Timber 6 was mentioned on Page 4 of 8, please provide the owner/company, API number, and/or other information to identify the geophysical log.*

   Mr. Bluvstein has not responded to our communications to ask for the identification of the geophysical log mentioned on Page 4 of 8 and TGI was not able to locate the log in the files. There are several geophysical logs about a half mile to mile east of Hightimber_4 that were part of the BRACS study conducted in the region (Well IDs 22413, 92159, 68826, 68835, 68850, and 68849).

3. *What GAM stress period/year are the extracted GAM heads from in the table on Page 5 of 8 of the Aquifer Evaluation Report?*

   TGI does not know which GAM stress period Mr. Bluvstein used for the water-level elevations in the referenced table on Page 5 of 8 of the Aquifer Evaluation Report. TGI believes that monitored water levels provide a more accurate basis for the evaluations. Therefore, we have replaced the table on Page 5 of 8 with the table below which utilizes measured water levels from the most recent (i.e., 2023) available measurements in the BVGCD dataset. The water-level elevations are rounded as these are estimated values at each of the proposed High Timber well sites.

Well Identification	Estimated Water Level Elevation (ft AMSL)	Simsboro Top (ft AMSL)	Artesian Head (ft)
Hightimber_1	180	182	-2
Hightimber_2	180	180	0
Hightimber_3	180	120	40
Hightimber_4	180	120	40
Hightimber_5	200	23	177
Hightimber_6	200	110	90

Notes: Estimated water level elevation is based on the depth to water level reported on the BVGCD Groundwater Map for surrounding monitoring wells completed in the Simsboro aquifer.

Plate 28 from the University of Texas Bureau of Economic Geology (BEG) report titled *The Wilcox Group and Carrizo Sand (Paleogene) in East-Central Texas: Depositional Systems and Deep-Basin Lignite* shows the overburden above the Simsboro is between 300 to 350 feet BGL across the subject properties. Using the estimated depth from the BEG report, the estimated artesian head ranges from about 140 to 200 feet.

4. *Please discuss and provide support for the 1-year and 10-year storage coefficients shown in the table shown on page 7 of 8 of the Aquifer Evaluation Report.*

   TGI has reviewed the assumption used by Mr. Bluvstein regarding the 1-year and 10-year storage coefficients for analytical modeling. We have re-done the analytical calculations per TGI's previous methodologies and revised storage coefficients to reflect artesian conditions during the 1-year period (i.e., 0.0001) and leaky artesian conditions during the 10-year period (i.e., 0.001). Additionally, TGI used a transmissivity of 50,000 gpd/ft for all proposed wells.

   High Timber is reasonably close to the Walnut Creek Mine where TGI conducted a 45-day pumping test and monitored numerous wells within and near the Simsboro outcrop. The storage coefficient increased to 0.00238 within 45 days. Therefore, we believe that the revised analytical modeling utilizing a storage coefficient of 0.001 for 10 years is considerably conservative. Please replace the applicable table on Page 7 of 8 in the Aquifer Evaluation Report with the table below:

Well Identification	Transmissivity (gpd/ft)	1-Year Storage Coefficient	10-Year Storage Coefficient
Hightimber_1	50,000	0.0001	0.001
Hightimber_2	50,000	0.0001	0.001
Hightimber_3	50,000	0.0001	0.001
Hightimber_4	50,000	0.0001	0.001
Hightimber_5	50,000	0.0001	0.001
Hightimber_6	50,000	0.0001	0.001

5. *Please check the 1-year and 10-year analytical modeling results shown in the table on Page 7 of 8 of the TGI Aquifer Evaluation Report. Some drawdown values shown in the table on Page 7 of the TGI report are not in agreement with the contours shown on Figures 7 and 8 in the TGI Aquifer Evaluation Report.*

   Per Item No. 4 above, TGI revised the storage coefficient and transmissivity values and re-run the analytical calculations and revised the contour maps accordingly. TGI has submitted corrections as noted in Item 5.a. below.

   a. *We were able to generally recreate the 1-year and 10-year analytical model results for most of the wells shown on Table 1 of the Aquifer Evaluation Report; however, there are large differences between the simulated drawdown results at the High Timber wells shown in the table on Page 7 of 8 of the TGI Aquifer Evaluation Report and the results obtained during the AGS analytical modeling verification simulations. AGS*

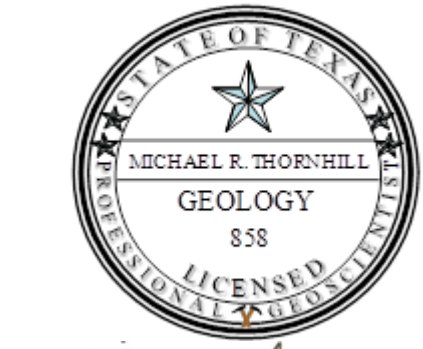
used the High Timber well production rates and aquifer properties outlined in the Aquifer Evaluation Report to estimate drawdown values at 1-foot from the well(s). Please elaborate on the TGI methodology, if different from the above, used to estimate the analytical model results at the High Timber wells shown in the table on Page 7 of 8 of the TGI Aquifer Evaluation Report.

Per Item No. 4 and Item No. 5 above, TGI re-constructed the analytical calculations in accordance with the methodology used in our previous reports submitted to BVGCD. We have re-drawn the drawdown maps and corrected the tabulation. Please replace Figure 7 and Figure 8 in the original Aquifer Evaluation Report with Figure 7 (Revised) and Figure 8 (Revised), respectively. Also, please replace the table on Page 7 of 8 of the original Aquifer Evaluation Report with the tabulation below.

Well Identification	1-Year GAM Drawdown (ft)	10-Year GAM Drawdown (ft)	1-Year Analytical Drawdown (ft)	10-Year Analytical Drawdown (ft)
Hightimber_1	21	66	118	118
Hightimber_2	26	69	123	123
Hightimber_3	34	67	125	125
Hightimber_4	39	64	127	127
Hightimber_5	35	54	109	109
Hightimber_6	30	49	110	110

Additional to the comments by GWC and AGS, TGI noted on page 7 of 8 of the Aquifer Evaluation Report that Mr. Bluvstein noted that some High Timber wells "…may progress to unconfined conditions under these modeling scenarios." Mr. Bluvstein also noted, "…the possibility of abstraction of water from storage is introduced at longer time frames…" Basic hydrogeology dictates that (as Mr. Theis wrote) all pumped water is derived from storage. Mr. Bluvstein was noting that some pumping water levels could fall below the top of the uppermost Simsboro sands. Note that TGI will advise High Timber and selected drillers to complete wells such that uppermost sands are not screened to prevent physical conditions in the well related to drawing the water level below the top of the screen. Otherwise, the overall reduction in storage from the Simsboro Aquifer will still be infinitesimally small. Pumping under water-table conditions in some wells will serve as a "recharge" or "positive" boundary such that the rate and magnitude of drawdown will slow (as compared to artesian conditions).

If you have any questions, please feel free to contact me or Mr. Eric Seeger directly at (512) 244-2172.



The seal appearing on this document was authorized by Michael R. Thornhill, P.G. on June 13, 2023.

Sincerely,
THORNHILL GROUP, INC.

Michael R. Thornhill, P.G.
President

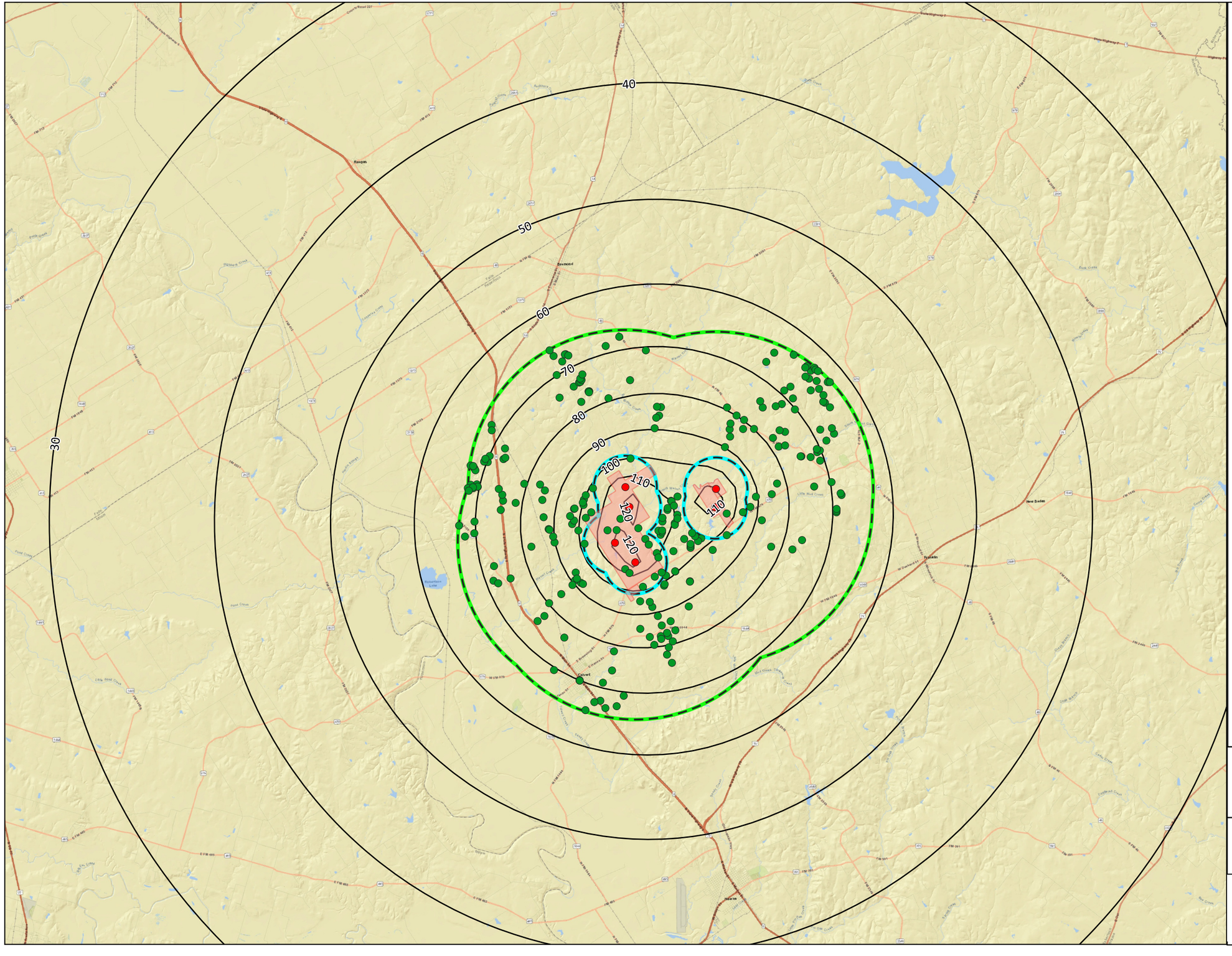
Attachments

cc: Mr. Ed McCarthy, McCarthy & McCarthy LLP
Mr. and Mrs. Ty Rampy, High Timber Resources, LP

Attachment 1 –
Table and Figures

Table 2. Registered/Permitted Simsboro Wells Within a One-Mile Radius - Revised 06/13/2023

Registration or Permit Number	Latitude	Longitude	Name of Well	Owner	Well Depth feet	Casing Diameter Inches	Casing Depth feet BGL	Screen Diameter Inches	Screen Depth ft BGL	Aquifer
BVOP-0017	31.044772	-96.655079	Well #1	Rampy, Ty	600	12	Unknown	Unknown	Unknown	Simsboro
BVOP-0018	31.049889	-96.647972	Well #2	Rampy, Ty	585	10 3/4 & 6 5/8	490	6	485 - 585	Simsboro
BVR-0073	31.018133	-96.637100	Well #1	Gaas, Ronnie & Cathy	380	4, 2 & 2 1/2	+1 - 340 329 - 350 370 - 380	2 1/2	350 - 370	Simsboro
BVR-0565	31.044755	-96.650166	Pasture Well #6	Rampy, Ty	351	4 & 2	+1 - 320 304 - 325 345 - 351	2 1/2	325 - 345	Simsboro
BVR-0644	31.022643	-96.630527	Lastor - Domestic	Lastor, Lillian	480	4 & 2	0 - 320 320 - 460	2	460 - 480	Simsboro
BVR-1005	31.050677	-96.590888	Strip Well	Rampy, Ty	520	4 & 2	+1 - 480 453 - 495 515 - 520	2 1/2	495 - 515	Simsboro
BVR-1006	31.026580	-96.646252	Old Barn Well	Rampy, Ty	400	4	Unknown	Unknown	Unknown	Simsboro
BVR-1012	31.024717	-96.644026	House Well	Rampy, Ty	390	4 & 2	+1 - 340 329 - 350 370 - 390	2	350 - 370	Simsboro
BVR-3051	31.033381	-96.629075	Well #1	Wallace, John M.	400	4 & 2	+1 - 360 328 - 370 390 - 400	2 1/2	370 -390	Simsboro
BVR-3078	31.040647	-96.591199	Unknown	Lutz Sustaire, Mark K.	520	4 & 2	+1 - 470 448 - 490 510 - 520	2 1/2	490 - 510	Simsboro
BVR-4462	31.077554	-96.641492	Unknown	Lawrence, Betty	300	4 & 2	0 - 260 255 - 269 279 - 300	2	269 - 279	Simsboro
BVR-3007	31.045264	-96.638541	Well #1	Ward, True	360	4 & 2	+1 - 320 309 - 330 350 - 360	2 1/2	330 - 350	Simsboro
BVR-0531	31.040194	-96.634999	Well #2	Ward, True	341	4 & 2	+1 - 310 300 - 321	2 1/2	321 - 341	Simsboro
BVR-3050	31.037537	-96.633212	Unknown	Hodges, Jerry	380	4 & 2	+1 - 340 329 - 350 370 - 380	2 1/2	350 - 370	Simsboro
BVR-3004	31.038897	-96.667651	Well #2	Gaas, Ronnie & Cathy	400	4 & 2	+1 - 320 307 - 370 390 - 400	2 1/2	370 - 390	Simsboro
BVR-4322	31.031439	-96.628308	Well #1	Unkown	Unknown	Unknown	Unknown	Unknown	Unknown	Simsboro
BVR-4545	31.024475	-96.628251	Well #2	XTO Energy	440	4	0 - 340	4	340 - 440	Simsboro
BVR-4326	31.051043	-96.582161	Unknown	Unkown	Unknown	Unknown	Unknown	Unknown	Unknown	Simsboro



Explanation

- BVGCD Reported Well Completed in the Simsboro and W/in 5 Miles
- Proposed High Timber Well
- 1-Yr Modeled Drawdown Contour Interval = 10 feet
- 1 Mile Radius from Well Locations
- 5 Mile Radius from Well Locations
- High Timber Property Boundary

0 3 6 mi

High Timber Resources, LLC

Revised Figure 7:
1-Year Analytical Drawdown

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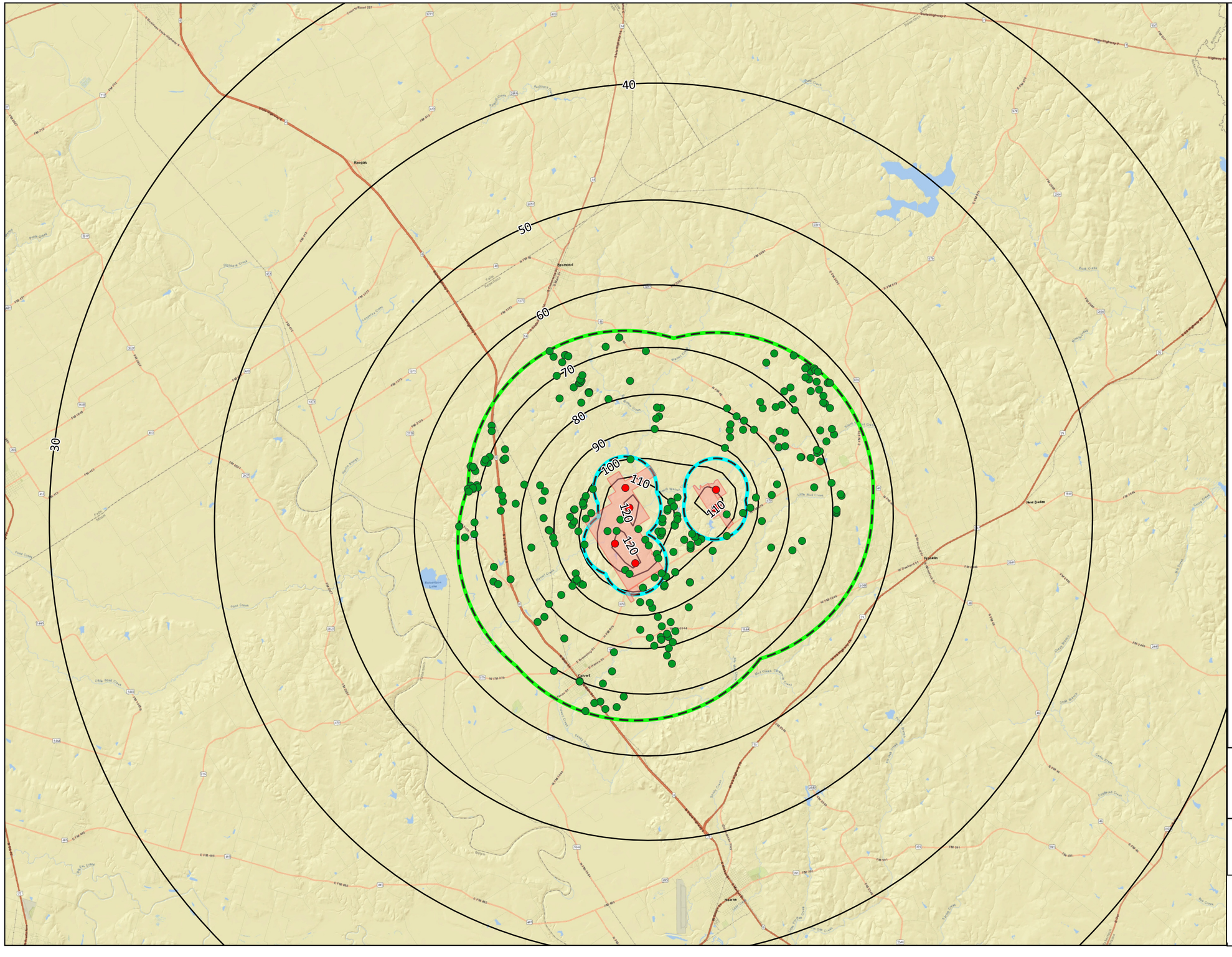

Explanation

- BVGCD Reported Well Completed in the Simsboro and W/in 5 Miles
- Proposed High Timber Well
- 10-Yr Modeled Drawdown Contour Interval = 10 feet
- 1 Mile Radius from Well Locations
- 5 Mile Radius from Well Locations
- High Timber Property Boundary

0 3 6 mi

High Timber Resources, LLC

Revised Figure 8:
10-Year Analytical Drawdown

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