



Memorandum

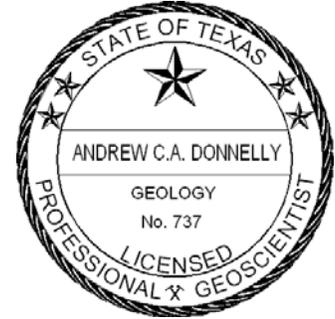
To: Jim Totten, General Manager
Lost Pines Groundwater Conservation District

From: Andrew Donnelly

Copy: Natasha Martin

Date: March 18, 2018

Subject: Review of Thomas Turf Grass Permit Application Packet



DBS&A has reviewed the operating permit application packet submitted by Thomas Turf Grass for a well located in Bastrop County. The well is located near the town of Paige, west the intersection of Highway 290 and Highway 21, as shown in Figure 1 below.

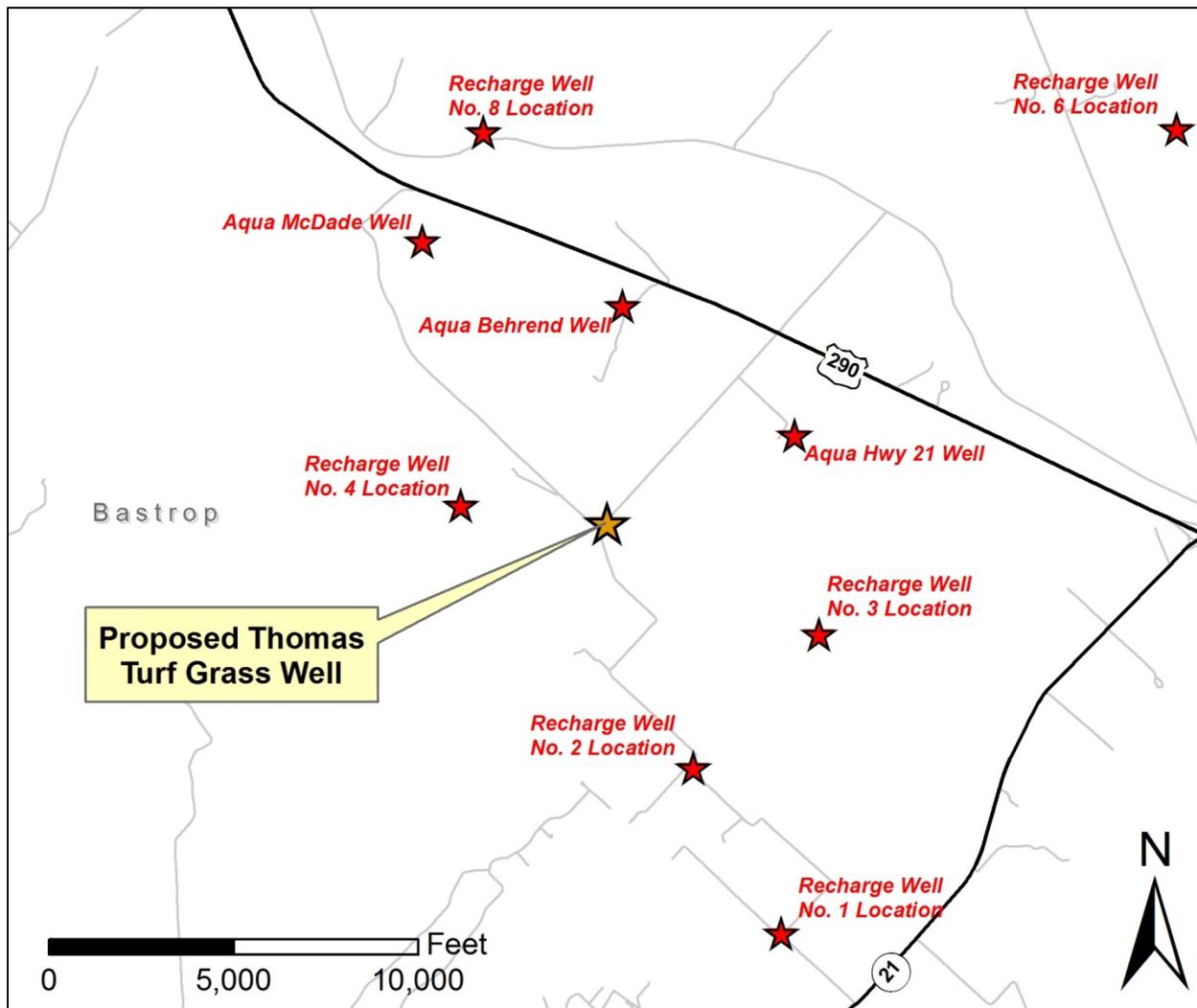


Figure 1. Location of proposed Thomas Turf Grass well.



The proposed well will produce from the Simsboro Aquifer. As shown in Figure 1, this well is located near several existing Simsboro Aquifer wells and near several proposed Simsboro Aquifer well locations in the pending Recharge (formerly End Op) permit application. The Thomas Turf Grass well is approximately 4,000 feet east of the Recharge Well No. 4 location, which is less than the spacing requirement for a well of this size. However, a spacing variance request addressing this issue has been received by the District and is under consideration. The proposed well is also within 10,000 feet of several Aqua wells and other proposed Recharge well locations, all of which also produce or will produce from the Simsboro Aquifer. However, there is no violation of spacing requirements related to these other wells.

The Central Queen City-Sparta Groundwater Availability Model (GAM) was run with the proposed pumpage of 2,200 acre-feet per year (ac-ft/yr) added in the model cell in which the proposed well is located. The results of this model run are shown in Figure 2, which illustrates that at the end of 50 years of continuous pumping, the project-specific drawdown due to the proposed Thomas Turf Grass well (i.e., drawdown caused by the pumpage from the well only) is approximately 40 feet at the well location. The model run indicates that the nearby Aqua wells may experience more than 30 feet of drawdown due to pumping from the proposed Thomas Turf Grass well, and many of the proposed Recharge well locations may experience a similar drawdown amount. These drawdown estimates are obtained using the GAM, which was developed to assess groundwater impacts on a regional basis. However, it is reasonable to conclude that the pumpage from the proposed Thomas Turf Grass well may result in tens of feet of drawdown in the nearby permitted wells and proposed permitted well locations.

This drawdown estimate is an approximation obtained using the regional-scale GAM, which may not account for local hydrogeologic conditions. The simulation results are provided in anticipation that they may be useful to the District Board. This model run was completed in the same manner as previous model runs for permit evaluations requested by the Board, so that a direct comparison to previous model runs can be made.

Required Application Items

All items required in an operating permit application are present in the application. As noted above, a variance for the well spacing has been requested by the Applicant.

Permit Review Items 2 and 8

(2) Whether the proposed use of water unreasonably affects existing groundwater and surface water resources or existing permit holders

The proposed production of 2,200 ac-ft/yr by Thomas Turf Grass from a well in Bastrop County will impact water levels in the Simsboro Aquifer in the District. Drawdowns estimated using the GAM are summarized in Table 1. As indicated in the table, the drawdown estimated to occur due to the proposed well is approximately six feet when averaged across the entire District. A map of well-specific drawdowns estimated using the GAM is shown in Figure 2. The proposed



Thomas Turf Grass well pumpage does not appear to unreasonably impact groundwater users in the District.

Table 1. Projected drawdown in 2060 from pumpage included in the Thomas Turf Grass well application

Pumpage	Drawdown (feet)		
	Bastrop County	Lee County	Lost Pines District Total
Thomas Turf Grass well pumpage only	7.5	4.0	5.9
Thomas Turf Grass well + anticipated production from existing LPGCD pumpage + permits	174	368	264

A quantitative evaluation of the impact of the proposed pumpage on surface water resources within the District is difficult to make. The only quantitative tool available for such a calculation is the GAM, which is not well suited to accurately evaluate impacts to surface water within the District attributable to this application. However, because the majority of the flow in the Colorado River is controlled by the release of water from the Highland Lakes, and because the amount of pumpage requested in this application is relatively small, the impacts from the proposed well on flow in the Colorado River is probably negligible.

(8) Whether granting the application is consistent with the District’s duty to manage total groundwater production on a long-term basis to achieve the applicable Desired Future Condition

The average estimated drawdown due to production from this well is approximately six feet when averaged across the entire District. The production from the proposed well combined with existing sources of groundwater production, including newly approved permits in the District, and groundwater production outside of the District (as modeled in the final Groundwater Management Area 12 GAM run) is estimated to cause 264 feet of drawdown in the Simsboro Aquifer, which is greater than the desired future condition (DFC) for the Simsboro Aquifer in the District of 240 feet.

The total Managed Available Groundwater (MAG) for the Simsboro Aquifer in the District is 29,556 ac-ft/yr in 2010 and 37,249 ac-ft/yr in 2060. The total permitted pumpage in the Simsboro Aquifer is currently 89,021 ac-ft/yr. The estimated recent production under these permits has only been about 13,000 to 17,000 ac-ft/yr, so there currently appears to be capacity under the MAG to approve the production requested in this application.

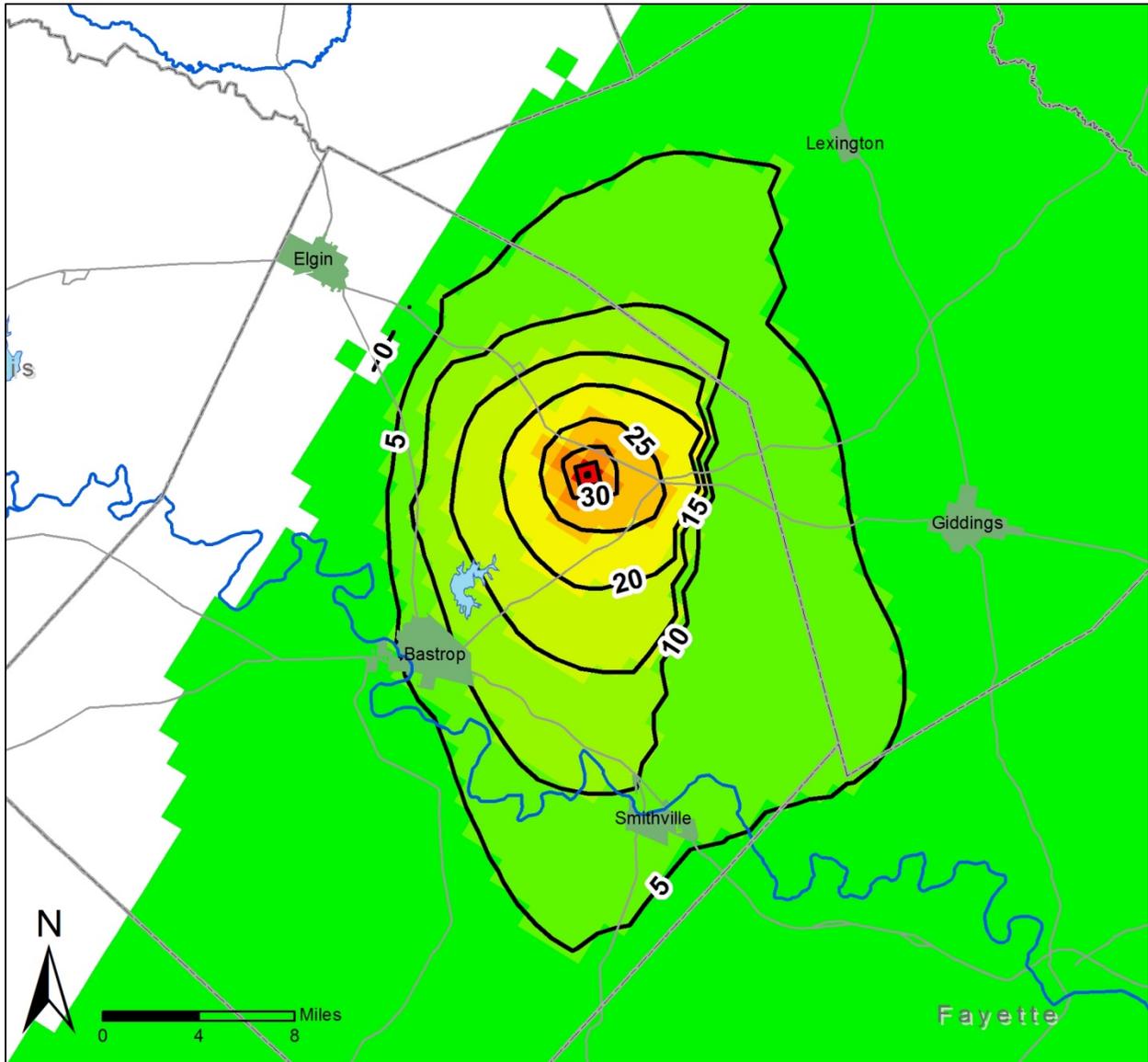


Figure 2. Project-specific 50-year drawdown (in feet) in the Simsboro Aquifer attributable to the proposed Thomas Turf Grass pumpage estimated by the GAM



The District's duty to manage total groundwater production on a long-term basis to achieve the DFC will be based on a monitoring network that will be developed for each aquifer for which a DFC has been established. The District's intended approach is to diligently monitor the drawdown within the Simsboro Aquifer across the entire District and manage (i.e., reduce) groundwater production when and if information from the monitoring network indicates that the DFC may be exceeded. If water levels in the Simsboro Aquifer monitoring network indicate the potential for the DFC to be exceeded, then the District's approach is to cut back production for all permitted users. This approach is consistent with the requirement that the DFC be achieved.

Summary

The application for the proposed Thomas Turf Grass well is for a total of 2,200 ac-ft/yr from the Simsboro Aquifer in Bastrop County. The application includes all of the technical items required by the District.

A model run was done to simulate the impact of the proposed pumpage on the aquifer using the same assumptions as those applied in previous permit evaluations requested by the District Board. The simulated impact of the proposed well is approximately six feet of drawdown in the Simsboro Aquifer averaged across the District. The total drawdown in the Simsboro Aquifer with the proposed Thomas Turf Grass production is 264 feet, which is greater than the DFC for the Simsboro Aquifer within the District.