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September 7, 2018

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TEXAS
COMMISSION
ON ENVIRONMENTAL
QUALITY

Ms. Bridget C. Bohac, Chief Clerk
Office of the Chief Clerk (MC 105)
Texas Commission on Environmental Quality
PO Box 13087
Austin, Texas 78711-3087

Re: TCEQ Municipal Wastewater Discharge Draft Permit Number WQ0015688001

Dear Ms. Bohac:

The Texas Parks and Wildlife Department (TPWD) appreciates the opportunity to provide comment on the proposed new municipal wastewater discharge permit for the Silesia Properties, LLC's proposed new wastewater treatment plant (Permit No. WQ0015688001). TPWD is the agency with primary responsibility for protecting the state's fish and wildlife resources (Texas Parks and Wildlife Code §12.0011(a)). Furthermore, we are charged with providing information on fish and wildlife resources to any local, state, and federal agencies or private organizations that make decisions affecting those resources (Texas Parks and Wildlife Code §12.0011(b)(3)).

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, please see Texas Parks and Wildlife Code Section 12.0011.

TPWD has reviewed the pending Texas Pollutant Discharge Elimination System (TPDES) wastewater discharge permit application for Silesia Properties, LLC to discharge treated wastewater at a volume not to exceed an annual average flow of 500,000 gallons per day via a pipe from the plant site to a dry tributary, thence to Honey Creek (Segment 1427).

TPWD has several interests very closely tied to this proposed discharge. First, Honey Creek is a unique, pristine waterbody with exceptional aquatic life use, and the proposed increase in nutrients to a nutrient-sensitive watershed could alter the trophic nature of the creek, which in turn could impact aquatic life and the broader ecosystem of the watershed. Second, the proposed discharge could adversely affect state-threatened and federally-petitioned endangered species present in the watershed. Last, and certainly not least, TPWD owns and manages the adjacent Honey Creek State Natural Area, through which the proposed discharge would flow.

Background on Honey Creek State Natural Area

Honey Creek State Natural Area (HCSNA) is 2,293.7 acres located on the northern border and topographically down gradient of the proposed Honey Creek Ranch development. The area, once a ranch, was acquired by The Nature Conservancy (TNC) in 1980. TPWD purchased the property in 1985 from TNC to conserve its biologically unique and distinct ecological features. Since that time the HCSNA has been managed to preserve those intrinsic natural features and has been open for limited access for the sole purpose of science, education, nature, and aesthetic appreciation.

The HCSNA contains one of the most unique ecosystems in the state and has not only endured, but thrived, in its current condition for centuries. The surrounding landscape has historically been rural in nature with sparsely populated, single owner ranches, no direct discharges of wastewater, and negligible sources of non-point source pollution. TPWD has managed this property since 1985 to be an ecosystem in balance, to remain in its current state with the unique natural pressures that affect it. Such natural phenomena as gaining and losing stream reaches due to the karst topography, flashy stream flows that occasionally flood these canyons and disperse organisms from the upper stream segments and subsurface hyporheic zones to downstream isolated pools have created an ecosystem containing very unique and sensitive species that have adapted over centuries to these conditions.

Hydrology

The HCSNA falls within the Middle Trinity (Glen Rose Formation) aquifer which forms the contributing zone of the Edwards Aquifer. The ecosystem of HCSNA is very unique with numerous springs, seeps, caves, and sinks in the karst limestone of the Glen Rose formation that forms the channel substrate and canyon walls in Honey Creek. The dominant flow of Honey Creek originates from Honey Creek Cave which is just off the HCSNA property. Honey Creek Cave is the longest known cave in Texas, surveyed at almost 20 miles in length, and contains active streams that discharge to the surface through springs. The potential for infiltration to the cave and its surrounding features from surface flows is of great concern. Honey Creek has been shown to be both a losing and gaining stream recharging the Lower Glen Rose units of the Middle Trinity Aquifer. The Trinity Aquifer is the principle aquifer in Comal County and is the source of water for rural landowners and municipalities in the county.

There is also growing evidence that hydraulic connections between the Edwards and the Trinity aquifers are more significant than previously believed (TPWD, 2000). Recent studies by the Edwards Aquifer Authority have shown significant interconnectivity between the Trinity and Edwards aquifers, with varying degrees of connectivity. Therefore, concerns exist regarding the potential for wastewater to enter the Middle Trinity Aquifer and migrate to the Edwards Aquifer as interformational flow. Similar concerns exist regarding the discharge of effluent into surface waters of the Edwards Aquifer Contributing Zone (EACZ).

Research shows that pollutants in surface waters that flow across the landscape in the EACZ flow to the recharge portion of the aquifer and contribute directly to the water quality of the Edwards Aquifer with little to no attenuation. The state has a regulatory structure in place called the Edwards Aquifer Protection Program to protect the highly vulnerable Edwards Aquifer from development impacts. In the contributing zone of the aquifer, a plan is required to address potential impacts to water quality called a Contributing Zone Plan (CZP) to ensure aquifer water quality does not significantly degrade. TPWD understands a CZP, to include a Storm Water Pollution Prevention Plan, will be required for this development and requests a final copy of the approved plan prior to commencement of construction. In addition, due to the many springs, sinks, and caves in this watershed, TPWD requests a survey of the discharge route and adjacent floodplain be performed of these sensitive features to better understand the surface water and ground water interactions in this watershed.

Water Quality

Honey Creek currently exhibits excellent water quality and is considered an oligotrophic stream with very low natural nutrient levels. Increased nutrients, such as nitrogen and phosphorous, in aquatic systems often lead to increased algal biomass, decreased aesthetics, and decreased dissolved oxygen levels which in turn alters the trophic state of the stream from most pristine (oligotrophic) to heavily enriched with nutrients (eutrophic). This change in trophic status is called eutrophication and has profound consequences to a stream like Honey Creek which is currently in balance with its nutrient load. As streams become more eutrophic due to increasing nutrients, algae and nuisance aquatic macrophytes respond with excessive growth resulting in algae blooms and stream channels choked with aquatic plant growth. This increase in biomass is also correlated with larger swings in diurnal dissolved oxygen regimes which in turn can lead to fish kills and alteration of the native biological community. An increase in nuisance plant and algae blooms also affects the aesthetic nature of the stream by creating unpleasing conditions especially during the warmer summer months. Phosphorus is the limiting nutrient in most Hill Country streams including Honey Creek.

Due to the sensitive nature of the Honey Creek watershed and to ensure no effluent ever reaches the creek, rather than a traditional TPDES permit, TPWD recommends the applicant amend or withdraw its application to instead pursue a Texas Land Application Permit (TLAP) with the below-referenced nutrient limits as well as a provision for wastewater re-use as specified in Title 30 of the Texas Administrative Code, Chapter 210 with corresponding requirements for storage of the wastewater during times when irrigation is not possible. These permits would allow the developer to designate a portion of the property for regular surface irrigation as well as the option to use the effluent in other areas of the property as the need arises. It would also eliminate the concern for wastewater ever being permitted to flow to Honey Creek.

If this permit is issued under the TPDES program, TPWD understands Silesia Properties plans to seek authorization from TCEQ for Chapter 210 re-use authorization to use the effluent from this wastewater treatment system to water landscaping within the development with corresponding requirements for storage of the wastewater during times when irrigation is impossible. The TCEQ has previously set a precedent in another Hill Country stream (Onion Creek, Segment 1427) by the issuance of the Hays County WCID No. 1 permit (WQ0014293001), also known as the "Belterra permit." The Belterra permit discharges to a tributary of Onion Creek and sets effluent limits of 5 mg/L Carbonaceous Biochemical Oxygen Demand (CBOD), 5 mg/L Total Suspended Solids (TSS), 2 mg/L Ammonia Nitrogen, 0.15 mg/l Total Phosphorus (TP), and 6 mg/l Total Nitrogen (TN). The effluent limits set in the Belterra permit are similar to the limits proposed in the permit in question in this letter with the exception of TP and TN which are lacking in the permit application. TPWD strongly recommends this permit receive the same effluent limits as the Belterra permit and that TP and TN limits be added to this application as well.

In addition, the applicant currently proposes a 1.0 mg/L dissolved oxygen limit. It is the belief of TPWD that the aquatic life use, especially of invertebrates, of Honey Creek is exceptional with a high number and diversity of organisms which would warrant a more protective dissolved oxygen limit of 6.0 mg/L. While the upper portion of Honey Creek is

intermittent, the surface water/ground water connectivity is not clearly understood in these upper reaches as there are places where water is flowing just below the surface of the substrate and appears and disappears regularly throughout a given reach. A dissolved oxygen 6.0 mg/L effluent limit would be the most protective of sensitive species in the watershed.

The application currently states that chlorination will be the disinfection method employed by this treatment plant. Chlorine is particularly toxic to sensitive organisms, especially invertebrates. For this reason, TPWD requests the applicant use ultraviolet disinfection to avoid potential impacts to aquatic life from residual chlorine as treatment plants of this size are not required to de-chlorinate their effluent prior to discharge.

Species at Risk

The Honey Creek watershed provides habitat to several TPWD-designated Species of Greatest Conservation Need (SGCN). Native animals or plants designated as a SGCN are generally those that are declining or rare and in need of attention to recover or to prevent the need to list under state or federal regulation. These species are the focus of TPWD's Texas Conservation Action Plan and guide TPWD's nongame conservation efforts. Two species in particular, the Cascade Caverns Salamander (*Eurycea latitans*) and Comal Blind Salamander (*Eurycea tridentifera*), are listed as state threatened species, and the Cascade Caverns Salamander has been petitioned to be listed as federally endangered species under the Endangered Species Act (Federal Registry, 2015; Center for Biological Diversity, 2012). In addition, there are seven species of invertebrates that have SGCN status. There are also two state-listed mussels in Guadalupe River downstream of confluence with Honey Creek, Texas Pimpleback (*Quadrula petrina*) and Golden Orb (*Quadrula aurea*). Water quality permit limits associated with this permit should be protective of this important habitat, which is of significant ecological importance to the area and the state as a whole. Due to the sensitive nature of the organisms that exist in the Honey Creek watershed TPWD requests that the applicant conduct regular biomonitoring of the effluent to ensure there are no toxic effects to these most sensitive organisms.

General Issues

In Section 10.B (page 9 of 20) of the application, the specified outfall location does not use standard latitude and longitude coordinates and therefore cannot be identified accurately on a map. TPWD requests these coordinates be made available in standard decimal degrees and corrected in the application.

TPWD also has several concerns beyond the scope of this TPDES permit application that warrant public comment. Storm water runoff both during and post-construction could adversely affect Honey Creek. Impervious cover and the potential for nonpoint source pollution from the density associated with this development especially during high flow events, poses an enormous risk to the sensitive HCSNA whether it be from trash pollution, nutrient and pesticide runoff from fertilized lawns, and pet waste, etc. As development encroaches into this watershed, the natural processes of Honey Creek may be affected. Increased and more persistent flows carrying pollutants from human activity beyond what is contained in wastewater effluent will undoubtedly affect this delicate balance within the watershed. In addition, human density in the adjacent areas will undoubtedly bring

trespassing and possible vandalism to this pristine watershed regardless of posted signage or fencing type.

While these concerns are not particular to this permit application, we feel it is important to bring them to TCEQ's and the applicant's attention. It is our sincere hope that the applicant continues to work with TPWD on various issues throughout this property's development.

Summary of Requests

- Provide a final copy of the approved CZP and Storm Water Pollution Prevention Plan prior to commencement of construction
- Pursue a Texas Land Application Permit keeping the proposed nutrient limits and adding a Total Phosphorus limit of 0.15 mg/L and Total Nitrogen limit of 6 mg/L
- Seek provision for wastewater re-use as specified in Title 30 of the Texas Administrative Code, Chapter 210 with corresponding requirements for storage of the wastewater during times when irrigation is impossible
- Switch the disinfection method from chlorine contact to ultraviolet disinfection to avoid potential impacts to aquatic life from residual chlorine
- Conduct biomonitoring of effluent to ensure no acute or chronic toxicity effects are seen in sensitive organisms found in Honey Creek
- The coordinates currently expressed in the application should be corrected to standard decimal degrees and accurately reflected in the application
- Provide a thorough plan of how storm water will be managed to prevent runoff to properties down gradient from the development location both during and post-construction
- Provide detailed plan on how unauthorized access to the HCSNA will be prevented and monitored including details of fencing and signage

TPWD respectfully requests that these comments be considered during the technical review of the proposed permit application. As the steward of the adjoining State Natural Area and the property most potentially impacted from this proposed permit, TPWD is deeply interested and vested in the ultimate decision by the TCEQ on this matter. We appreciate the opportunity to offer comment and look forward to working with TCEQ, the applicant, and other stakeholders on this matter. If you have questions or need more information, please contact Anne Rogers Harrison with TPWD's Water Quality Program at anne.rogers@tpwd.texas.gov or (512) 389-8687. Thank you.

Sincerely,



Carter Smith
Executive Director

CS:AR:dh

cc: Ms. Cindy Loeffler
Mr. James Murphy
Mr. Marty Kelly
Mr. Remington Burkland

Ms. Bridget C. Bohac, Chief Clerk
September 7, 2018
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References

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Resource Management Plan. Prepared by George Kegley for the Cultural and Natural Resources Program, TPWD. Austin.



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